

UNIVERSITY OF THE WESTERN CAPE



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Economic and Management Sciences (EMS)

School of Government (SOG)

TITLE: Exploring plausible futures and its implications for the governance of local food systems using local actors' expertise in the Witzenberg region.

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September 2019

DECLARATION

I, the undersigned, hereby declare that this mini-thesis entitled: Exploring plausible futures and its implications for the governance of local food systems using local actors' expertise in the Witzenberg region is my own work, that it has not been submitted for any degree or examination to any other University, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

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Acknowledgements

I would like to express my sincere gratitude towards my supervisors, Prof. Isioma Ile and Prof. Bruno Losch for their support and guidance during this endeavour. Bruno, I would like to thank you for giving me your unwavering support regardless of where you were in the world. Thank you for sharing your wisdom and pushing me to my limits to see this through.

I would also like to thank and acknowledge Prof. Leon Pretorius for your endless support, encouragement and guidance which started from my undergraduate years to where I am now. I would not have made it this far without you. To my mother, Valmarie Haywood, I cannot thank you enough for everything you've done to help me get this far. To my father, William Haywood, thank you for challenging me to always be a better version of myself. I would like to give a special thank you to my partner, Dr. Che Le Roux, you have seen me go through all the motions of this process and you have been by my side every single day. Thank you. Additionally, I would like to thank Peter Le Roux and Avril Le Roux for your constant prayers and encouragement and also allowing me to work in peace and tranquillity in Suurbraak, I really appreciate it.

To all the staff at the School of Government, UWC, I would like to thank you for all the support and encouragement, with a special thanks to Bridgett Maart for your assistance and always keeping your door open to me.

I would also like to thank and acknowledge the National Research Foundation (NRF) for their financial assistance towards this research and note that the opinions expressed and conclusions arrived at in this research are those of the author and are not necessarily to be attributed to the NRF. I would like to thank the Centre of Excellence in Food Security for their support during my 2 years with them, with a special thanks to Dr. Camilla Adelle and Elaine Peterson for their support and guidance.

I would like to thank all the community members in Witzenberg who participated in the research, I would not have been able to do this without you sharing your lived experiences with us. Thank you for your words of encouragement and your kindness towards me. Lastly, I would like to thank SALGA Western Cape as well as the Witzenberg Municipality for your time and assistance during this process.

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Abstract

Despite having a significant agri-food sector, South Africa is faced with strong food security issues related to high inequalities and the legacy of the apartheid regime. The South African food system finds itself at risk of alienating the majority of its citizens from realizing their right to access food granted by the South African Constitution (1996) Section 27(1)(b). Increasing poverty, unemployment and poor governance are making it harder for ordinary South African citizens to put safe and nutritious food on the table. Part of the food security issue in South Africa is that there is an inefficiency in public policies. It can be explained by the extreme segmentation of public action between departments and also by the limitations and ineffectiveness of decentralization resulting in little to no involvement from local governments.

Like most socio-economic issues, the effects of food insecurity are first experienced on the ground at the local level where municipalities are at the forefront. The absence of effective policy around food security and food systems at the local level in South Africa leaves room for research on improved local food governance. Municipalities should be best suited to understand the consequences of food insecurity and could therefore use some of their constitutional mandate which provides some room for manoeuvre with regard to food issues. The aim of this study is to raise awareness of food security issues at the municipal level and to identify ways to facilitate engagement by municipalities. Its main objective was to adopt a foresight approach, using scenarios with local actors, and to understand how it can help improve the engagement of municipalities and citizens in the food security debate and take possible action. This research has made use of an existing collaboration between the Centre of Excellence in Food Security (CoE-FS) and the South African Local Government Association (SALGA) developed in the Western Cape. The collaboration focuses on the understanding of the food policy space in South Africa, the results of existing policies, and how the co-production of knowledge between stakeholders, notably at the local level, can contribute to policy improvement.

The pilot implemented in Witzenberg, using participatory foresight thinking made use of the Participatory Prospective Analysis (PPA) method which considers alternative futures through a rigorous chain of actions undertaken with the participation of local actors. This approach seeks to unpack and understand the numerous and diverse ways the future may unfold. As a result, this method helps to create scenarios through a collaboration of knowledge between actors who are able to direct their hopes, fears and expectations into multiple plausible futures based on a joint identification of main factors of change and drivers.

This process has shown that with limited means, food security issues can be discussed with local community members and put into perspective at the local level. This was done by building different future scenarios for the Witzenberg area which made it possible for the local actors to make sense of food related issues, which are a complex topic to explore, and how they can impact their future.

This process has shown that engaging with community members, using a foresight approach can yield interesting results. It helped to delineate various policy action which could improve food security and at the same time support local development.



CHAPTER 1 – INTRODUCTION

1.1 Positioning

South Africa is an upper middle income country with the biggest and the most diversified economy in Africa. Despite having a significant agri-food sector, the country is faced with strong food security issues related to high inequalities and the legacy of the apartheid regime. Since the early 1990's, towards the end of apartheid, South Africa's food environment started to change quickly due to the return and expansion of trade and foreign investment which had been limited by international embargo (Claasen et al.: 2016, Bell: 1993). This propelled the country into the standards of a globalized food system. The foreign investment relating to food contributed to the rapid development of low cost, ultra-processed and easily accessible foods with little nutritional value contributing to the high obesity rate in South Africa, as well as other non-communicable diseases which making up 37% of deaths in the country (Claasen et al.: 2016). A related feature of the growing economy of the new South Africa was the rapid "supermarketisation" of the urban food system over the past 20 years (Battersby: 2017). In a country already highly urbanized (67%), supermarkets have been the vehicle of food standardization contributing to the food security problem.

1.1.1 Food Security in South Africa

Food security refers to permanent access to sufficient, safe and nutritious food for all. The South African food system finds itself at risk of further alienating the majority of its citizens from realizing their right to access food granted by the South African Constitution (1996) Section 27(1)(b). Increasing poverty, unemployment and poor governance are making it harder for ordinary South African citizens to put food on the table (Claasen et al.: 2016). Household food security in South Africa is particularly bad with 45.6% of the population being food insecure (Shisana et al.: 2013). The 2013 South African National Health and Nutrition Examination Survey (SANHANES) mentions that 28% of the population are at risk of hunger and 26% experienced hunger. This is no surprise due to more than half the country (55%) was living in poverty in 2015 (StatsSA: 2017). This tells a bleak story of the average South African household not being able to meet its basic food requirements, knowing that the large majority of households needs to buy their food (SAHRC: n.d).

With regards to the global economic wealth of the country, such sobering and paradoxical results question the food security policies which have been developed by the government.

1.1.2 A better role for local government

Part of the food security issue in South Africa is that there is an inefficiency in public policies. It can be explained by the extreme segmentation of public action between departments and also by the ineffectiveness of decentralization resulting in little to no involvement from local government (Drimie: 2016).

The South African administrative structure has three spheres: national, provincial, and local, the latter including three different types: metropolitan, district and local municipalities. Municipalities have a very important mandate in society. They are instructed under chapter 7, subsection 1 I & (d) of the constitution (1996) “to promote social and economic development” and “a safe and healthy environment” (Republic of South Africa: 1996).

Local government strategic policy is based on short to medium term plans – the Integrated Development Plan (IDP) - agreed upon by the elected council and guided by the policies of the respective provincial and national government. The aim of this plan is to ensure intended service delivery outcomes are aligned with the needs of the community (Thebe: 2017)

Municipalities have a partial constitutional mandate about food security issues (De Visser: 2019). However, they do little and the absence of strategies to include food security and/or the governance of local food systems by municipalities may suggest a number of issues. These may include the lack of responsibility and/or autonomy given to municipalities with respect to food security, or the lack of local capacities to understand the complexities of food insecurity and the food system, and the lack of provincial support to ensure that local municipalities include food security in the planning and alignment with the provincial growth plans. These issues constitute the background of this research which will discuss how to get a broader implication of municipalities in the food security space.

1.2. Research Problem

Like most socio-economic issues, the effects of food insecurity are experienced on the ground or local level where municipalities are at the forefront. The absence of effective policy around food security and food systems at the local level in South Africa leaves room for research on improved local food governance knowing that municipalities should be best suited to understand the consequences of food insecurity and could therefore use some of their constitutional mandate (De Visser: 2019).

1.2.1 Aims and objectives

The aim of this study is to raise awareness of food security issues at municipal level and to identify ways to facilitate engagement by municipalities. Its main objective is to adopt a foresight approach using scenarios, with local actors, to see how it can help better the engagement of municipalities in the food security debate and take possible action. Further objectives are as follows:

- Discover possible issues and barriers in the governance of the local food system
- Observe how the co-elaborative scenario building process can be used to engage local actors
- Reflect on the process of creating the plausible scenarios and the critical factors which emerged from them
- Illustrate the consequences of different alternative food futures and the importance of local food governance

1.2.2 Research Questions

The main research question is: Can a foresight approach, developed with local actors at the municipal level, highlight critical issues, provide useful indications, support strategic thinking and feed the local debate?

Sub-questions are as follows:

1. What are the current issues and barriers in local food governance and what role can future scenarios play?
2. How diverse will the contribution of local actors be towards the development of the scenarios?
3. Can a foresight exercise raise attention of municipal stakeholders about critical factors of change based on a better understanding of different plausible futures

1.2.3 Significance of the study

This research is the first of its kind at a local government level on food security and forms part of activities developed by the DST-NRF Centre of Excellence in Food Security (CoE-FS)¹. This study can contribute to the policy debate in South Africa by showing the usefulness of

¹ <https://foodsecurity.ac.za>

exploring the future with local actors. Therefore, it can provide food for thought on the importance of different levels of governance in managing the food security problem.

1.3 Conceptual Framework

1.3.1 Governance

Governance is about processes of governing and refers to all types of formal and informal organizations which exist at different spatial levels and engaged in the management of a collective problem (Hufty: 2011). It can be understood as a system of principles and related rules of implementation a society is using to manage itself.

Governance frameworks according to Diedhiou (2007: 23) can be defined as “*the interactions of actors within governance contexts, while striving at the same time to guide the present and future behaviour and actions of actors*”.

In the context of this research with a focus on local government, governance will be used to refer to the way service delivery and financial management at a local government level is implemented, according to a vision resulting in a strategy defining objectives and ways to reach them. Governance in South Africa, according to Mle & Maclean (2011) is implemented through its three spheres of government and local government is seen as closest to communities and best suited to deliver services.

1.3.2 Knowledge co-production and Knowledge democracy

Knowledge according to Tandon et al (2016:20) can be defined as the “facts, feelings, or experiences of a person or a group of people, a state of knowing or awareness, and/or the consciousness or the familiarity gained by experience or learning”. In the past and present, knowledge outside the walls of a university setting is generally seen as informal knowledge (Hall & Tandon: 2017 & Adelle: 2019). The hegemonic “western” knowledge that has gone for long unquestioned and unchallenged in university spaces must be analysed in order to promote deeper knowledge democracy bringing on board other views and other voices, including indigenous and local knowledge of people from the place where they live. According to Biesta (2007) there is a case that universities tend to hold a monopoly on knowledge. A consequence is that those who have access to that knowledge are seen as specialists who’s expert opinions go unchallenged. Knowledge democracy opens a space for other forms of knowledge such as indigenous knowledge, knowledge related to culture as from poetry, song

and dance, as well as beliefs, and considers an interrelationship and collaboration of different forms of knowledge. Knowledge democracy is about sharing knowledge and making it accessible to those in need of that knowledge (Hall & Tandon: 2017).

The reason why knowledge democracy is needed because academic knowledge has become elitist and commodified, therefore very limited in the way it is accessed and utilised by ordinary people who are also co-producers of knowledge. This already colonised knowledge can then possibly lead to knowledge asymmetry which occurs when those supplying the knowledge do not actually benefit from it.

Ways of co-producing knowledge according to Adelle (2019:2) could be through implementing Communities of practice (CoP) which are “*a group of people who share a common interest or concern and who deepen their knowledge and expertise in this area by interacting on an ongoing basis*”. It can include or be parallel to scenario exercises as a way to think about plausible futures and what they mean for the present. Hall & Tandon (2017:1) warns that the danger of not challenging the knowledge status quo is that it could lead to further epistemicide which is the “*killing of knowledge systems*”. Creating a new setting which incorporates and respects a wider view of knowledge for knowledge co-production is the best way to advance knowledge democracy and to contribute towards real development.

1.3.3 Food security in the framework of Public Administration

Public Administration is the mechanics and organisational structures delivering government services to citizens. Furthermore, Mfene (2009: 210) states that “*it is through public administration that institutions are created and in which people work to achieve the stated objectives; money is made to do the work; human resources are acquired’ work procedures are provided; measures are created for controlling the activities of the institution; and the way in which funds are disbursed are monitored*”. In South Africa, public administration is directed by the Constitution of the Republic of South Africa (1996) under Chapter 10 and governed by basic values and principles. The principles capturing people’s right to food are found in section b) “*efficient, economic and effective use of resources must be promoted*”; section c) “*public administration must be development-oriented*”; section e) “*people’s needs must be responded to, and the public must be encouraged to participate in policy-making*”; and section f) “*public administration must be accountable*”. These principles should be applied to each sphere of government according to section 2(a). The integrated development plan (IDP) formulated by municipalities outlines strategies and mechanisms to achieve their objectives such as economic development to alleviate structural inequalities of the past. Achieving food security for all

should be fully part of local government objectives. Even if their constitutional mandate on this matter is limited, they do not lack of means of action (De Visser: 2019), including in the promotion of knowledge democracy for better local development.

1.4 Research methodology

This research makes use of a case study approach, which is well adapted to a local government setting, suiting the aim of this study. It is based on mobilizing the Participatory Prospective Analysis (PPA), which is a futures studies' approach, which was implemented through Participatory Action Research (PAR) as an attempt to accomplish the objectives set out for this research.

1.4.1 Case Study in the Witzenberg Municipality (Western Cape)

This research has made use of an existing project of the CoE-FS and the South African Local Government Association (SALGA)² developed in the Western Cape.

The Western Cape province is the only province in South Africa with a food security strategy³ coming out of the overarching Western Cape Government Strategy 2014-2019.

This project, implemented in the Witzenberg municipality (Winelands district) as a pilot site, was a first of its kind. A case study method is often used for an in-depth exploration of a specific topic, according to Zainal (2007). The opportunity to participate in the project, orchestrated by the CoE and SALGA and the collaboration of the Witzenberg municipality is the main reason why this specific case was selected.

1.4.2 Participatory Prospective Analysis and Participatory Action Research

According to Bourgeois et al (2017:3), Participatory Prospective Analysis is commonly used for exploring the future as it considers alternative futures through a rigorous chain of actions undertaken with the participation of local actors. This approach seeks to unpack and understand the numerous and diverse ways the future may unfold. Also known as foreknowledge, this method helps to create scenarios through a collaboration of knowledge between actors who are able to direct their hopes, fears and expectations into multiple plausible futures based on a joint identification of main factors of change and drivers. These plausible futures can then be tackled through innovative means and facilitate strategy design.

² <http://www.salga.org.za/About%20Us%20W.html>

³ WCG Household Food and Nutrition Security Strategic Framework (2016)

Participatory Action Research is of a qualitative nature, best defined as research seeking to engage in a reflective process with participants, which is action based, considering history, culture and context (Baum, MacDougall & Smith: 2018). Therefore, the PAR methodology is appropriate as a way to engage in the process of observing the inputs by local participants using the PPA method. The significance of the observation of the process of PPA is reflected in the objectives of this research.

1.4.3 Fieldwork

The fieldwork was done through the contribution to the organisation and the participation in a series of four two- and three-day focus group workshops and their follow-up including reporting to the municipality. These discussions led the participants to the progressive elaboration of plausible scenarios regarding the future socio-economic development of their municipality and how it could possibly connect with the food system.

The focus group discussions with the local actors was done through four important steps (Bourgeois et al.: 2017:18) related to the identification and definition of the system, of the factors of change, of the driving forces leading to scenario building. These steps are an important component of the PPA process and was used to connect the local actors to the identification of various potential futures of their municipality. These futures in the shape of scenarios (step 4) are a critical way to raise awareness about food security issues in South Africa, but more importantly in a local context, here the Witzenberg region. The PPA process must be done with an adequate sequencing which required a specific time frame suitable to all involved in the process.

1.4.4 Time Frame

The time frame for this fieldwork was from June 2018 to February 2019, which was a total of 9 months where the workshops took place. After a pre-planning workshop in June 2018, the workshops took place in August, September and February 2019.

1.4.5 Ethical Statement

Ethical clearance has been granted by the University of the Western Cape Ethics Committee (see attached) on 09/07/2018 as this research forms part of a larger project by the CoE-FS. The Ethics reference number is: HS18/5/1. As a result, the research sought the informed consent of the participants. Furthermore, participants were ensured that their identity shall remain anonymous and informed that they could discontinue their involvement from the workshops at any given time.

1.5 Structure of the Thesis

After this general introduction and discussion of the research, chapter 2 presents the literature review, which will discuss in detail the various conceptual and theoretical frameworks which include futures studies, food security and food governance. This chapter will also discuss the South African food system as well as the legislative framework around food security, and the main characteristics of the Witzenberg municipality.

Chapter three will discuss the methodology used for the research. It will present the participatory action research and the Participatory Prospective Analysis and how they were used. Chapter 4 will describe and summarize the main results of the co-elaborative scenarios process, discuss the main trends and connections that may have emerged, and reflect on the main lessons learnt and the limitations of the research. Chapter 5 will conclude the research and suggest possible use of this type of process for better engagement of a municipality in the food policy space.



CHAPTER 2 – LITERATURE REVIEW

2.1 Food Security

The most widely accepted definition of food security can be attributed to the Food and Agriculture Organization of the United Nations (FAO) who defines it as “ensuring that all people at all times have both physical and economic access to the basic food that they need” (FAO: 1983). The FAO then modified the definition at the 2009 World Food Summit which stated 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 food preferences for an active and healthy life*” (FAO: 2009). The addition of safe and nutritious food was due to an improvement of the historic concept of food security which had a particular focus on availability through production which came as a result of the 1973-1974 food crisis (FSIN: 2017). Moreover, after the 2009 World Food Summit, the definition of food security broadened by including prenatal nutrition as well as the role of culturally appropriate food (FSIN: 2017).

2.1.1 Global Food Security

Food and access to food is one of the basic human needs which explains why food security is among the core priorities of the international community. The United Nations Millennium Development Goals placed the eradication of hunger and poverty as its number 1 of 8 goals (United Nations: 2019). In 2015, The UN launched the Sustainable Development Goals for 2030 and again placed poverty and hunger as their number 1 & 2 goals respectively. As reminded by the State of Food Security (2018), Target 2.1 (ensuring access to safe, nutritious and sufficient food for all) and Target 2.2 (eliminating all forms of malnutrition) of SDG 2 are critical in eradicating global hunger but can only be achieved if all the other SDGs are actively targeted by world governments. The latest data, according to the State of Food Security 2018 shows that as of 2017 over 824 million people are affected by undernourishment and chronic food deprivation compared to 804 million in 2016 which is a 2.5% increase (FAO: 2018). This is alarming as it illustrates a difficulty to reaching targets 2.1 and 2.2. Looking at the current impact of food insecurity on a global scale, 50.5 million children under 5 are wasted, with 16.4 million severely wasted (FAO: 2018). Children in Africa make up 55% of the world’s children who are stunted. In 2017, 38.3 million children were overweight with the African continent contributing 25% to that figure (FAO: 2018). These factors according to FAO (2018), are a

result of poor access to affordable and nutritious foods which may add to the affected children's risk of overweight and obesity.

“Access to safe, nutritious and sufficient food must be framed as a human right, with priority given to the most vulnerable. Policies that promote nutrition-sensitive agriculture and food systems are needed, with special attention to the food security and nutrition of children under five, school-age children, adolescent girls and women in order to halt the intergenerational cycle of malnutrition.” (FAO: 2018)

There are many contributing factors perpetuating world hunger and global food insecurity such as political, economic, technological and environmental dynamics (Maggio et al: 2016, Schenck et al: 2017). Hunger is not only the uncomfortable feeling of pain or food deprivation, but it can also be defined as having insufficient nutritious food to meet the minimum requirement even though you have eaten and are full (FAO: 2006). This is commonly known as ‘hidden hunger’ (WHO: 2014). Hunger is typically measured in Prevalence of Undernourishment (POU), which measures the amount people consuming less calories than the required amount (Clapp: 2014, FAO: 2018). Furthermore, food insecurity is a direct or indirect consequence of structural inequalities facing many countries in the world.

Shepherd (2012) reminds that as much as food is a basic human necessity, it remains produced, traded and sold in a way which is not beneficial to society holistically. These aspects lead to the poor and vulnerable (women, children and the disabled) battling to access food within the playing-field of imbalanced global and regional economies.

According to the FAO definition, food security is based on 4 pillars. These 4 pillars are availability, accessibility, use and utilization and stability (FAO: 2006). Food availability is defined as the “availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports”, and food access as “*the access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet*”. Furthermore, utilization is defined as “the way the body makes the most of various nutrients in the food” (FAO: 2008) and can be understood and measured in the way people prepare their meals, its nutrient value and its diversity with the aim of determining the nutritional status of individuals. Lastly, stability refers to the frequency and sustainability of an individual or household's access to food which may be affected by various issues such as changing weather, unemployment and rising food prices (FAO: 2008). The failure of governments to reach a food secure status for vulnerable citizens is a major contributing factor to world hunger (Liverman

& Kapadia: 2010) which is in part due to the inability to access nutritious and adequate levels of food but also the inability to access affordable food which leads to variations in the levels of hunger experienced by those affected.

The achievement of the four pillars reflects the efficiency of the food system which can be defined as a chain of activities and associated stakeholders including food production, processing, distribution, wholesale, retailing, consumption and eventually the disposal of food waste (FAO: 2008). The food system according to Perierra & Drimie (2016:20) includes the “interactions across levels on various scales (time, space and jurisdiction); and various socioeconomic and environmental constraints and impacts”. In other words, the food system consists of sub-systems and activities involving multiple networks and actors playing different roles, good and bad according to May (2017), in the achievement of food security. For example, the objective of profit maximization of corporate agro-food businesses, which hold major market power in many countries, coupled with relaxed regulation at government level, generally results in high food prices therefore making access more difficult to the poor. This is the case in Southern African countries and particularly South Africa (Ledger: 2017, Battersby: 2017).

The food system consists of formal and informal actors. If formal actors are registered businesses, paying taxes and subjected to diverse regulations, informal actors are typically seen as being unregulated. Yasmeen (2001:33) defines small-scale activities which are “largely unrecognized, unrecorded and unregulated” as informal. Considering the informal sector as unorganized is often a misconception as these actors are oftentimes organised and unionised but do not however adhere to formal regulations such as formal contracts between employers and employees (Yasmeen: 2001). The informal sector is characterised as operations not adhering to health and safety standards, economic agents which are not registered as businesses (processors or traders) and do not pay business tax.

2.1.2 Food Security in South Africa

The South African Constitution captures the importance of food security as a national goal. In section 27.1 and 28.1.b of Chapter 2 in the Bill of Rights of the Constitution of the Republic of South Africa (1996), it is stated that everyone has the right to food and that the state must do what is in their legislative and financial means to provide this right. In the macro-economic vision framework of South Africa expressed in the National Development Plan (NDP), it is mentioned that food security is a key focus alongside job creation, climate change and agriculture development (NPC: 2012). The NDP envisages South Africa becoming more food

secure through the development of agriculture and agro-processing sectors, small, medium and micro-enterprises and fruit and vegetable production (Drimie: 2016). However, Battersby & Watson (2018) argue that South Africa produces or can import enough food to ensure that every household can be food secure. The push for more production by the state has been heavily criticised by academics, labelling it “*productionist*” as there is clearly a misguided understanding of food security in South Africa (Ledger: 2017, Shepherd: 2012).

In spite of the significance placed on people’s right to food in South Africa’s constitution and the NDP and the high levels of food availability, the situation regarding food insecurity today remains a critical problem. With half of the country living in poverty in 2015, it is no surprise that 45.6% of South Africans are food secure and the nutritional status of South Africans are unsurprisingly bleak as 37% of all deaths in the country are a direct result of non-communicable diseases (NCD’s) such as heart disease (Claasen et al: 2016). Stunting among male children in South Africa is 30% and 25% in female children according to South Africa Demographic and Health Survey (SADHS: 2016). In addition, South Africa has what is known as a quadruple burden of disease in terms of finance, mortality rates and morbidity. These burdens of disease are HIV/AIDS and TB, non-communicable diseases, injuries linked to interpersonal violence, and poverty related conditions such as malnutrition (Pillay-van Wyk et al: 2016). Malnutrition is a critical issue in South Africa directly resulting from not achieving the four pillars of food security.

This situation questions the efficiency of the South African public policies for food security as well as the characteristics of the national food system which is characterized by its concentration and the role of corporate businesses. The corporatisation of food and agriculture facilitated by deregulation has allowed a further shift in the way this system has taken shape. Deregulation is defined as a “reduction in state regulation of private interests” (Greenberg: 2015:7).

In South Africa, a large majority share of agri-business is owned by multiple corporations expecting high returns to shareholders. According to Greenberg (2017: 2), employment in agriculture has decreased by 62.5% from 1.25 million jobs in 1990 to around 450 000 in 2014 as a result of the adoption of “capital-intensive production methods”. Increased unemployment leads to a decline in incomes which in turn reduces people’s ability to access food on the market. Furthermore, this model has largely contributed to the development of supermarkets and standardized food with huge impacts on public health. The importance of

“*supermarketization*” is estimated at 75% of all grocery sales in 2015. Over time, supermarkets have expanded rapidly, shaping the way food is accessed and how urban areas are designed. According to Battersby (2017: 422) “*South Africa has the fifth highest number of shopping centres of any country in the world*”. The main characteristics of a mall or shopping centre today is that there is often a major supermarket chain accompanied by at least two fast food chains. These shopping malls and shopping centres are now located close to poor areas which directly impacts what people have access to.

However, Battersby (2016: 16) argues that the informal food sector operates at the margins of the formal food system and make a significant contribution as it creates jobs (16.4% of total employment in SA). Informal businesses also coexist with the formal food sector by positioning themselves on the periphery of supermarkets and sourcing their stock from various butcheries and wholesalers. These informal sector businesses are also closer and more accessible to the “*economic realities of poor households*” (Battersby, 2016: 419). Therefore, the answer to local economic development, and investment at a local level should not solely come from the development of more malls and supermarkets but also from further development and support of the informal sector.

2.1.3 Food Security in the Western Cape

In line with national plans, the Western Cape provincial government (WCG) has adopted the Western Cape Government Strategic Framework on Household Food and Nutrition Security in 2016 with the purpose of aligning the issue of food security to the greater development of the Western Cape (Western Cape Government: 2016). As it stands, the responsibility of food security rests with national and provincial government who design, implement and monitor policies. The planning and implementation of policies in general align and cascade down from national government, to provincial government and finally to local government and are monitored and evaluated through the Government Wide Monitoring and Evaluation Framework by the department of the Presidency according to (Tirivanhu & Janse van Rensburg (2018). National government put frameworks in place but the key agencies who implement these policies are provincial and local government (Mawson: 2002). However, one would be hard pressed to find mention of food security plans and strategies in many of local governments’ Integrated Development Plans.

As elsewhere in South Africa, in the Western Cape vulnerable groups such as blacks, coloureds and female headed households are at a higher risk of being food insecure. Compared to other

provinces, the overweight rate is the highest in the Western Cape with boys at 18.2% and girls at 19.1% (WCG: 2016). Stunting in boys and girls are 17.5% and 13.9% respectively whereas the Western Cape has the lowest prevalence of hunger (16.4%). This is in part due to the historical structural advantages that the Western Cape has compared to the other provinces.

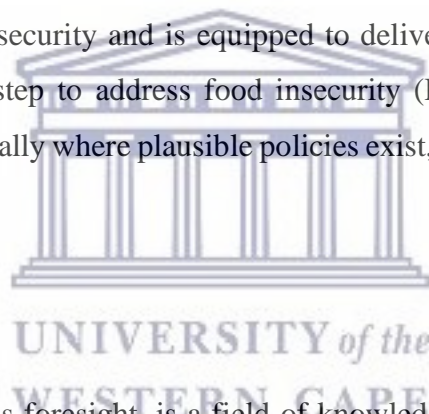
The Western Cape was the first region in today's South Africa where Europeans settled nearly 400 years ago after identifying a strategic need to consolidate their trade route between Europe and the East (Boshoff & Fourie: 2010). This historical background explains the level of economic development of Cape Town and the greater Western Cape through trade, industries – agriculture and fishing and later textile manufacturing – and infrastructure (Western Cape Government: 2006) which resulted in businesses, employment and income distribution. As a result, and as reminded by Kroll (2016), the Western Cape is, with Gauteng, one of the two wealthiest provinces in the country, translating in the lowest levels of poverty. However, the impact of colonial rule and the consequences of the apartheid regime have led to huge economic, social and spatial inequalities resulting in a serious number of people living in dire poverty and food insecurity. Due to historical land capture by Europeans and a strong metropolization process, in 2017, 95% of Western Cape citizens resided in urban areas and 5% in rural areas, with 64% of the total population specifically living in the City of Cape Town which is the sole metropolitan city in the province (WCG: 2018). The remainder of the province consists of 29 municipalities comprising of Category B and C municipalities, when excluding the City of Cape Town, the share of rural population reaches 12% and 17% in the Winelands district which is the second highest in the province. This urbanization dynamic has consequently resulted in strong spatial and economic imbalances, including food security. As reminded by Battersby (2017), there seems to be no remedial action in the way local government addresses food security in contrast to the development of supermarkets. Furthermore, the progress on land reform being slow and precarious in its implementation (Hall & Kepe: 2017), the rural economy remains captured by white agro-businesses using a large amount of precarious farm and processing units workers which adds to economic insecurity and therefore to the food security problem.

2.1.4 Food Governance

Food governance in South Africa is bleak with the current literature pointing to a lack of political will to intervene and remedy the situation through progressive policies (Drimie: 2016 & Ledger: 2017). Governance can be explained and expanded on in multiple contexts, however, the definitions remain relatively similar. The etymology of the word governance

stems from the Latin word “gubernare” meaning “to steer” (von Braun & Birner: 2017). Governance according to Prinsloo (2013) is defined as a process of decision making and implementing those decisions. Furthermore, Ledger (2017) explains that a governance structure relates to those who have power within the system to “steer” and is also defined as a collaborative process influencing policy (Freudenberg et al: 2018).

The aspect of who has the power remains a blur in the food system. Regarding the definitions above, food system governance or food governance result from institutions having the power to steer, make decisions and implement those decisions within and around the food system. These institutions are of course shaped by the historic, cultural, legal and socio-economic context, and the balance of power between stakeholders. However, food systems typically do not have room for manoeuvre when faced with pressures outside of its control such as political, social and environmental change (Maye & Duncan: 2017). According to Drimie (2016) good food governance requires political will, adequate resources and a government machinery that holistically understands food security and is equipped to deliver on their policies. Adequate food governance is the first step to address food insecurity (Drimie & Pereira: 2016) and inadequate governance, especially where plausible policies exist, can contribute to further food insecurity (Gerber: 2017).



2.2 Futures Studies

Futures Studies, also known as foresight, is a field of knowledge making use of a variety of methods and tools to explore and anticipate the future from multiple perspectives so that it may be seen in a different light (GFAR: 2014). In order to grasp the understanding of futures studies and its complexities it is important to first understand it through its multiple definitions and what is meant when speaking of the “future”. This section will define and firstly discuss futures studies and explain its significance regarding planning and strategizing. It will then discuss key terminologies associated with futures studies which include anticipation and scenarios.

A firm definition of futures studies is that it is a “*field of studies, focusing on a methodical exploration of what the future might be like.*” (GFAR:2014). Amanatidou (2016) defines it as exploring alternative futures using “creative thinking and multidisciplinary perspectives”. Using the future to change the present to change the future is a simpler way of viewing it according to Bourgeois (2017). Futures studies can help develop connections between current governance practices and anticipatory governance as anticipation gives “meaning and

direction” to present actions (Godet 2006: 4). The realisation of future strategies where actors, participating in the process of exploring their individual ideas of the future, using logic, rationality and emotion (Godet: 2006) is fundamental to future studies. Foresight, using this approach, takes cognisance of the information influenced by participants through their lived experience.

Futures studies recognise and make use of the human-enacted trajectory of the past leading up to present world status (Bourgeois: 2017) through the contribution of technological, political, social and economic drivers. This allows for the anticipation and exploration of a variety of future states, also known as scenarios. The outcome of a futures study exercise can lead to desired or undesired states, with severe consequences if the anticipatory assumption of the future has no room for change. For example, Bourgeois (2017) argues that urbanisation is a continued and unchallenged anticipation for the future state of cities, the popular perception is that it is irreversible. If people believe it as certain, then they will act in a way that will favour the development of attractive cities, making urbanization even stronger instead of developing alternative forms of habitat. This form of anticipation can possibly lead to a perpetuated undesired future state.

2.2.1 Why future studies?

Futures studies is typically used in planning, contributing to strategies and usually designed via a people centred perspective, involving the view and ideas of experts in the field of interest (Da Costa et al: 2008). As an example, the Royal Dutch Shell Corporation used a futures study framework, making use of scenario building, to map out alternative futures of the company in 1965 (Wilkinson & Kupers: 2013). The scenarios developed helped Shell develop strategies which resulted in improved risk management and planning. An additional example is the Mont Fleur Scenarios, which took place in South Africa in 1992 during the height of political negotiations between the African National Congress and the apartheid regime, which were used to envision multiple outcomes of the on-going negotiations process. The Mont Fleur Scenarios were developed by 22 prominent participants from multiple sectors in South Africa who identified four scenarios which were used to show South Africans at large the multiple plausible realities their country could face in the next 10 years (GBN: 2007).

It is not always feasible for the future to be shaped solely under the auspices of politicians who might only have a short office-bearing lifespan or a 5 to 10-year political mandate. Freestone (2012:13) adds that “*politicians balk at envisioning the long run, meaning beyond their*

expected time in office” which may have an adverse effect on government planning. The future of society extends beyond short and medium-term planning. Therefore, it is important to interrogate the future by first looking at the present, allowing relevant actors to explore it using an anticipatory process (Miller: 2018).

2.2.2 Anticipation

Anticipation is a term used to set the scene of the present as we know and experience it (GFAR: 2014). This has been proven throughout history in different disciplines such as physics, biology, the theory of evolution, anthropology etc. (GFAR: 2014, Nadin: 2010). According to Miller (2018:44), “*the future only exists in the present as some form of anticipation*” which helps comprehend that anticipation is the ability to understand the present ontologically, allowing intentional decisions to be made to enhance tomorrow. Another way of seeing it is that anticipation helps people and organisations know and understand the future today by acknowledging past decisions which allowed specific present states to occur (GFAR: 2014). Anticipation is also seen as the catalyst for change, either positively, negatively or maintaining the status-quo (Nadin: 2010). According to the Practical Foresight Guide (2013) anticipation is seen as a skill, allowing better planning and strategizing in the present to lead to an optimistic future.

Futures studies has a vast collection of definitions, one such definition is that it “*involves anticipation (pre or pro-activity) to clarify present actions in light of possible and desirable futures*” Godet (2006:19). Pre-activity consists of preparing for a future expected to occur whereas pro-activity consists of putting steps in place, in the present, to alter the future to a more desired future (Godet: 2006). It is through anticipation, as mentioned above, where the present can be altered using proactive measures. There are many glossaries with definitions of terms associated with futures studies since François Hetman (1969) initiated it after many contestations around the semantics of futures studies/foresight. Decades later, GFAR (2014) also provides a glossary of terms associated with Futures Studies with definitions inspired by glossaries and guidelines by the Global Foresight Glossary (2007) and the Practical Foresight Guide (2013).

The future contains knowledge and systems that one cannot yet know today as well as how exactly they will operate. Karlson (2005) mentions that “*we cannot foresee what we will know in the future because if we could we would already possess that knowledge*”. Not knowing the future may help anticipate it. It is important to note that when exploring the future, practitioners

take a multidisciplinary approach by exploring the future holistically (Giaoutzi & Sapiro: 2013). One such approach is scenario building which steers the path for strong viable future scenarios containing an array of factors to ensure they are well rounded. Therefore, as Treyer (2009) mentions, foresight is best seen as a practical discipline linked to strategy and planning.

2.2.3 Co-elaborative scenarios

Scenario building challenges the trajectory of the business as usual or the status quo (Soria-Lara & Banister: 2018). Scenarios, according to Bourgeois (2017:12), are defined as “*as a description of how the future may unfold according to an explicit, coherent and internally consistent set of assumptions about key relationships and driving forces*”. Another way of understanding scenarios is that it is a set of “formulated alternatives” used to navigate an uncertain future (Kotireddy, Jan Hoes & Henson: 2018). An important component of scenarios is that it is typically comprised of a story in the form of a narrative or an illustration/video representing a probable version of the future (Miller: 2018). Freeman (2012) explains that scenarios leads to the “*juggling*” of multiple potentialities and that it is ‘a way of thinking about the future without trying to predict it’ (Hopkins and Zapata, 2007: 9). Through a collective understanding and measured actions, the future may reveal itself through alternative yet plausible states. The objective of co-elaborative scenario building is to provide a range of options for decision makers for the enhancement of strategies (Bourgeois & Jésus: 2004).

The participation of local actors is key to Co-Elaborative Scenario Building according to Bourgeois (2017). The input from participants are completely relied on for the process to be validated. Furthermore, the input from the local actors do not begin after the scenarios are designed by a team of researchers, but the whole process from beginning to end is done through a “*co-elaboration*” with local actors which is “*constant and thorough*” (Bourgeois: 2017:3). Due to the foresight process being dependent on the participation of local actors it therefore qualifies as being qualitative in nature.

CHAPTER 3 – RESEARCH METHODOLOGY

This section will discuss and outline the methodology used for this research in terms of its design as well as how it was used during the field work. It will further discuss the selection process of the local actors, the nature of the focus group discussions and the limitations of the study.

3.1 Research Design

Research design is a set of techniques and processes used to analyze and collect data. The function of research design according to Labaree (2009) is to “ensure that the evidence obtained enables you to effectively address the research problem logically and as unambiguously as possible”. Scientific research seeks to investigate theories and hypotheses in the search for new knowledge (Mouton, Auriacombe & Lutabingwa: 2006). Instead of relying on personal views, scientific research can only be achieved through systematic investigation and analysis based on explicit conceptual frameworks and methodologies, as opposed to arbitrary processes, which supports the collection of facts and the building of evidence to substantiate hypotheses or feed an inductive approach (Mouton, Auriacombe & Lutabingwa: 2006).

This research was developed through a case study under a specific institutional setting, used a specific methodological and theoretical framework, and was implemented through field work.

3.1.1 Case Study Approach

The case study research can be defined as research seeking to engage in an “*intensive analysis of one or several phenomena, outcomes, or processes and is aimed at gaining as full and complete an understanding as possible of the object under study*” (Miller: 2018). A further understanding is that it allows for the “*exploration and understanding of complex issues*” (Zainal: 2007). There are a few possible limitations of a case study approach, firstly, that it can be costly, secondly that its objectivity can be questioned and, thirdly, that the results are not ubiquitous according to Hodkinson et al (2001). Case study research requires an in-depth look into a phenomenon or case, which was Witzenberg in this context, and can incur costs.

The objectivity of case study research can be questioned in some cases because it requires a specific rigorous methodology to obtain very specific results related to the area which cannot necessarily be replicated with a different group of researchers and a different group of

stakeholders. However, this forms part of the uniqueness of the PPA method. In addition, some of the key underlying factors which could emerge as a result of the PPA method could possibly reoccur if a different group of researchers and participants were used. Lastly, the aim of this research is not intended to be ubiquitous but to transform the way people think about food in relation to their future and this way of thinking can be replicated in multiple cases.

The institutional setting of this research is a larger study by the Department of Science and Technology- National Research Foundation (DST-NRF) Centre of Excellence in Food Security (CoE-FS) in partnership with the South African Local Government Authority (SALGA). The CoE-FS is a “*virtual organization that brings together the expertise of numerous South African and international institutions and over 100 researchers across various disciplines*” (CoE-FS: 2019). The research produced by the CoE-FS is focused on the “*scale, nature, causes and consequences of food insecurity in South Africa and elsewhere on the African continent*” (CoE-FS: 2019). SALGA is a public organization with an autonomous association of all 257 municipalities in the country. Their main roles are representing, promoting and protecting the interests of local government (SALGA: 2019). SALGA is also responsible for raising the profile of local government.

The research project falls under Programme 1 of the CoE-FS titled “*Food systems, governance and policy*” which deals with the understanding of the food policy space in South Africa, the results of existing policies, and how the co-production of knowledge between stakeholders, notably at the local level, can contribute to policy improvement. This knowledge brokerage approach helps position the CoE-FS research to create a meaningful impact on local food system governance through the adoption of knowledge co-production. The collaboration with SALGA takes place in the context of its Small-Town Regeneration (STR) programme developed as a way to “*regenerate*” and stimulate the economies of small towns across South Africa.

The research project titled “*Scenarios processes and engagement towards multi-level governance*” was initiated to engage local actors using a co-elaborative approach to explore the future of local development and its connections with the local food system. A pilot was launched in the Witzenberg Municipality (CoE-FS: 2018), which is part of the STR programme. After a series of meetings with the Witzenberg municipality and SALGA, an agreement was established and the preparation phase of the pilot project was initialized. Box 1 below provides further insight into Witzenberg.

Box 1: Witzenberg in a nutshell

The Witzenberg municipality has 130,607 inhabitants and consists of five towns namely: Ceres, Wolseley, Prince Alfred's Hamlet and Op-die-Berg (see figure 1), and three rural areas namely: Ceres Valley, Koue Bokkeveld, Achter-Witzenberg (IDP: 2018). The Witzenberg Municipality is a category B municipality falling under the Cape Winelands District municipality, which contributes 11.2% to the province's GDP, the second highest district behind the City of Cape Town (72.5%). The municipality is responsible for the delivery of basic services to all citizens living within its boundaries.

The situational analysis in the IDP of Witzenberg Municipality explains that the region consists of fertile land with agriculture and agro-industries being the first economic sector. Main productions are fruits (apples, pears, nectarines, peaches and plums), fruit juice and wine production, as well as meat, olives and grain. Horse and cattle farms are also present (IDP: 2018). Tourism, with guest houses and adventure tourism, is a major contributor to the local economy.

The region of Witzenberg is a place of very old human settlements with the San and Khoi inhabiting the area thousands of years ago. Europeans began passing through and settling in the region in 1729 and built Mitchells Pass in 1848. According to Du Toit (2004) the Witzenberg region was known and used as a way station after the diamond mining revolution in Kimberley. This boosted the economy of the town, especially after major networks of roads were built in the 20th century, linking Witzenberg with other parts of the Western Cape and South Africa. This in turn helped the growing farm production as well as exports over the next century (Du Toit: 2004).

Furthermore, due to agriculture being the region's biggest economic sector, seasonal work is prevalent among the working age cohort which in turn causes temporary unemployment making poverty more difficult to manage during off-seasons. The 2017 drought in the Western Cape region has added further pressure on workers as farm production has decreased. Evans (2017) states that in Ceres, "50% less onions were planted, a tomato puree factory has been closed and workers have been laid off. The deciduous fruit crop is expected to drop by 20%". This may have contributed to the decline in the agro-processing sector, the largest in Witzenberg (IDP: 2018)

According to StatsSA (2011), based on the 2011 census, 5,249 (14%) out of 30,627 surveyed households in the Witzenberg Municipality said they ran out of money to buy food during the previous year (2010). A further statistic mentioned that 8.3% of households skipped a meal during that period.

Figure 1: Map of Witzenberg within the Winelands District



Source : <https://municipalities.co.za/map/1211/witzenberg-local-municipality>

3.1.2 Participatory Action Research (PAR)

Participatory Action Research is defined by Gosin, Dustman, Drapeau & Harthun (2003) as a collective effort requiring the direct involvement of the community. Halliday, Kern, Garrett & Turnbull (2019) defines it as blending the expertise of the researcher and the lived experience of the community. PAR stems from action research which is a systematic qualitative research approach used to understand the experiences of specific communities according to Baum, MacDougall & Smith (2006). Action research can be understood as research involving the researcher or practitioner to better understand his or her work (Corey: 1954). In addition, community-based action research as well as participatory observation are part of the family-tree of action research (McDonald: 2012) but can be wholly understood as practical research seeking to impart the knowledge of the researcher onto participants or the community (Whyte: 1989, McDonald: 2012). In participatory observation research, the researcher attempts to observe and analyze the community by blending into the setting without interfering in the process of action (Whyte: 1989). Participatory Action Research, on the other hand, seeks to engage in the process through both observation and intentional action with the community or stakeholders. The researcher enters the space with specific objectives to share and engage in with the community (Whyte: 1989).

The primary objective of PAR is to guide a process of active engagement and collective learning centered on a firm epistemological understanding, where the participants as well as the researcher are sharing and creating knowledge (Baum, MacDougall & Smith: 2006, Bourgeois: 2017, McDonald: 2012). Furthermore, McDonald (2012) unpacks PAR as an approach which can facilitate the community to have agency over their lived experiences and development. McGarvey (2007) mentions that PAR fundamentally understands that the participants are seen and treated as experts as their lived experiences are valuable to the creation of new knowledge.

As a master's student, I was embedded in the pilot exercise as an action researcher. This meant that I formed part of the facilitation team and the process of engaging the participants in creating plausible scenarios about the future of the local economic development of the municipality. As an action researcher partaking in the workshops, I had access to the outcomes of this research in the form of the materials which was then analysed for this research in order to reflect on the method and its outcomes.

3.2 Implementation of the Participatory Prospective Analysis

The specific method selected for this Participatory Action Research was the Participatory Prospective Analysis (PPA).

3.2.1 Preparation of the PPA

The implementation of the PPA is based on three groups with different roles in the participatory process, namely: the support group, the expert group and the task group. This process is based on the Guide for the co-elaboration of scenarios formulated by Bourgeois et al (2017).

The first step is the identification of the support group. The support group are those who are tasked with the drive behind the exercise who have the potential and ability to act on the plausible scenarios. In this case, the support group was made up of senior officials from the Witzenberg Municipality after an introductory meeting between the CoE, the municipal councillors and officials and SALGA on 23 April 2018.

The second and most important step of the implementation is the selection of the local actors who form the core of the process. The participants were selected for their capacity to bring different perspectives on different socio-economic dimensions of their place, being the Witzenberg municipality, their capacity to work in a multi-perspective environment, their willingness to share their lived experiences and their willingness to engage in a future-oriented approach. These actors, known as the ‘expert group’, had to meet several criteria (see table 1) which ensured their capacity and willingness to engage in scenario building. The expert group are also known as the ‘doers’ and comprise of actors who are directly or indirectly involved in the economic system of their territory which can range from informal traders, farmers, farmworkers, health care workers, local government staff etc.

Lastly, the task group includes the facilitators of the focus group sessions. The task group consisted of two CoE senior researchers, a representative of SALGA and the master student. This task group is responsible for the preparation and facilitation of the focus groups with co-elaborative scenario building and to guide the expert group in the identification of plausible futures through co-elaborative scenarios. The roles and responsibilities of the task group are as follows:

- Lead and manage the session step by step without interfering in the content
- Ensure that all participants are given an equal opportunity to intervene
- Follow all steps and apply the rules agreed upon

- Seek agreement before going from one step to the next one
- Keep records of decisions and intermediary outputs
- Manage eventual bias or control by some participants over the discussion; this should be eased by the fact that participants were appropriately selected and accurately briefed about the rules.

Table 1: Expert group selection criteria

	Criteria:	Description:
1	Knowledge	Knowledge in the form of experience
2	Socioeconomic diversity	Gender, age and, when applicable, ethnic diversity and socio-economic position should all be balanced. Expert groups are not formed from the elite. Instead, participants should reflect the diversity of the region and people whose future is under scrutiny
3	Individual characteristics:	Openness to discussion and tolerance of other opinions. Narrow-minded people or partisan must be excluded, even if they have good knowledge, since they are likely to either block the group work or bias it
4	Inclusion	Education, literacy (e.g. capacity to read, speak or write a specific language) and other cultural differences shall not be used as selection criteria
5	Availability	All experts who take part in the first workshop have to be present during all the other workshops. Since they engage in a scenario-building process they cannot miss part of it, and cannot be replaced by newcomers. This rule needs to be agreed upon by participants from the beginning
6	Individual expertise	Participants are not selected because they belong to a specific organization or sector. Rather they are selected for some specific knowledge that can advance understanding of the future of forest tenure security

3.2.2 Implementation sequencing

Four successive steps are followed in order to successfully implement the PPA method by Bourgeois et al (2017). These steps are as follows:

4.. Define the system

Once the preparation phase has been completed, the first step of implementing the PPA method is to define what it is that is being looked at. There are 4 questions to be considered. The first factor to be considered is which particular dimension of the future is important for this research. The second factor is the focal of the research which must be specific to a geographical

boundary. Next, the time horizon must be established and, lastly, the question of “who?” must be considered. Who exactly is this particular exploration of the future going to impact? This is decided by and agreed upon by the expert group.

b) Identify and define factors of change

The expert group starts by sharing their expectations, hopes and fears about the future of their area. Then the participants identify and plot the most important events which took place in their area in the past. This time frame can range from 50-100 years and is arranged by internal events, which are events which took place within the region of the expert group, and external events, which are events which took place external to the region. This is used as an ice breaker as the participants might feel overwhelmed. The expectations, hopes and fears are written on different coloured cards by each participant and placed on a wall where it will remain for the duration of the session.

Thereafter, the concept of factors of change is introduced to the expert group by the task team. A factor of change according to Bourgeois et al (2017: 23) is a factor that “*has the capacity to significantly transform the system in the future no matter what direction*”. As an example, a factor of change can be described as “access to social assistance” or “the state of natural resources”. Once the participants understand the definition, they are then encouraged to write down the factors of change they feel important to them, one factor at a time, on coloured cards provided by the task team. This will be the primary round of factors. The cards are then read out by a member of the task team. Thereafter, duplicate cards are removed with the permission of the original author in the expert group and then categorized using the social, technological, economic, environmental and political (STEEP) classification. The STEEP classification helps the expert group organize their selected factors into broad categories and help eliminate duplicate cards.

The factors of change are then reformulated to narrow down the meaning through a group discussion with the permission of the original author and the expert group collectively. The expert group is then reminded that through its definition, factors of change must follow specific rules to be applied to the one’s selected by the expert group. These rules are as follows:

1. The factor must be closely linked to the topic
2. A sentence is not a factor of change
3. It should not have a negative form
4. It should not have a physical expression

5. The factor should be plausible and not something which would not be a possible future state.

The factors of change are then arranged by internal factors of change, which are factors which can be controlled by actors within the system, and external factors which cannot be controlled by the actors within the system. This differentiation can be understood by the description of the factor of change and if it has a geographic location factored into it. The group is also reminded that internal factors of change can also be classified by events or factors within the region of the system but out of the control of local actors such as the police force, which is controlled by the national government, or a global company.

The next step would be to define each factor of change which must be agreed upon by the expert group. The definition should be 1 sentence long explaining the nature of the factor. This step is important because a rigid definition plays a vital role in the following steps of the implementation of the PPA as it helps to build future states. The definitions are then recorded and displayed for all participants to see.

c) Identify and select driving forces

The internal factors are then clustered together using their close relationship which should be evaluated based on the direct influence of one internal factor on the other. This is done through a voting process. Afterward, the expert group has to vote for the 10 most directly influential factors of change. This process is done using coloured stickers which are stuck on the card which the individuals decided to vote on. Each member of the group receives 10 stickers which are used to place on the factor of change they would like to vote for. The factors with the most dots are then kept and the others are discarded. Through a rigorous structural analysis, which can be facilitated through a process using a specialized software or done manually (which was the case here), the most influential factors are then identified. What is meant by most influential is that these factors have the capacity to directly influence all the other factors of change. These factors are called the driving forces and, based on experience using this methodology, there are typically 4 to 8 driving forces.

d) Build scenarios

The first step of building the scenarios is to identify the future states of each selected driving force using the factors of change. These future states are categorized in a positive future state, a negative future state and one or two alternative future states. The common feature which must be present in each of these future states is that they must be relevant, coherent and plausible.

The idea of scenario-building is that it is not meant to be a prediction or a forecast of the future but rather an anticipation of the future. The future states must be mutually exclusive of each other, because each state cannot happen simultaneously to another state. Once a future state has been established, through the discussion with the group, they are then written down in a table outlining each driving force and each future state for each driving force. Next, the scenarios are built using all the factors of change to create a synopsis for each scenario. The number of scenarios can be reduced depending on the mutuality of them. The scenarios are then named and given a picture by the participants which illustrates a major feature of the scenario. Each scenario is given a narrative describing its future using the factors of change and the driving forces as a guide.

3.3 Fieldwork: running of the workshops

Regarding the logistical arrangements, the Co-Elaborative Guide suggests two options available for the focus group discussions. The first option is for the workshops to be broken down into 2 to 3 workshops, spanning over a period of time, lasting between 2 to 3 consecutive days. The second option is 1 six-day workshop where all the steps will be completed. Since it is usually difficult for the people, including members from the support group, the task group and the expert group to commit to six consecutive days, therefore, the first option was selected for this research.

The fieldwork was done through a series of focus group discussions between July 2018 and February 2019 in Ceres, which is the main town of Witzenberg and where the municipal offices are located. One pre-planning work session and a series of 3 focus group discussions were held. The impact on food security and the implications for decision making were plugged in the last workshop.

CHAPTER 4 – RESULTS FROM THE EXPLORATION OF THE FUTURE

This chapter is based on my reflection as a researcher on the process of engaging a local expert group using the Participatory Prospective Analysis method to explore the future of their region. The pilot was implemented in the Witzenberg municipality and the time horizon for this exploration was the year 2038. This chapter unpacks the content covered in the four workshops as well as the results of each workshop. The desired outcome of the workshops was to create plausible scenarios. These scenarios will be presented in this chapter. Then reflection on the process and its results will be provided.

4.1 Operational results of the PPA process

4.1.1 The Expert Group

The identification of the local expert group was an integral part of the preparation phase of the PPA method. The expert group was selected based on a set criterion specified by the Guide for the co-elaboration of scenarios (see chapter 3).

After consultation with the municipal support group, a total of 20 experts were identified (see table 2). These 20 participants came from different work backgrounds/fields and from different municipal wards within the Witzenberg region. Some of the fields were recycling, tunnel farming, community health, small businesses, and the church.

The engagement was made on a voluntary basis after presentation of the objectives. Based on Ethics rules, a consent form was signed by every member during the pre-planning workshop. There was no remuneration or per diem but participants were served lunch for every workshop day.

Table 2: Characteristics of the Preliminary Expert Group

NR	Municipal Ward	Field	Gender
1.	Nduli	Contractor	F
2.	Hamlet	Disabled forum	M
3.	Bella Vista	Paralegal advisor	F
4.	Hamlet	Small farmer	M
5.	Nduli	Recycling	M
6.	Nduli	Smme – Cleaning chemicals	M
7.	Bella Vista	Smme – catering	F
8.	Ceres	Tourism	F
9.	Ceres	Witzenberg Abuse Community Centre	F
10.	Ceres	Youth development	M
11.	Nduli	Youth in Business –tunnel farming	F
12.	Ceres	Early childhood development (ECD)	F
13.	Hamlet	Boland Hospice –Health	F
14.	Ceres	Environment	M
15.	Ceres	Local Government	F
16.	Ceres	Church	M
17.	Ceres	Dept Cultural Affairs &Sport	M
18.	Bella Vista	Safety	F
19.	Ceres	Dept Agriculture	M
20.	Ceres	Education	M

After the 2nd workshop it was decided by the task and support groups to narrow down the expert group list as there were lower attendance in the second workshop. Table 3 displays the final local experts who were part of the remaining two workshops and figure 2 shows their socio-economic distribution.

Table 3: Final Expert Group List

NR	Municipal Ward	Sector	Gender
1.	Hamlet	Disabled Forum	M
2.	Hamlet	Health	F
3.	Ceres	Municipality – Environment	M
4.	Ceres	Municipality – Tourism	F
5.	Bella-Vista	Small Business – Catering	F
6.	Ceres	Dept Local Government: CDW	F
7.	Ceres	WC Dept of Agriculture	F
8.	Nduli	Tunnel Farmer	F
9.	Ceres	Community Centre	F
10.	Ceres	Church	M
11.	Hamlet	Church: Youth	M
12.	Nduli	Small Business: Cleaning Chemicals	M
13.	Nduli	Small Business: Cleaning Chemicals	F
14.	Bella Vista	Paralegal Advisor	F

Figure 2: Socio-economic status in the expert group

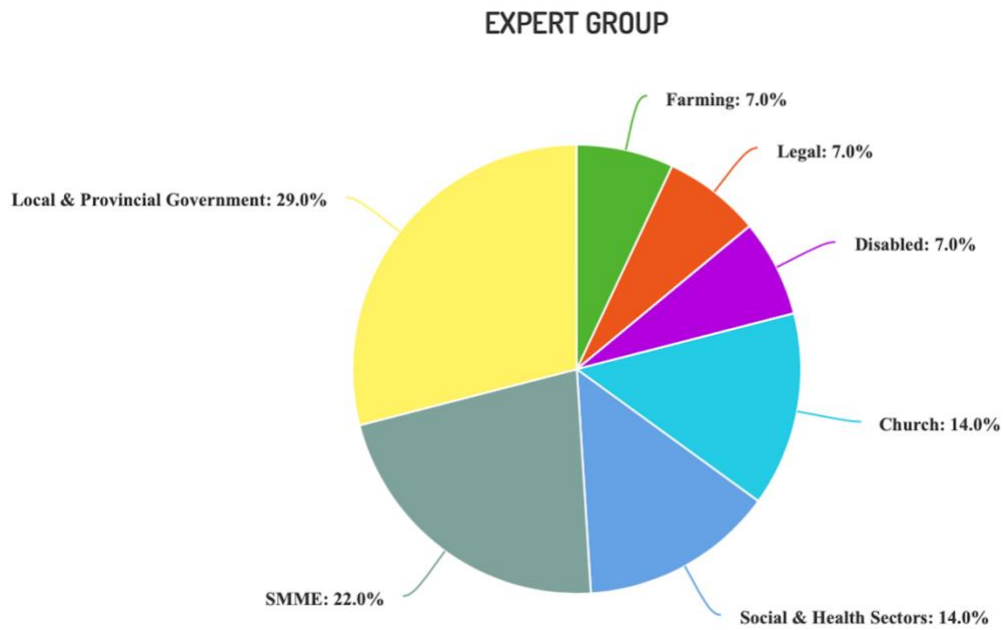


Table 4: Workshop Attendance

NR	Sector	Workshops			
		n°1 (2 days)	n°2 (2 days)	n°3 (3 days)	n°4 (2 days)
1.	Disabled	2/2	2/2	3/3	2/2
2.	Health	2/2	0	3/3	2/2
3.	Municipality: Environment	2/2	2/2	3/3	2/2
4.	Municipality: Tourism	2/2	0	2/3	0
5.	Small Business – catering	2/2	2/2	1/3	2/2
6.	Dept Local Government: CDW	2/2	2/2	3/3	2/2
7.	Dept of Agriculture	2/2	0	3/3	½
8.	Tunnel Farmer	2/2	0	3/3	2/2
9.	Community Centre	2/2	2/2	3/3	2/2
10.	Church	2/2	2/2	0	0
11.	Church	2/2	2/2	3/3	2/2
12.	Small Business Cleaning Chemicals	2/2	0	3/3	2/2
13.	Small Business Cleaning Chemicals	2/2	0	0	2/2
14.	Paralegal Advisor	2/2	2/2	3/3	2/2

At the end of the process, the final group received certificates in acknowledgement of their attendance. Of the 14 experts, 12 received a certificate due to 2 members not able to attend the final workshop (see example of certificate in annexures).

4.1.2 The Workshops

a) Planning Workshop

The first workshop was held in the Togryers Museum in Ceres in 14-15 June, 2018.

The context of the collaboration between the CoE-FS, SALGA and the municipality were presented as well as the objectives of the proposed participatory work. The concept of scenario-building was introduced, and it was explained why and how it will be done. The expert group engaged in the following steps through group work and plenary discussion:

- Identification and description of main hopes, fears and expectations for the future of the Witzenberg region
- preparation of a historical fresco of Witzenberg with major events which took place in the region (internally) and in South Africa and the rest of the world (externally) over the last 100 years (see picture 1).

Discussions were stimulated by the workshop's place: the Ceres' museum, which provided a good background based on a visit of the exhibits to explore the past and the future.

Picture 1: Work on historical fresco



Furthermore, the identification and definition of factors of change which have the capacity to significantly transform the system in the future was made through the classification of the factors of change according to the capacity of the local actors to influence/control them (see picture 2 & 3).

Picture 2: Identifying factors of change **Picture 3: Factors of change**



b) Workshop 2

This workshop was in the Bella Vista Community Hall (20-21 August 2018).

There was a lower turnout due to unexpected external events which prevented full participation of several local experts (a taxi strike preventing some participants to reach the venue).

The activities were:

- Selection of the 10 most influential factors of change using a voting process.
- Selection of six driving forces through group discussion
- Exploration of the future states of each driving force in 20 years (desirable, undesirable, alternative).
- Construction of a table of the 6 driving forces and their future states (see picture 5).

Picture 4: Voting process

Picture 5: Table of future states



c) Workshop 3

The workshop took place at the Plantation Hall in Dennebos (25 -27 September 2018). A half-day catch-up session for those who missed the second workshop was added at the start of the workshop. The activities were:

- Building Scenarios (1): identifying the state of each of the six driving forces in Witzenberg in the present. The idea was to allow the expert group to think of what the future state of each driving force would look like in the present.

- Building Scenarios (2): framing of scenarios using the driving forces with three plausible options. First, desirable/positive; second, undesirable/negative; and third, alternative scenarios. The expert group were encouraged to create scenarios with the given options of plausibility's of a future state. In the table of future states, the various futures states were labelled according to letters and numbers. A1 was a desirable future state for the driving force economic activities. A2 was a negative future state under economic activities and A3 was an alternative future state. The same concept applied to each driving force, from A to F. Therefore, in order to create a desirable scenario, the expert group was asked to write down potential futures using a combination of these codes. However, the scenarios had to be logical or plausible so participants had a few rounds of experimenting with different combinations.

- Developing the Scenarios: combining future states into paragraphs describing the future situation. Once the most plausible combinations were agreed upon by the expert group, 8 scenarios were established and they were then asked to draw up synopses of each scenario. To do this, the expert group were divided into 4 groups and given 2 scenarios each and asked to get an image which they feel represents each scenario and a title of the scenarios. In addition, the expert group were encouraged to write the synopsis and title in whichever language (English or Afrikaans) they felt was comfortable.

- The 4 smaller groups shared their scenarios in plenary and discussed how to further develop narratives. The narratives were continuously developed in order to create a "story" which was logical.

- The future scenarios were connected back to the present using a "*backcasting*" method. The backcasting method is a process of determining the path back from the future to the present to identify what possible events, decisions or actions could lead to the scenario. It helps to identify which strategic decisions or actions may result in desirable scenarios or on the opposite could

lead to undesirable ones. The method can be used to identify major domains of attention or specific issues which will contribute to or impact Witzenberg's future by 2038.

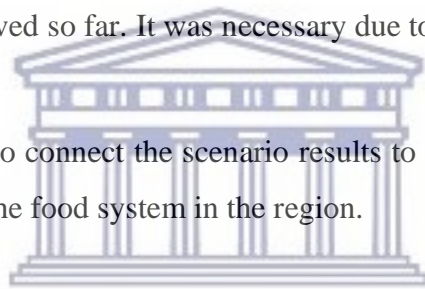
- Scenarios were then connected to see if they were mutually exclusive or not.

d) Workshop 4

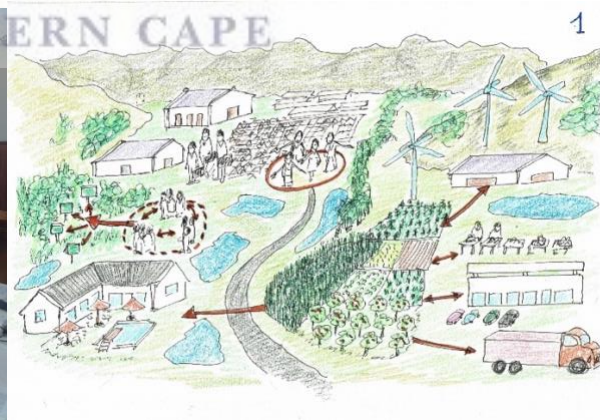
The final workshop was held in the Ceres Town Hall (14 & 15 February 2019). The time period since the previous workshop was explained by conflicting schedules for the task team, the summer holidays, and the request by the municipal management to organize a presentation of the progress achieved to the senior management committee. This meeting was held on 28 January 2019, therefore postponing this final meeting in February.

A first step was to review and discuss the extended scenarios narratives including pictures examples which were designed by an external artist identified by the CoE-FS, and validation by the group of the final results (see picture 6 & figure 3). This step was also a way to reconnect the group with the work achieved so far. It was necessary due to the long period of time since the last workshop.

Then the task team proposed to connect the scenario results to a discussion about the current and possible development of the food system in the region.



Picture 6: Discussion of existing scenario **Figure 3: Example of Scenario illustration**



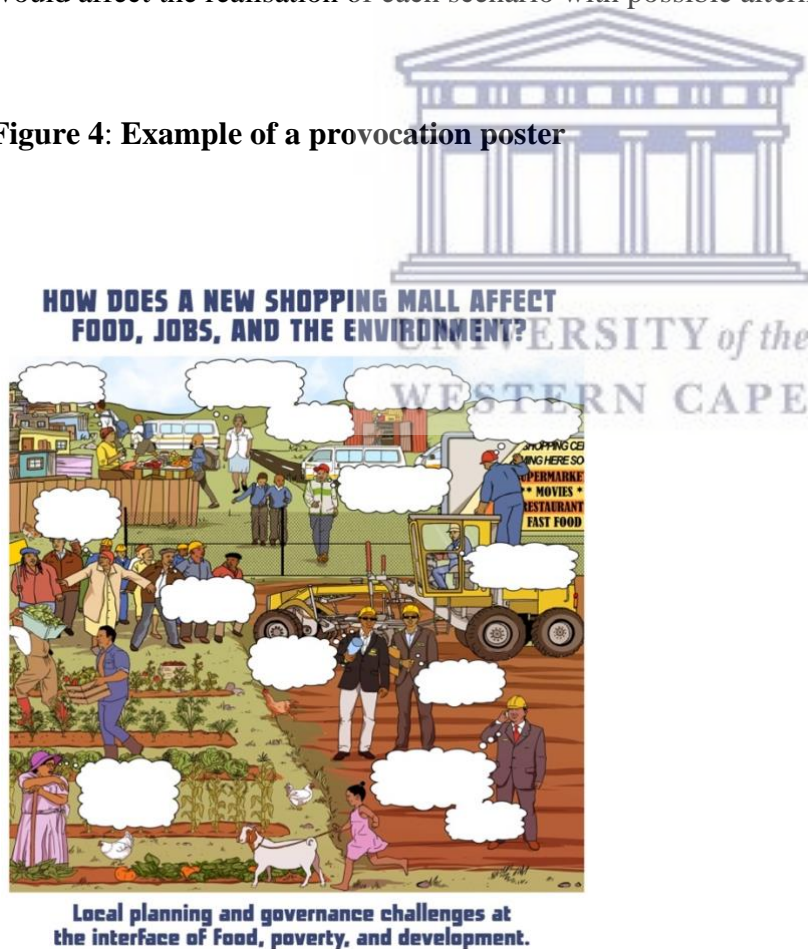
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The sequence included:

- An introduction regarding food security and food systems in South Africa; trends of concentration and corporatisation vs localised food system

- The profiling of the current food system in Witzenberg through a series of guiding questions about the state of production/transformation/distribution)
- The introduction of provocation posters and discussion. The provocation posters (see figure 4) were prepared by Jive Media Africa for the CoE and the Institute for Poverty, Land and Agrarian Studies (PLAAS) at UWC as a tool to help communities identify what the possible future implications for the food system could be if there were new developments in their area of work or home. These posters were used to stimulate the expert group’s thinking of their place (see picture 8 & 9) and what impacts factors of change could have on the Witzenberg region and its food system. Blank bubbles were used to ask the participants what could be said by the different stakeholders displayed in the posters.
- Furthermore, the idea was to engage with participants to see how they would see the implications of the existing scenarios on food security as well as how food security alternatives would affect the realisation of each scenario with possible alternative scenarios emerging.

Figure 4: Example of a provocation poster



©Jive Media Africa

Pictures 7 and 8: Discussion of provocation posters



The guiding questions to reflect on each scenario were:

- Who is eating what?
- Where do people get food?
- Where does food come from?
- Who is doing what in the Witzenberg food system?

- Next, the expert group reviewed the scenarios and plugged in the results of the discussions relating to the 4 questions into each scenario as well as which critical events could lead to each scenario

- Lastly there was a discussion around the synthesis about commonalities and differences of food systems/food security in different scenarios.

4.2 Main outcomes from the PPA in Witzenberg

4.2.1 Preliminary perceptions of past, present and future

This is how the local experts “see” and “feel” the evolution of their place. There were various hopes such as improvement of education, alleviation of drugs in the local communities, more investment into Witzenberg and better health care facilities. The fears included increase in unemployment, drug use and violence in communities. Further fears were related to land invasions and a decline in tourism.

Regarding the expectations, some in the expert group were not very optimistic and mentioned that there would not be much positive changes but rather the status quo would result in the

Witzenberg region to decline. Other members were hopeful and expected the local economy to grow once the drought period ended.

The major internal events and milestones resulting from the historical fresco exercise included the first primary school in Ceres (1887), forced removals for people of colour (1962), the 1969 earthquake, significant protests in Nduli and Bella Vista against apartheid (1980), the establishment of the first juice factory (1980), the building of a major dam (1998) and the first school for the disabled (2014). The major external events included the launch of the Freedom Charter (1955), the first democratic elections (1994) and the soccer world cup (2010). This exercise provided a glance into the rich history of Witzenberg over the past 100 years and how it arrived to its present-day setting.

4.2.2 From factors of change and driving forces to future states

The analytical work provided by the local experts led to the identification of factors of change, which were then funnelled to keep the most important and to identify the forces.

47 factors of change were initially decided on (see annexure 1). Thereafter, they were arranged according to their capacity to be influenced/controlled

These 47 factors of change were reduced to the 10 most influential factors. The 10 factors of change identified by the expert group were as follows (see table 5).

Table 5: The 10 most influential factors of change.

NR	Factor of change	Definition
1.	State of Social Cohesion	The attitude of everyone with regards to each other (with particular attention to the difference between black, coloured and white people)
2.	Relation between local communities and local government	The way in which local government and local communities are communicating
3.	Quality of services by local government	To what extent the level of service delivery by the local government to the residents meets their basic needs
4.	The state of the local education system	To what extent the local education system is accessible to all and the quality of the education is guaranteed
5.	Access to available land for productive and social needs	To what extent, to whom and how land is made available for productive needs (agriculture, animal husbandry) and social needs (cemeteries, housing, recreational facilities)

6.	Behaviour regarding natural resources and environment	The type of behaviour of local stakeholders regarding the management of natural resources and the preservation of environment
7.	The state of local governance	To what extent the state of local governance facilitates the economic and social emancipation of stakeholders and provides the necessary public goods to the community
8.	The role of information and communication technologies	How, by whom and what for, information and communication technologies are used locally (economic information, education, social events, online service)
9.	The type of agricultural development	How agricultural technical systems will look like (regarding employment, automation, inputs etc.)
10.	Business opportunities	To what extent and to whom the development of the local economy offers business opportunities

The 10 factors can be grouped in three main categories which are: land, environment and agriculture; business; and government and society (see table 6). They stem from the fears, hopes and expectations of the participants which is why they felt these factors were the most influential.

Table 6: Grouping factors into categories

Land, environment & agriculture	Business	Government & society
Access to available land for productive and social needs	The state of the local education system	State of Social Cohesion
Behaviour regarding natural resources and environment	The role of information and communication technologies	Relation between local communities and local government
The type of agricultural development	Business opportunities	Quality of services by local government
		The state of the local education system
		The state of local governance
		The role of information and communication technologies

Business opportunities, the state of the local education system, the quality of government and the state of social cohesion are important to the expert group and reflect their fears of increased unemployment, resulting in increased poverty creating more social tension.

It is under the category of government and society that the majority of factors fit in. The expert group felt that the relationship between communities and the municipality is important because that is often where there is a disconnect. It highlights hope and expectation that the relationship between communities and the municipality can improve.

Six driving forces were selected, namely: economic activities, social cohesion, local governance, education and training, land use allocation and environmental behaviour.

The 10 factors and the 6 driving forces were used to create plausible future states that could occur in 20 years.

These future states were grouped under desirable, undesirable and alternative states (see Table 7). They allowed the experts to have a first look into the relationship between driving forces and the most influential factors of change.

The future states all presented specific features such as:

- A foreign company emerging and possibly controlling 80% of the economy in Witzenberg and developing a highly mechanized agriculture (A3)
- The use of representational body to reallocate land (E1)
- People being forced by powerful laws to respect each other and the environment (F3)
- New technologies bringing a diverse and high-quality education and training to people's doorstep (D2)

Table 7: Future States

	Future states				
Driving forces	Desirable	Undesirable	Alternative (1)	Alternative (2)	Alternative (3)
A. Economic activities	A1. Development of local businesses with equal economic partnership, engaged in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high levels standards for local trade and export. Large shopping malls have developed along with local fresh product markets.	A2. All economic activities have collapsed	A3. A foreign company controls more than 80% of the economic activities and has developed a highly mechanized/automated agriculture		
B. Social cohesion	B1. Respect, caring prevail. No abuse of any sort.	B2. A divisive society where abuse, violence and corruption prevail	B3. Individuality and selfishness prevail so that there is neglect and indifference with regards to the situation of other people	B4. A new clustered social cohesion with different communities living in separate groups but with equal rights	
C. Local governance	C1. Local government with quality leadership involves local communities for transparent provision of quality services based on efficiency principles	C2. Public goods are locally provided through a collective consultative and decisional network of citizens	C3. A corrupt unstable local government provides only for its own needs with poor services to the population	C4. A single ruler (ranging from a dictator to an organization such as a church-state) unilaterally decides on services and goods allocation	C5. Government services and functions are fully privatized
D. Education & Training	D1. Academic and technical college/schools accessible to all with qualified educators providing adapted knowledge and technical skills needed for entrepreneurship and craftsmanship	D2. New technologies bring a diverse and high-quality education and training to people's doorstep	D3. Collapse of the local education/training system forcing people to go out for learning	D4. A selective education and training system only available for the financially privileged	D5. A dysfunctional corrupted system accessible to all with very low quality and high-level drop outs
E. Land use allocation	E1. Land is reallocated by a representative body to well-trained communities and small farmers with criteria of use/productivity and benefits to the community and also for social needs (schools, shops)	E2. Land concentration, no redistribution, dormant land	E3. People take land without consent, occupation by squatters, violence and conflicts	E4. Land is taken by government officials and redistributed to friends and family	E5. No more land is available for any use due to contamination
F. Environmental behaviour	F1. CARE Residents and communities live in tune with the environment and engage in collective clean and green projects to preserve nature	F2. NEGLECT People have no regard to environment, polluting and not managing waste, degrading resources	F3. ENFORCE People are forced by powerful laws to respect environmental rules	F4. DESTROY People actively abuse natural resources and the environment up to their destruction	

4.2.3 Plausible scenarios for Witzenberg

Eight scenarios were established by the expert group. Two scenarios were seen as desirable (SC1 & SC2), three were seen as alternative (SC 3, 5 & 6), and three were undesirable (SC 4, 7 & 8). The full narratives for each scenario which were drafted by the expert group are presented in annex 2. The short description of each scenario is as follows:

Desirable scenarios:

- *Valley of Abundance/Vallei van Oorvloed (SC1)*

This scenario is a desirable scenario showcasing strong municipal leadership having a strong emphasis on community engagement and providing quality service delivery resulting in good governance. Furthermore, land is reallocated to those who need it and who qualify for it based on a set criterion. People have great mutual respect for each other and for the environment. There is a strong emphasis on education with good quality schools accessible to all. Regarding business, there is strong local economic development in the form of small businesses engaging in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high levels standards for local trade and export.

- *Community breaks through/ Gemeenskap Deurbraak (SC2)*

This is seen as a desirable plausible scenario where the local government has evolved into a consultative group of elected members advising a decisional network of elected citizens representing the diversity of interests of the different local communities in the municipality. Public goods are locally provided through a collective consultative and decisional network of citizens. Quality of service delivery is a core element of the local governance system. Therefore, all local public figures and agents of authority are elected and dismissed through networked decisions based on their behaviour with regards to the law and fellow citizens. Furthermore, all households have access to advanced ICT for all their needs including education, economic information, social events and other online services. Innovation hubs have been created where people can freely exchange and share their ideas.

Undesirable Scenarios:

- *Left with nothing among something/ Uitgelaat met niks onder iets (SC4)*

This scenario is seen as undesirable because a corrupt unstable local government provides only for its own needs with poor services to the population; government officials have taken the land and redistributed it to friends and family. Majority of the economic activities of the

Witzenberg area are being controlled by a foreign company which has developed a highly automated agriculture. The local conditions make it difficult for local people to develop their own businesses. A selective education and training system is only available for the financially privileged. Only the rich and privileged developed their own processes for making ICT available, whereas the poor and underprivileged do not have access to ICT. Furthermore, the rich and privileged have access to social media to engage with each other and with the world whereas the poor and underprivileged have limited access to social media due to lack of money to buy data. Social illness has increased due to communities being marginalized by the state and the foreign company.

- ***Collapsing/Inval (SC7)***

In this scenario, the government is completely corrupted providing for its own needs resulting in a complete collapse of all economic activities. There is a dysfunctional corrupted education/training system accessible to all but with very low quality and high-level drop-outs. Communities are not considered as a partner for governing the municipality and supporting socio-economic development. They cannot contribute to decision making which is captured by vested interests. Law enforcement is poor which contributes to insecurity and prevents support to disadvantaged groups. Tax collection is ineffective and unpredictable which increases the feeling of injustice. As a consequence, service delivery to the community is debilitated with poor quality and unequal access. The health system and social safety nets are particularly affected as well as access to drinkable water. Business opportunities have vanished resulting in massive unemployment and poverty increase with direct impact on access to basic needs and child malnutrition. Infrastructure maintenance has been stopped. Streets have potholes, several roads are going back to dirt, and some country bridges have collapsed. The national provider of electricity has disconnected the municipality from the grid because of dramatic arrears, and local production of energy (solar and wind) is stopped due to lack of maintenance.

- ***Is it the end? /Is dit die einde? (SC8)***

This scenario is also an undesirable scenario. In this scenario, all economic activities in Witzenberg have completely collapsed due to the corrupt and unstable local government which only provides for the needs of its leaders and officials. There are violent land grabs. There is no formal education as the education system has also collapsed forcing people to an informal education.

Alternative Scenarios:

- *www.Witzenberg@Pty-Ltd.com (SC3)*

In this scenario, the services and functions of local government have been outsourced to a private company, collectively owned by the citizens of the municipality - Witzenberg Commons Pty Ltd - resulting in the use of new technologies. The technology is used to bring a high-quality education and training to the doorsteps of people. Furthermore, Witzenberg is a hive of economic activity where agribusiness corporations and large retail chains are complemented by varied local and small businesses offering employment opportunities to residents. Local economic exchange is governed in a transparent and inclusive manner by the Witzenberg Commons Pty Ltd, which uses smart technologies and a local virtual currency (WitzenCoin) used with smart contracts to ensure that public funds are allocated transparently and democratically by residents themselves. There are also small farmers, large farms, processing factories making use of robots and waste is turned into bio-energy.

- *Blossoming apart/ Uitmekaar Blom (SC5)*

In this scenario, a new clustered social cohesion has developed with different communities living in separate groups, but with equal rights. Global social cohesion has reduced but local social cohesion has tremendously increased within each community. Each community identifies itself through a common set of values that include the youth. All adhere to the values of the community where they live and respect the local authority. In case of disrespect people are allowed to choose another community or may create their own ones. Each community has its own academic and technical college/schools that are accessible to all in the community with qualified educators providing adapted knowledge and technical skills needed for entrepreneurship and craftsmanship, as well as facilities for their own youth. Each community has established its own local finance based on local tax collection

- *Cheatah Pty is “caring” for you/ Cheatah Pty “sorg” vir jou (SC6)*

In this alternative scenario, a foreign company (Cheatah Pty) controls most of the economy in Witzenberg and ruling the municipality unilaterally deciding on services and goods allocation. The idea behind the name is that the company fronts as fast and innovative but their main objective is to *cheat* people by exploiting and manipulating their privacy through surveillance and cheap labour as profit is their main objective. There is a highly mechanized/automated agriculture with strong land concentration resulting in no land redistribution. Through investment from the company, the state of infrastructure has developed across the Witzenberg

resulting in an efficient public transport system for all. All people in the region have access to energy provided by Cheatah Pty Clean Energy Ltd through use of wind and biomass energy. The retailing facilities are franchised to Cheatah Pty outlets, but they do not support local economic development in the region. Most of the local population of working age is directly or indirectly employed and trained by the company and its local sectorial subsidiaries. This results in a marginal amount of people living in poverty.

Strictly applied powerful laws force people to respect environmental rules, and respect and care for each other which results in no abuse of any sort. This is due to a high level of surveillance established by Cheatah Pty and the local government.

Based on the major characteristics of every scenario, certain findings stand out (see Table 8). *Valley of Abundance* (SC1), as the most desirable scenario, possesses mostly positive major characteristics stemming from strong governance and engagement with the community. This will result in strong economic development benefitting small businesses. There will be a push for good quality colleges and schools adopting the latest technologies and regarding social cohesion. People will have respect for each and live relatively harmoniously. *Community Breaks Through* (SC2) has mainly positive characteristics but are different to SC1. In SC2, the community has taken over the functions of government possibly due to a lack of trust in the preceding system. This has in turn created more business opportunities for small businesses and given attention to the education system adopting new technologies. This scenario is clearly community-centric using business and land as a means to uplift communities resulting in a good relationship between community members who respect and care for the environment.

The undesirable scenarios (SC 4, 7 & 8) have similar major characteristics starting from an unstable corrupt government resulting in a breakdown in economic activities causing a disruption in society regarding people's attitudes towards each other. *Left with Nothing among Something* (SC4) is a likely scenario if the critical issues of today's setting continues as the characteristics of this scenario are similar.

Table 8: Scenarios’ major features according to the driving forces

NR	Scenarios	Business opportunities	Role of community & social cohesion	Role of local government	Education & Training	Land use allocation	Environmental behaviour
SC1	Valley of Abundance	Strong local economic development for multiple sectors (++)	Strong social bonds between people, with mutual respect (++)	Strong governance, good engagement between the community and management (++)	Good quality colleges and schools using ICT for adapted knowledge and technical skills needed for entrepreneurship and craftsmanship (++)	Land is made available through a consultative network of people deciding on who gets land and for what purpose (++)	People are deeply connected to the environment and engage in green projects (++)
SC2	Community Breaks through	Strong support for small business from consultative network (++)	Good relationship between community members (+)	The community has taken over municipal functions through a decisional network of citizens. (+)	Diverse & high-quality education using new technologies (+)	Land is made available through a consultative network of people deciding on who gets land and for what purpose (++)	People are deeply connected to the environment and engage in green projects (++)
SC3	“www.Witzenberg@Pty-Ltd.com”	There is support for small businesses (+)	Good relationship between community members (+)	Completely Privatised (-)	Diverse & high-quality education using new technologies (+)	Land is made available through a consultative network of people deciding on who gets land and for what purpose (++)	Agroecology Institute which has enabled the municipality to adapt to climate change & Community cares about the environment (++)
SC4	Left with nothing among something	80% of the economic activities controlled by foreign company – little room for small businesses (--)	Social illness has tremendously increased due to communities being marginalized by the state and the foreign company (--)	Local government plagued with corruption (--)	A selective education and training system are only available for the financially privileged (--)	Government officials have taken the land and redistributed it to friends and family (--)	People actively abuse natural resources and the environment up to their destruction. (--)
SC5	Blossoming Apart	Local businesses have developed with equal economic partnership (+)	Good relationship between community members (+)	Municipality has evolved into a consultative group of members elected from each community which is advising a decisional network of citizens representing the interests of each community (+)	Each community has its own academic and technical college/schools that are accessible to all in the community with qualified educators providing adapted knowledge (++)	Land is made available through a consultative network of people deciding on who gets land and for what purpose (++)	People engage in collective clean and green projects such as composting of organic waste, reduction of non-degradable waste, regular cleaning of the environment (++)
SC6	Cheatah Pty is “caring” for you	Cheatah Pty, a foreign company which controls more	Strictly applied powerful laws force people to respect and care for each	Cheatah Pty rules unilaterally, deciding on services and goods allocation.	Academic and technical college/schools are accessible to	Land is concentrated without redistribution,	Strictly applied powerful laws force people to respect

		than 80% of the economic activities in the region (--)	other which results in no abuse of any sort. (+)	(-)	all with qualified educators providing adapted knowledge and technical skills needed for the requirement of the company. (-)	local government allocates housing on state land, to the employees of Cheatah Pty (--)	environmental rules (+)
SC7	Collapsing	Business opportunities have vanished resulting in massive unemployment and poverty increase (--)	Weak family cohesion, disrespect for the elders and for authority, individuality and selfishness prevail (--)	A corrupt unstable local government provides only for its own needs with poor services to the population (--)	A dysfunctional corrupted education/training system is accessible to all but with very low quality and high-level drop outs (-)	Abandonment of spatial planning & no more land available for any use (--)	Individualistic behaviour also affects the environment, causing pollution, mismanagement of waste, and degradation of resources, which impact the quality of water for human consumption. (--)
SC8	Is it the end?	All business opportunities have halted as a result of the corruption (--)	A divisive society where there's abuse, violence and corruption (--)	Corrupt unstable local government only provides for its own needs with poor services to the population (--)	The local education/training system collapsed, forcing people to go outside for learning (--)	People actively abuse natural resources and the environment up to their destruction (--)	Land is forcibly taken/land grabs (--)

Legend:
 (+/positive feature), (-/negative feature), (+/double positive), (--/double negative)

The alternative scenarios (SC 3, 5 & 6) are more unorthodox in their make-up but still plausible. *Witzenberg@Pty-Ltd.com* (SC3) comprises of some positive characteristics but the major difference in this scenario is the complete privatisation of the municipality. This could be a result of a specific government-wide strategy at the national level of outsourcing municipal functions to the private sector countrywide or outsourcing it to a community owned company. The possibilities of this scenario could be mainly positive as seen in the table but the privatisation of the municipality could perhaps have consequences further into the future as the main incentive of the private sector is profit. *Blossoming Apart* (SC5) has a situation where people with similar interests live together in separate communities. With reference to South Africa's history of apartheid, this scenario of separated development differs because the separation is not necessarily based on race. It could be class separation, religious or something yet to arise. Due to the history of South Africa and the present-day lack of integration, through spatial planning and economic development, people have a predisposition of living separately. This scenario is an exacerbation of this predisposition.

In *Cheatah Pty is Caring for you (SC6)*, there is a situation where a single foreign private company has taken over Witzenberg, including the functions of the municipality. This company makes use of high-tech surveillance to track people and monitor their behaviour, ultimately “forcing” them to respect each other and the environment. The only positive here is that the environment will be respected.

4.2.4 Major factors influencing pathways of change

The backcasting exercise helped to reflect on the critical factors and specific choices which could result in different plausible futures in the next twenty years. The future can unfold in many different ways, depending on actions and inactions taken in the present and the years to come as well as foreseen and unforeseen events. The actions are based on decisions taken by multiple stakeholders in Witzenberg. It is important that these possible critical factors or pathways be identified by the actors who have the ability to take action such as the municipality, the Witzenberg residents and local businesses. As a way forward, this step is important as it provides the information necessary to make changes at a strategic level.

Table 9 below represents the main critical factors which would influence the dynamics of change and result into different pathways leading to specific scenarios. These pathways are represented in Figure 5.

When working back from the scenarios, these critical factors will be revealed as key steps which can be used to identify strategies in the present either to prevent undesirable scenarios, possibly prevent negative events or to move towards desirable scenarios. The backcasting approach helps feeding information to the municipality and to the local community therefore fostering the debate on the role of local government and local economic development.

When considering the history of South Africa, there were many past decisions and events which have led to its present status. They resulted in the specific pathway of the country. Witzenberg is not immune to the effects of the country’s growing unemployment rate due to the decline in the economy, lack of land reform and corruption in government which was attested by the “state capture” inquiry (Commission of Inquiry into State Capture: 2018⁴). These critical factors could persist from today into the future and the way they will be dealt with will influence the possibility of different scenarios to emerge.

⁴ <https://www.sastatecapture.org.za>

Table 9: Critical factors influencing the possibility of different scenarios

NR	Scenarios	Critical factors
SC1	Valley of Abundance	<ul style="list-style-type: none"> ⇒ Good leadership, vision & public participation ⇒ Good governance ⇒ Progressive land reform policies ⇒ Investment in Witzenberg (financial, infrastructure, parks & recreation facilities, education) ⇒ Environmental policies and by-laws implemented
SC2	Community Breaks Through	<ul style="list-style-type: none"> ⇒ Mistrust in corrupt & unstable government ⇒ Lack of progressive land reform ⇒ Formation of a major civil society organisation ⇒ Community has taken over municipal/service delivery functions
SC3	Witzenberg@Pty-Ltd.com”	<ul style="list-style-type: none"> ⇒ Unstable local government ⇒ Trend of government-wide privatisation ⇒ Decision to outsource functions of municipality ⇒ Company investing in Witzenberg
SC4	Left with nothing among something	<ul style="list-style-type: none"> ⇒ Corrupt, unstable government ⇒ Lack of investment ⇒ Lack of any land reform ⇒ Lack of leadership, vision & public participation ⇒ No government action towards social reform ⇒ lack of business regulation against concentration / monopolies ⇒ No enforcement of environment regulations
SC5	Blossoming Apart	<ul style="list-style-type: none"> ⇒ Corrupt & unstable government ⇒ Lack of progressive land reform ⇒ Development of local energy generation (ex. Solar & wind) ⇒ Formation of a few civil society organisations
SC6	Cheatah Pty is “caring” for you	<ul style="list-style-type: none"> ⇒ Unstable, corrupt local government ⇒ Lack of leadership, vision & public participation ⇒ lack of government investment in public infrastructure and education ⇒ Strong economic investment from foreign company ⇒ Foreign company “buying out” government
SC7	Collapsing	<ul style="list-style-type: none"> ⇒ Corrupt, unstable government ⇒ lack of investment in infrastructure and education ⇒ Lack of any land reform ⇒ Lack of leadership, vision & public participation
SC8	Is it the end?	<ul style="list-style-type: none"> ⇒ Corrupt, unstable government ⇒ Lack of any land reform ⇒ No investment infrastructure and education ⇒ Warlords or gangsters take over communities

The pathway leading to *Valley of Abundance* presents critical factors which are clearly positive such as good leadership, vision and public participation from local government as well as progressive land reform policies being implemented and strong investment in education. However, based on the present-day trajectory, it would require almost radical reform of current policies as well as the way stakeholders make decisions. It is vital for local government to partner with business and develop opportunities for emerging businesses using the strengths of Witzenberg which are clearly its land, which contributes to the strong and growing agriculture industry, but also the local actors' knowledge about farming, the existing business community and the existing infrastructure. Based on these strengths, Witzenberg municipality is in a strong position to develop an adequate strategy and to take necessary actions which could lead to this scenario.

If there is a pathway of inaction towards social reform through land reform and strong economic investment, Witzenberg could become *Left with nothing amongst something*. These actions and inactions have occurred in South Africa in the past with similar critical factors which have led to the present. If things continue this way then there is a strong possibility that Witzenberg could move towards this scenario. To prevent this and possibly move to a more desirable future, the municipality must take on more responsibility with regard to social inequalities in Witzenberg by implementing land reform, actively engage with the community and attract investment which will create jobs paying liveable wages for the poor – who need training support - and assist small businesses. If there is present action or inaction such as corruption in local government, lack of investment in infrastructure and education, lack of land reform, lack of community participation and growing disconnect and mistrust with the government, it could lead to an undesirable scenario such as *Collapsing* and *Is it the end?*

Additionally, the pathways could lead to an unconventional future as it could result in the community forming a single or multiple big civil society organisations comprising of citizens of Witzenberg as a form of revolt against the municipality. These organisations could either be formed based on their differences with other organisations such as in *Blossoming Apart* or based on a single commonality which is to take over municipal functions such as *Community Breaks Through*.

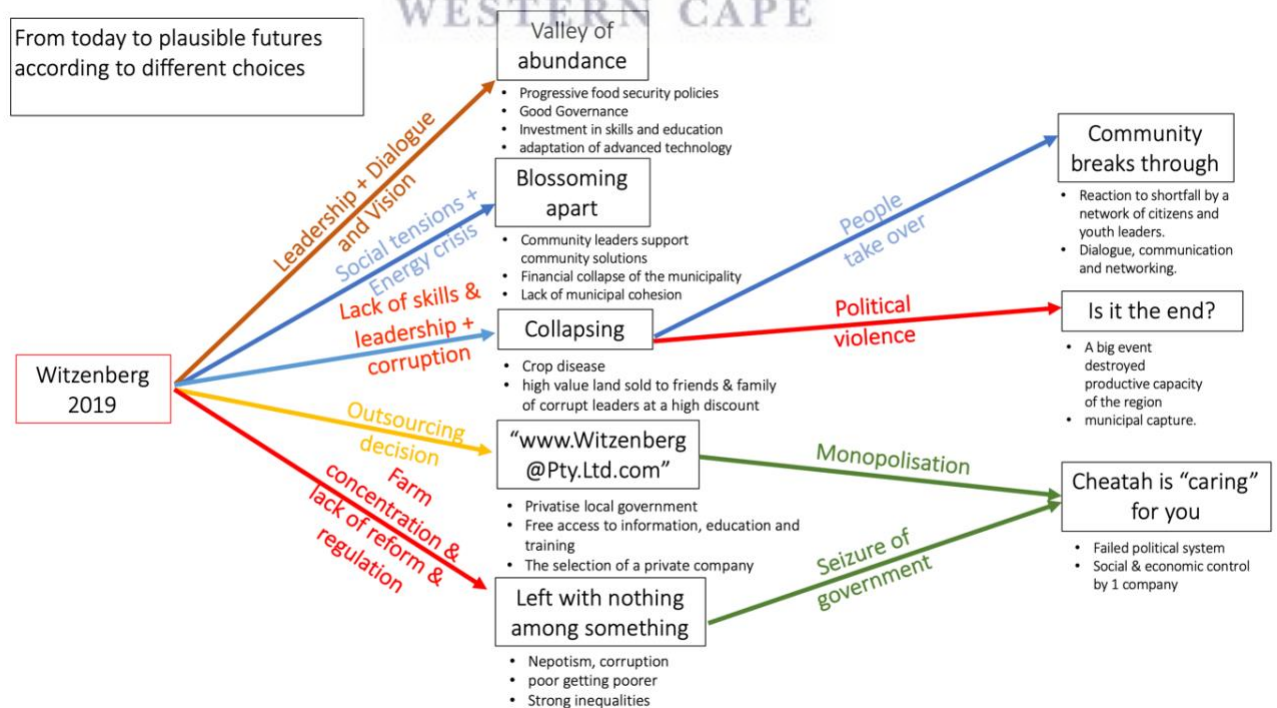
The pathways which could aggravate community members to take over the functions of the municipality could be a complete lack of leadership and strong vision and dialogue with the community and business. Certain pathways, possibly based on sinister divide and rule tactics as well as racial ideology which has led to apartheid, could lead to *Blossoming Apart*. Similar

factors could reappear through political tensions and divisions between sectors in society. In addition, these divisive tensions could be based on other factors such as class, religion or something not yet known.

If the functions and mandate of the municipality is sold to private entities, it could result in scenarios such as *Witzenberg@Pty-Ltd.com* or *Cheatah Pty is caring for you*. The pathways to these scenarios are dependent on a decision either by local government to completely privatise itself (possibly through negotiations with the community owned company) or a government-wide trend of privatisation. Due to the mismanagement of government finance, corruption, lack of vision and dialogue with the community, there could be a gap which creates an opportunity for the private sector to salvage the situation. This salvaging could come at a price which could affect the freedom of people (*Cheatah Pty*) or it could be positive where there the mandate of service delivery through good governance is delivered with control by the community (*Witzenberg@Pty-Ltd.com*). The alternative scenarios could be avoided, if seen as undesirable by the municipality, by ensuring that political games do not hinder action towards social and economic reform in Witzenberg.

Figure 5 represents the different pathways which could lead to each scenario from the present. It gives an idea of the way certain events and factors influence the route to different scenarios.

Figure 5: The Results of the backcasting



4.2.5 The role of the food system

In South Africa, many people are hungry, landless, jobless and unable to access food due to the characteristics and the flawed underpinnings of the food system. The SA food system is plagued by fragmentation due to the lack of civil engagement, the lack of progressive government policies at both the national and local level alongside ever-growing socio-economic issues. The food system favours big businesses and sees large retailers and new malls as progressive, whilst most often ignoring the informal sectors and the need to curb high food prices allowing more people to access food. As it stands, local government does not have a vested interest in the food system which could create an opportunity for more strategies and public action for the benefit of local communities and the informal food economy.

The main characteristics of the current food system in Witzenberg, according to the expert group, consists of large-scale farms, packaging houses, marketers, supermarkets and logistics firms. The farms produce deciduous fruit such as apples, pears, nectarines, peaches, plums and apricots, as well as onions, potatoes, butternut and wheat. The supermarkets consist of big chains with the usual Pick n Pay, Spar, Checkers and Shoprite. There is also a large agri-retailer, Kaap Agri, specializing in agricultural inputs and services. The pack houses make use of cooling technologies such as Controlled Atmosphere (CA) and Regulated Atmosphere (RA) rooms to keep large quantities of produce from ripening for up to 10 months until it is ready to be exported. On the other hand, there are small-scale tunnel farmers who are able to sell some of their produce to the local Spar and Pick n Pay.

The main issues with the Witzenberg food system mentioned by the expert group are climate related, such as the drought, or refer to the lack of jobs due to seasonal work which restricts households to buy nutritious food, as well as rising food prices which affects the quality and quantity of food people are able to purchase.

These characteristics and issues in the South African and Witzenberg food system will definitely impact the future socio-economic development of the municipality. They could manifest, contribute and lead to one of the eight scenarios. Based on what is known, the status quo would favour SC4 (*Left with nothing among something*) but could also result in SC6 (*Cheatah Pty is caring for you*) and even in SC7 (*Collapsing*).

According to the discussions with the expert group, certain events and decisions the municipality and business make today could take Witzenberg to the direction of desirable or undesirable scenarios. Table 10 reports on the role of the food system in each scenario. These

roles were weighted by either their possible positive (+), double positive (++), negative (-) or double negative (--) impacts. It helps to identify what is desirable or undesirable in the evolution of the food system.

Table 10: Features of the food system

NR	Scenarios:	Role of the food system (+ / positive feature), (++) / double positive, (- / negative feature), (--) / double negative
SC1	Valley of Abundance	<ul style="list-style-type: none"> • Progressive food security strategies (++) • Investment in small business, including small farms & agribusiness (++) • Land reform to support small farming (++) • Farmers markets (++) • Use of advanced technology (+)
SC2	Community Breaks Through	<ul style="list-style-type: none"> • Strong support for small business from consultative network (++) • small-scale, fruits and vegetables, wind energy generation (++) • Fresh produce markets (++) • Communal gardens on small holdings (+) • Big food processing, food export and food waste industries creating employment (+) • Land reallocation (++)
SC3	“www.Witzenberg@Pty-Ltd.com”	<ul style="list-style-type: none"> • There is support for small businesses to provide nutritious local food (++) • Use of technology such as drone delivery (+) • Strong food waste policies (++) • Farmers markets (++) • Development of a mall (-)
SC4	Left with nothing among something	<ul style="list-style-type: none"> • Minimal support for small business (+) • Highly mechanized/automated agriculture (-) • No food security strategy from local government (--) • No food waste policies or by-laws (abuse of environment) (-) • High food prices (--)
SC5	Blossoming Apart	<ul style="list-style-type: none"> • local businesses have developed with equal economic partnership (+) • Land reallocation for small farmers (++) • Local fresh food markets in each community (++) • Community trade (+) • Recycling food waste (++)
SC6	Cheatah Pty is “caring” for you	<ul style="list-style-type: none"> • Cheatah Pty nearly holds a monopoly in the region (--) • No support for small businesses (-) • Land is concentrated (--) • Food is imported, limited fresh food (-)
SC7	Collapsing	<ul style="list-style-type: none"> • Food black market (--) • United Nations food collection points for people (+) • Degradation of the environment & land (--)
SC8	Is it the end?	<ul style="list-style-type: none"> • Degradation of the environment & land (--) • Food access through bartering (--) • Food economy controlled by “warlords” or gangsters (--)

For example, if there are progressive food security strategies and policies by the municipality, coupled with good governance, investment in small business (small farms & agribusinesses) and use of advanced technology, then Witzenberg could move into the direction of *Valley of Abundance*. In this scenario, in 2038, people will be eating more fresh, organic fruit and vegetables, local meat and poultry, as opposed to processed food. They will have access to clean water and getting a diverse range of food from fresh food markets as well as locally supplied shopping centres/malls. The food will be grown on local farms without a significant

reliance on imported food. On the other hand, if the municipality is plagued by corruption, if the inequality in Witzenberg and South Africa at large continues to grow, it could lead to *Left with Nothing Among Something* which contains only negative features in its food system. In this scenario, in 2038, poor people will eat cheap, unhealthy and mostly processed food while the rich eat nutritious food which comes at a higher cost. In this scenario there is a foreign company owning and controlling a majority of the economy in Witzenberg. This scenario appears to be similar to what is happening in present day South Africa and Witzenberg where poorer people cannot access safe and nutritious food. Therefore, if the current trajectory persists, Witzenberg could see an increase in hunger and malnutrition as a direct result of the economic exclusion for the majority of people.

Alternatively, Witzenberg could be faced with other unusual yet plausible scenarios such as *www.Witzenberg@PtyLtd.com* or *Blossoming Apart* where the food system could take a completely different shape triggered by critical events which could take place in Witzenberg. These scenarios are different in that the events rather than the food system impact local development as well as the food system itself. This could come in the form of a foreign company completely taking over the region, including the functions and services of the municipality, or where the people of Witzenberg decide embrace separate development but with equal rights because they simply cannot get along. These alternative scenarios will have significant impacts on the Witzenberg food system as they contain only positive features but this may only materialize if the stakeholders who can take action adhere to the required pathways presented in the backcasting approach.

In Blossoming Apart, community farms will buy and sell or barter with each other regulated by a governing body. Their diet will be culturally preferred, nutritious and locally produced. Whereas in *www.Witzenberg@PtyLtd.com* people could also be consuming nutritious local food but with the use of technology. Using drones to deliver food to people is a new way of thinking about distribution or transport of food and actively turning waste into bio-energy will have a significant impact in Witzenberg and in South Africa at large but would also have further consequence on employment.

However, each scenario may be clearly seen as desirable or undesirable to some but the decisions made today by key actors in the food system could lead to one or more directions of the presented scenarios. If the more desirable scenarios or the desirable elements within the alternative scenarios are to be realised then it is vital that the local municipality take measured

actions today. Through strategies and progressive food policies, the Witzenberg municipality can get involved and steer the municipality into a more favourable direction.

When looking at the trends of each scenario regarding the future of the Witzenberg food system (see table 11), it can be noted that the more desirable scenarios make use of a mix of small-scale and large-scale farming, producing high quality, fresh and a diverse range of food. Whereas the undesirable scenarios might also have small and large-scale farming but have more industrialized, processed food with minimum diversity. Therefore, present strategies and policies should integrate these desirable trends of the future food scenarios in order to facilitate and improve the socio-economic development of the municipality.

Table 11: Characteristics of the food systems according to different scenarios

Scenarios:	Origin of food	Quality of food	Diversity
SC1: Valley of Abundance	Mix of local small-scale and large-scale farming & some imports	Fresh, nutritious & Organic	Diverse range of food available
SC2: Community breaks through	Community gardens, small- & large-scale farming	Fresh, nutritious & organic	Diverse range of food available
SC3: “www.Witzenberg@Pty-Ltd.com”	Mix of small-scale and large-scale farming	Fresh, nutritious & Organic	Diverse range of food available
SC4: Left with nothing among something	Local and imports	Mix of industrialized, fresh and organic based on affordability	Minimal diversity for the poor and diverse for the rich
SC5: Is it the end?	Local community food gardens, some imports and larger farms owned by “warlords”	Very little fresh, healthy and organic food from the gardens and more industrialized food from elsewhere	Minimal diversity
SC6: Cheatah Pty is “caring” for you	Most of the food is imported	Industrialized	Minimal diversity
SC7: Collapsing	Subsistence farms, donations and the United Nations	Low quality, processed staple foods	Minimal Diversity
SC8: Blossoming apart	Locally grown on small and large farms	Fresh, nutritious and organic	Diverse

4.3 Reflection on the process

4.3.1 What was successful?

The purpose of a scenario process is to illustrate specific and possible logical trajectories which could emerge. The pilot developed in Witzenberg showed it was possible to engage in anticipation utilizing an adequate methodology and guidance with a group of people without any restrictions on the education levels of participants. It was possible to have a local expert group, who are ordinary members of society with diverse backgrounds, to engage collectively in this process, and to have a diverse set of results.

Before the process, the participants were very reactive to present day issues such as the drought and conflicts in communities and found it difficult to engage in the future. By the last workshop, the expert group was deeply engaged in exploring the future and showed concern for how the future will take shape. This highlights that, once people are able to move forward from the present and into a state of anticipatory thinking, they can then take it a step further and think about how using the future could shape or orient different actions in the present.

The local expert group was able to identify factors of change, funnel them to the most influential and then combined them with driving forces to draft scenarios with narratives. The narratives provided the outline of what will happen in each scenario. The experts worked their way back from the scenarios using the backcasting method to determine which critical factors could lead to each scenario.

As a result, this work gives food for thought about critical factors of change and for change. The critical factors can be used by the municipality either as information which can help feed current strategies for local economic development or it can be used to create new strategies aimed at reducing food insecurity in Witzenberg.

It facilitates the discussion about food systems and food security and their importance, which is difficult to do from scratch because the idea of food security itself is complex. After discussions, the local experts understood how the food system works and who the role-players are. This was done after reflecting on the questions: who is eating what, where do people get food, where does food come from and who is doing what in the Witzenberg food system? They were then able to foresee how these role-players might influence or be influenced in each scenario. As a result, the expert group was able to illustrate the consequences of the future of food in Witzenberg in each scenario.

4.3.2 Limitations and possible improvements

This new research has encountered limitations encountered during the fieldwork and, retrospectively, some of them could have been avoided.

a) Selection risks and biases

Despite upstream discussions with the CoE-FS team presenting the requirements and the selection criteria, the selection of participants mostly relied on the municipal support team of two officials. It includes a possible selection bias as the proposed participants were people who they knew or who were identified in different socio-economic sectors or in the main town of the municipality. For sectors where the connections or knowledge was more limited, like the formal business sector, no representatives were included. It resulted in a lack of diversity of the expert group in terms of socio-economic status, demographics and geography. All of the members resided or worked in the town of Ceres or nearby, whereas the Witzenberg region consists of Ceres, Wolsely, Prince Alfred's Hamlet and Op-die-Berg.

In addition, there was an issue with the number of participants. When the proposed target of the expert group was about 25 people, the process started with 20 experts but ended with 12. The main concern was that the limited number of people and the lack of diversity impacted the identification of specific critical factors.

Better background work and better planning in the preparation phase would have helped with the selection process. The task group and support group need more time to prepare and filter through possible experts with the help of a broader, more reliable network. To prepare better, the support group should identify a larger number of participants then to be filtered down to 20-25 depending on the criteria, and the task group should be more involved and have a better understanding of the diversity and the critical socio-economic characteristics of the place.

b) Difficulty of engagement

Regarding the preparation phase, which included logistics, there was difficulty getting participants to agree to the focus groups, as it required a full 2-3-day commitment. This limited the number of participants attending all 4 focus group discussions. This limitation contributed to the additional days needed for catch up sessions of those missed the previous workshops which caused a problem with the flow of the process.

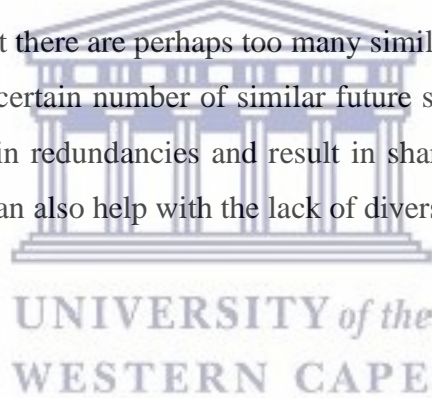
Based on the criteria and a better preparation phase, the willingness and commitment of participants should be better known. More time should be dedicated to obtaining better

information about the advantages and constraints of such a collective investment. In addition, it was advised, through discussions with SALGA that the possible dates could be moved to the end of the week as people find it difficult to commit to workshops in the week.

c) Similarities between scenarios

Some scenarios contain similarities in their characteristics for at least two of them. This could be a result of possible construction bias as the scenarios were built from a combination of future states which led to similarities in most of the scenarios with only a few being different. The building of the future states was a result of the factors of change identified by the experts. As a result of the challenges faced in the selection of the expert group, the lack of diversity of the factors of change may have affected the outcome of the future states and the scenarios. Two of the undesirable scenarios, *Collapsing* and *Is it the end*, are an example of scenarios with strong similarities.

This being a limitation is debatable because each scenario does carry its own weight through its formation and narrative, but there are perhaps too many similarities. Being more restrictive in the possibility of having a certain number of similar future states and more fine-tuning of the process could avoid certain redundancies and result in sharper scenarios. As mentioned earlier, the selection process can also help with the lack of diverse views.



CHAPTER 5. CONCLUSION AND RECOMMENDATIONS

Food security remains a major problem in South Africa receiving inadequate attention from all levels of government in spite of people's right to food being enshrined in the constitution. Municipalities have a precise understanding of local constraints faced by their constituents and could play a larger role to identify strategies improving food security in the area they operate. However, food security is not directly a local government mandate in the new democratic South African Constitution of 1996 and municipalities have limited room for manoeuvre. In addition, they have many other urgent issues to face such as water, electricity, sewerage provision, housing combined with a lack of staff and financial capacity. Furthermore, the periodicity of elections every 5 years has the potential to change the strategic direction of municipalities when a new council is elected, possibly causing them to deviate from long-term thinking and planning.

5.1 How has a futures approach been useful?

In spite of these difficulties, the pilot developed in Witzenberg, using participatory foresight thinking with the PPA method, has shown that with limited means, food security issues can be discussed and put into perspective at the local level. This was done by building different future scenarios for the place which made it possible for the local actors to make sense of food related issues, which are a complex topic to explore, and how they can impact the future.

Based on this process and on the backcasting from the scenarios to the present, critical factors impacting possible change have been identified. They can be used by the municipality to reflect on areas to pay more attention to. Critical factors such as progressive environment and land reform policies partnered with strong leadership government at the local level and active community engagement coupled with good governance could greatly benefit Witzenberg in the future. On the contrary, a lack of land reform, lack of investment in education, no action towards social reform and a lack of interest for supporting activities related to the strengthening of the local food system could lead to an undesirable future.

More precisely, the process has demonstrated that it is possible to:

- a) Engage different stakeholders with different profiles, background and education in a scenario building process

- b) Identify critical issues which determine plausible futures of a place
- c) Identify the role of the food system in these futures

However, this process has also come across difficulties such as the selection process of the experts, the difficulty of engagement and the time needed to fine tune scenarios which raises the importance of the preparation process which could be strengthened.

On the other hand, the major results produced from this research demonstrates the potential for local dialogue, public participation and local citizenship which could be considered by the municipality. This could help foster active citizen participation in the dialogue on many critical issues affecting people at the local level and on the future of the place. The results also illustrated the effects changes in the food system will have on people in terms of how it may increase or decrease their ability to benefit from it. The results can also assist citizens to become aware of their right to food and how their municipality can put measures in place to make provision of this right.

This process points to a possible policy space and gives room for manoeuvre for policy engagements for the municipality if they want to do it as it has contributed to open up a better understanding of how the food system works at the local level.

The municipal systems act requests of municipalities to develop a culture as well as mechanisms for active community participation (Municipal Systems Act: 2000). With this in mind, the implementation of a participatory tool like the PPA method illustrates how engaging with local actors could support local government strategic thinking and contribute to identifying possible policies. As Binza (2005:69) reminds, the overarching mandate of local government is to be *“development orientated and to ensure that development is people centred”*.

5.2 A way forward

Regarding food security, a first step for the municipality is to acknowledge its significance and its impact on people in the present and the future. This acknowledgement could position the municipality at the forefront of local government taking on the additional responsibility of addressing food insecurity and possibly give Witzenberg a leading role in the Western Cape.

This could be done through a public dialogue or forum where the results of this process could be used as a stimulus for people to see how the development of the food system will affect them. In addition, the scenarios could be further developed for easy dissemination and possibly

displayed in a public space. It could be for instance innovative to display plausible futures in the local museum, as a way to connect past and future and for people to gain insight and see what the future of their place might be in the next twenty years.

Witzenberg has the potential to develop into a municipality where the food system could benefit better to all its people so that nobody can go hungry. As a start, the dialogue could result in a series of principles, aims and objectives to be consolidated and presented in a local “food charter” which can act as a tool of engagement between local stakeholders. A food charter is a document which “establishes the principles underpinning food system and food security interventions” (Sustainable Cities: 2015). A food charter can serve as a guide to bring stakeholders together to work towards a more sustainable food system. This is important because it promotes the role of local dialogue through community engagement in addressing food security issues, as well as placing a strong significance on effective governance from the municipality.

Furthermore, the adoption of a food charter could illustrate the municipality’s willingness to commit to a set of aims and objectives to develop the way people think about food and the food system and how stakeholders can work together to improve it. This can also help to inform citizens about the importance of food for a healthy community and the significance of food related activities which can help local economic development.

In addition, the municipality could use the IDP and its revision process to engage in discussions with provincial government about supporting small local producers, processors and traders. This can include the support of fresh markets which can create an outlet for local producers to sell their produce. The support for local markets can also be a way for local government to think about supporting informal activities by giving them the tools needed to develop. An additional way this could be done is by supermarkets procuring local produce from these small producers.

Further IDP discussions, as informed by the outcomes of this research, can be about improved natural resource management and spatial planning which could include taking stock of land availability for possible housing, emerging small famers and other social uses, reforestation for better water resilience and soil restauration, as well as identifying possible sites for renewable energy production such as wind farms.

5.3 Further research and final considerations

This process has shown that engaging with community members, using a foresight approach can yield interesting results. The outcomes of this research allow for deeper thinking, especially reflecting on the way forward in terms of how the results can be used. A possible next step of research could be to see how food security issues can be incorporated in planning at the local government level using the scenarios. One of the interesting findings of this process was the way the expert group shifted, in unison, to a state of anticipatory thinking which reveals a new way of community engagement. Perhaps the way community engagement has been done in the past, at the local level, has been ineffective because the municipality and the community were not meeting each other half way. Anticipation highlights that there is room for mutual understanding of a future which no one person or organization can control which leaves room for further research on how to plan. This kind of planning could make use of the critical factors developed in the scenarios to create strategies for the municipality.

However, such an approach will need to update the local diagnosis of the current strengths and weaknesses of the Witzenberg area. It will be necessary to further investigate the on-going socio-economic trends, the state of local livelihoods, the possible development of existing activities and the potential for new ones.

As an action researcher, I was able to observe and participate in the process by engaging the local expert group as a contributing member of the task group. The process had some challenges and limitations, particularly in the selection phase which will be considered in further research going forward.

This process has provided insight into the lived experience of people from Witzenberg. As a researcher, I was exposed to the deep seeded hopes, fears and expectations of the local experts. This was also experienced throughout the workshop where participants voiced their concerns for their communities.

The results of this study highlight the fact that community participation through an interactive process can lead to meaningful outcomes which could be used by government as a way to enhance decision making around strategies. It further highlights that using a foresight approach can help raise awareness about the consequences of present day decisions and action. A futures approach can show how past decisions have created the present status and how it illustrates that through anticipation stakeholders can use the past and present to set the scene for the future and identify “pockets of future” in the present through emerging facts or trends. It is up to the

municipality through a possible continuing collaboration with SALGA and the CoE to decide whether it will take a pre-active or pro-active approach to the future of its food system.



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ANNEXURES



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Annexure 1: 47 Factors of change and definitions

NR	Factor of change	Definition
1.	Relation between local communities and local government	The way in which local government and local communities are communicating
2.	The state of social cohesion	The attitude of everyone with regards to each other (with particular attention to the difference between black, coloured and white people)
3.	The state of social illness in the society	The level of social illness (for example drug abuse, teenager pregnancy...) in the society (who is concerned and how many people)
4.	The place of the disabled people in the society	To what extent the society pays attention to the needs of the disabled people and include them in the society
5.	The place of elders and children in the society	To what extent the needs of the children and elders are taken into account to ensure them adequate development and good living conditions
6.	The place of women in society	To what extent women and men have equal rights and opportunities in social, economic and political life
7.	Access to social assistance	The possibility for those in need of social assistance to have access to it (includes also the possibility that no social assistance being available).
8.	Access to health facilities	The possibility for those in need of health facilities to have access to it
9.	Quality of health care	To what extent health care provides quality of medical treatment (products and emergency services) and professionals and to whom and by whom
10	Development of health facilities	To what extent health facilities are adequate with population growth
11	The state of the implementation of housing rights	To what extent the local government can implement the planned housing schemes
12	Access to housing	To what extent access to quality housing for the people in need is guaranteed
13	Quality and accessibility of facilities for youth	To what extent facilities for youth are granted, accessible and adequate to the needs (recreational areas, sport facilities...)
14	Quality of services by local government	To what extent the level of service delivery by the local government to the residents meets their basic needs
15	The ethical and moral conviction of the people	What values (ethics, morale) prevail among the population and particularly the youth
16	Training opportunities	To what extent youth have access to training opportunities of good quality
17	The state of the local education system	To what extent the local education system is accessible to all and the quality of the education is guaranteed
18	Level of local skills	The level of professional skills of the local population, particularly the youth
19	Behaviour towards authority	The type of behaviour that local people adopt with regards to local authority (police, justice, government, education...)
20	The state of poverty	Who is poor and how many and why poverty being defined as living in conditions which are considered as unacceptable by the community
21	The state of employment	Who and how many people have a job ensuring them decent living conditions (understood as of acceptable quality)
22	Business opportunities	To what extent and to whom the development of the local economy offers business opportunities


23	The state of relationship between different types of businesses	The nature of the relationship between global/national large companies and local entrepreneurs/companies (competition, collaboration, domination...)
24	Access to business	To what extent the local conditions make it possible for local people to develop their own business/enterprises
25	The state of marketing and education regarding tourism	To what extent local tourism-related activities are supported (capacities, entrepreneurship...)
26	The level of tourism awareness among local population	To what extent the local population is aware about local tourism and its potential for local development
27	The state of retailing facilities	To what extent the state of retailing facilities support consumption needs and contribute to local economic development (local versus large scale)
28	Access to available land for productive and social needs	To what extent, to whom and how land is made available for productive needs (agriculture, animal husbandry) and social needs (cemeteries, housing, recreational facilities...)
29	Drought occurrence	To what extent the occurrence of drought affects local livelihoods, communities and businesses
30	Access to water	To what extent equitable access to water is guaranteed to different economic, social and ethnic groups
31	The state of natural resources	To what extent the state of natural resources (water, biodiversity, soil fertility, forest) impacts local livelihoods, communities and businesses
32	Climate change awareness	The level of local people's (communities, residents...) awareness about the risks of climate change and their readiness to contribute to collective action
33	Behaviour regarding natural resources and environment	The type of behaviour of local stakeholders regarding the management of natural resources and the preservation of environment
34	The state of public transportation	To what extent the state of public transportation foster or prevent social and spatial cohesion, and poverty alleviation (cost and access)
35	Behaviour and actions of authority figures	The way local figures and agents of authority (role models such as police, teachers, parents, civil servants) behave with regards to law and citizens
36	The state of local governance	To what extent the state of local governance facilitates the economic and social emancipation of stakeholders and provides the necessary public goods to the community
37	The state of local finance	To what extent the state of local finance (amount, origin and allocation) supports the achievement of social and economic priorities
38	The state of local law enforcement	To what extent local law enforcement consolidates equality between citizens and strengthen relations and solidarity within the community
39	Level of community development	To what extent local communities have the capacity to influence public decisions and to develop themselves
40	The use of social media	By whom, how and what for social media are used locally (social networks)
41	The state of infrastructure	To what extent the state of infrastructure foster or prevent local economic initiative and socio-economic development
42	Incentives for innovation	To what extent innovative ideas/projects are fostered or supported by local institutions
43	The role information and communication technologies	How, by whom and what for, information and communication technologies are used locally (economic information, education, social events, online services...)
44	Access to energy	Who has access to what kind of energy
45	The state of energy development	The kind of energy developed in the municipality (solar, conventional, wind, biomass, coal, shale gas...)
46	The state of the legal system	Who makes the law and what is the content of the law (security laws, criminality, municipal laws, rights...)

47	The type of agricultural development	How agricultural technical systems will look like (regarding employment, automation, inputs etc...)
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Annexure 2: Scenarios with full narrative

Scenario	Narrative:
<p data-bbox="252 360 576 389">Valley of Abundance (SC 1)</p> 	<p data-bbox="644 360 1390 741">In 2038, the local government has quality leadership that involves local communities for transparent provision of quality services based on efficiency principles. Local figures are very respectful to citizens and engage in regular public participation which includes law making. Local finance is allocated through taxation and with rigorous mechanisms and structures in place to prevent corruption. As a result, local government provides high quality and efficient services to all citizens in the Witzenberg region. All citizens have access to high quality, free healthcare equipped with the latest technology. In addition, local law enforcement serves and protects all citizens by use of artificial intelligence as well as other ICT.</p> <p data-bbox="644 775 1390 1294">There is an essence of mutual respect and great consideration from citizens towards each other with no abuse of any kind. Local authority is respected and as a result, there is a reduction in all kinds of social illnesses. As a result, disabled people, women, elders and children are taken care of and their rights, needs and living conditions are valued and respected. Residents and communities live in tune with and are deeply connected to the environment and therefore engage in collective clean and green projects to preserve nature. The clean and green projects developed (composting of organic waste, reduction of non-degradable waste, regular cleaning of the environment, water purification system and tree plantation, reduction of pesticides and chemicals in agriculture) have resulted in the replenishment of the natural resources providing shelter against drought and climatic hazards. As a result, there are enough environmentally friendly recreational facilities for all.</p> <p data-bbox="644 1328 1390 1570">Land in the municipal region is actively being reallocated by a representative body to well-trained communities and small farmers with criteria of use/productivity and benefits to the community. The land reallocated is also used for social needs such as schools, shops and housing. Planning and implementation of housing schemes is supervised by the local decisional network, therefore, access to quality housing is guaranteed by the decisional network of citizens.</p> <p data-bbox="644 1603 1390 2018">Academic and technical college/schools, which are accessible to all, with qualified educators and high quality ICT provide adapted knowledge and technical skills needed for entrepreneurship and craftsmanship. Local businesses with equal economic partnership have developed, engaging in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high standards for local trade and export. Large shopping malls have developed along with local fresh product markets as well as online food retail services. All households have access to advanced ICT for all their needs including economic information, social events and other online services. Social media is used by all to connect with each other and to freely voice their political opinions without fear. The</p>

youth have access to an innovative hub where they can use new technologies to enhance their skills and as a result, the youth are equipped with digital and technical skills to meet the needs of the workforce.

Global and national large companies have developed new kind of agreements guaranteeing local employment and benefit sharing. Local tourism-related opportunities are supported by the local education system, the development of integrated innovation hubs connecting tourism with other local activities and awareness of tourism. Furthermore, infrastructure have developed and foster local economic initiatives and development resulting in a general and affordable public transportation system established by the collective consultative and decisional network of citizens that extends to all areas in the municipality as well as a diversity of renewable/alternative energy sources, mainly locally produced by local entrepreneurs. The development of alternative sources of energy has made it possible for almost all to have access to renewable energy sources particularly wind energy. Small-scale farms have developed based on family entrepreneurship. They are diversified, including integration into the tourism sector and are connected to local markets for perishable products and international markets for less perishable products that are mostly locally transformed. Farms are using very advanced water and energy saving technologies and zero chemicals. Regarding the food economy, there are local processing plants, waste being used to fertilise food. A good mix of small + large scale farming. Local agriculture co-operative. As a result, everyone has access to fresh fruit & vegetables, organic produce, meat & poultry. Everyone has access to clean water. A marginal number of people are poor, mostly due to their inability to fit in the society or to adverse economic situation as unemployment is limited to episodic adverse conditions of the local labour market.

Community breaks through (SC 2)




In 2038, new technologies bring a diverse and high-quality education and training to people's doorstep. All households have access to advanced ICT for all their needs including education, economic information, social events and other online services. Social media are used by all under the supervision of the consultative network of citizens mainly to inform residents about decisions related to governance and local activities. Innovation hubs have been created where people can freely exchange and share their ideas. They operate as capacity-building centres where volunteers can train people as per request. The level of skills of the local population has thus developed in the main areas of economic activities (farming, textile, energy and tourism) Recreational areas and sport facilities are supported under the supervision of the decisional network.

Respect and caring prevail and there is no abuse of any sort. Social illness has reduced, and local authority is respected. Disabled people, women and elders and children are taken care of. Their rights, needs and living conditions are respected. Residents and communities live in tune with the environment and they engage in collective clean and green projects to preserve nature. These projects (composting of organic waste, reduction of non-degradable waste, regular cleaning of the environment, water purification system and tree plantation, reduction of pesticides and chemicals in agriculture) have resulted in the replenishment of the natural resources providing shelter against drought and climatic hazards and recreational facilities for all.

The local government has evolved into a consultative group of elected members which is advising a decisional network of elected citizens representing the diversity of interests of the local community. Public goods are locally provided through a collective consultative and decisional network of citizens. This decisional network is connected to the national government through a smaller group of representatives. All local public figures and agents of authority are selected, eventually elected and dismissed through networked decisions based on their behavior with regards to the law and fellow citizens. The local community is fully in charge of its own development and has established local laws which are transparent and equally applied to all members to ensure stability and cohesion within the community as per the national constitution. Land is reallocated by a representative body to well-trained communities and small farmers with criteria related to use and productivity and benefits to the community and responds to social needs (schools, shops). Access to quality housing is guaranteed by the decisional network of citizens which supervise planning and implementation of housing schemes. A local finance system has developed based on local tax collection under the larger umbrella of the national system. Quality of service delivery is a core element of the constitution of the local governance system. Health care with adequate facilities for all is provided. Access to quality water is granted to all, supported by the implementation of clean and green project.

This results in the development of local businesses with equal economic partnership, engaged in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high levels standards for local trade and export. Large shopping malls have developed along with local fresh product markets. Global and national large companies have developed new kind of agreements guaranteeing local employment and benefit sharing at local level. Awareness of tourism development opportunities has significantly developed, and local tourism-related opportunities are supported by the local education system, the development of an integrated

	<p>innovation hub connecting tourism with other local activities. Small-scale farms and textile enterprises have developed based on family entrepreneurship. They are diversified, including integration into the tourism sector and are connected to local markets for perishable products and international markets for less perishable products that are mostly locally transformed. Farms and textile industry are using very advanced water and energy saving technologies and zero chemicals. There is a general and affordable public transportation system established by the collective consultative and decisional network of citizens that extends to all areas in the municipality. Infrastructure have developed and foster local economic initiatives and development. The development of a diversity of renewable/alternative energy sources, mainly locally produced by local entrepreneurs has made it possible for almost all to have access to affordable renewable energy sources, particularly from wind energy. Unemployment is limited to episodic adverse conditions of the local labor market and a marginal number of people is poor, mostly due to their inability to fit in the society or to adverse economic situation.</p>
<p>www.Witzenberg@Pty-Ltd.com (SC3)</p> 	<p>In 2038, government services and functions in the Witzenberg area are fully privatized. Witzenberg is a hive of economic activity where agribusiness corporations and large retail chains are complemented by varied local and small businesses offering employment opportunities to residents. Local economic exchange is governed in a transparent and inclusive manner by the Witzenberg Commons Pty Ltd, a collectively-owned company which uses quantum-computing distributed ledger technology (DLT - blockchain), smart contracts and a local virtual currency (WitzenCoin) to ensure that public funds are allocated transparently and democratically by residents themselves, that value circulates and accumulates locally, and that service provision is carried out efficiently by small, local companies which are responsive to residents' needs, provide a multitude of livelihood activities, and conduct business in ecologically sustainable and regenerative ways. Profits and dividends are re-invested in the acquisition of further assets (e.g. land, photovoltaic plants), provision of social services and the development of local infrastructure. Global and national companies drive large-scale agriculture, contributing to the revenues of a community-owned company which manages public service provision through efficient and transparent local tendering and governance processes. Entrepreneurs have opportunities running small businesses which employ the bulk of the local population. Many local businesses are involved in providing essential public and social services. The area has become a well-known destination for wealthy tourists who frequent spas, mountain hikes and wine-estates. The local population participates in local tourism providing goods and services to large spas and hotels, and through ownership of the Witzenberg Commons Pty Ltd, which manages a large conservancy offering varied tourism activities. Mass transport is privatised and run by subsidiaries of the Witzenberg Pty, options and routes respond to residents' needs, ensuring affordable and rapid mobility. Infrastructure serving the corporate agribusiness, tourism and retail sectors is well-developed, and investment in infrastructure serving low-income areas is ongoing, funded by the profits of the Witzenberg</p>

	<p>Pty Ltd. Retail facilities are sophisticated, catering to the needs of tourists and locals. High-end shopping malls co-owned by the Witzenberg Pty are complemented by a secure and well-managed covered fresh produce market owned and managed by the Witzenberg Pty Ltd, which provides varied opportunities to the local economy and adds to the touristic appeal of the town. Access to renewable energy is easy and affordable.</p> <p>Land is reallocated by a representative body to well-trained communities and small farmers with criteria of use/productivity and benefits to the community and it is also used for social needs (schools, shops). Large-scale agricultural land has been further consolidated, with a handful of powerful agri-business corporations controlling a large portion of farms. These are cultivated by contract firms using robotics and quantum AI, following agro-ecological methods. However, the Witzenberg Pty Ltd is one of the largest land-owners, generating revenues for the local fiscus through leases to large-scale farms and ensuring that there is access to land for small-scale farmers, and that fresh, local produce is abundant and affordable.</p> <p>As a result, development of local businesses with equal economic partnerships, engaged in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high level standards for local trade and exports. Large shopping malls have developed along with local fresh product markets. Although formal jobs are limited as a result of increasing automation, AI and robotics, the local informal economy offers many livelihood opportunities, and the efficient management of public finances for local infrastructure and service provision through the Witzenberg PtyLtd ensures that value circulates, accumulates and is reinvested locally. Consequently, most residents are able to sustain an acceptable standard of living where shelter, water, power, education, food and medical care are accessible and affordable. The provision of public infrastructure promoting local manufacturing and retail provide many local employment opportunities. Although incomes are not high, the low cost of basic amenities ensures that incomes are generally adequate to ensure good living standards. Several large and highly efficient wind and solar energy farms have been built and are run by subcontractors of the Witzenberg Pty Ltd which provides affordable energy to local residents and sells surplus energy to the national grid to generate revenue for the local fiscus. This is complemented by small-scale, distributed energy generation at the household and neighbourhood scale which enables residents to participate directly in the local energy economy through quantum DLT. Agribusiness, energy and hospitality corporations conduct their businesses in line with strict environmental codes, managing soils, water and biodiversity carefully to maintain and regenerate ecosystems. Witzenberg plays a leading regional role in the preservation of biodiversity and the development of innovative agro-ecological farming practices at the Ceres Agroecology Institute which have enabled the municipality to adapt to climate change and related droughts and flooding. Therefore, residents and communities live in tune with the environment and engage in collective clean and green projects to preserve nature. Access to quality housing is affordable to local residents through secure, long-term leases from the Witzenberg PtyLtd , which guarantees access to housing. Housing designs are resource-efficient and incorporate distributed energy generation and water management. Land held by the Witzenberg Commons Pty Ltd is allocated transparently and securely through the quantum DLT based on need and capacity. Housing development is carried out by small-scale, local contractors who are directly accountable to local residents</p>
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through the DLT service provision rating and rewards system. Strong economic participation and opportunities, education as well as a vibrant and secure social economy and public recreation and sports facilities have significantly reduced social ills. With most basic needs secure, and adequate provision of social and health services, people have more time and security permitting the emergence of altruistic, life-affirming and inclusive community-oriented values. People are respectful of local authority, which receives support from the Witzenberg Pty Ltd to ensure the rule of law and peace. Elders and disabled people are well looked-after through pensions, retirement homes and local service providers who receive direct remuneration for their services via the Witzenberg PtyLtd. Similarly, children attend good schools managed by SGBs and students' bodies which select, evaluate and compensate teachers and support staff through the company. Men and women have equal rights and opportunities, and the Witzenberg Pty Ltd ensures comprehensive support for women's needs related to parenting.

New technologies bring a diverse and high-quality education and training to people's doorstep. ICT are cheap and affordable due to Witzenberg Pty infrastructure development and investment in quantum distributed computing. They are used primarily to run the Witzenberg DLT. ICT also plays a key role in the provision of education and training, and in the development of local automated and distributed micro-factories which provide affordable access to consumer goods. Social media are used locally to offer, procure and rate service provision, to support social and political deliberations, and to attract tourists. Service delivery by local, small-scale service providers supports innovation and ensures responsiveness to local needs. High levels of connectivity ensure that innovative ideas and designs are easily accessed and incentivise the sharing of such innovations worldwide. The level of local skills is high due to universally accessible education and training provided through advanced ICT, and high levels of distributed automation and mechanisation of key services and manufacturing. Youth have easy and convenient access to excellent facilities, both virtual and real, particularly through the Ceres Agroecology Institute, which is pioneering high-tech regenerative and climate-resilient agriculture, resilient plant breeding and integrated pest management.

Local government acts primarily as convenor of local deliberation processes and to ensure that contracts governed by the Witzenberg Pty are carried out. Local authorities are directly accountable and responsive to citizens' needs through the Witzenberg Pty. Local communities directly influence public decisions through the Witzenberg Pty blockchain and local digital democracy system which allows residents to propose and vote on actions, allocate public resources and govern the award and adjudication of tenders for public services. The legal system is supported and extended by the Witzenberg blockchain which ensures that resources are allocated democratically and efficiently, automatically executes contracts in line with tender agreements and disburses funds impartially and immediately upon completion of contracts, ensuring a high level of transparency in local governance. Residents have respect, they care and there's no abuse of any sort. Criminality is minimal, and the use of publically-managed and accessible surveillance ensures that transgressors are easily identified and subject to legal sanction. Local finance is managed by the Witzenberg Pty blockchain through a local digital currency, which enables public budgets to be allocated directly and transparently by residents in line with local priorities. Small businesses and individuals have access to start-up finance through the


	<p>Witzenberg Pty. Local finance is supported by agricultural, residential and retail leases, as well as through revenue generated from energy generation and tourism. Local law enforcement is bolstered by private security firms which ensure that the rights of all residents are protected equally and that the contracts governing the provision of social services, infrastructure and essential facilities are adhered to. Service delivery by local government to residents is carried out through subcontractors appointed and remunerated by the community-owned Witzenberg Pty. Health facilities are developed in response to community needs expressed through the Witzenberg DLT, and are generally accessible, affordable and of a high standard, subsidised by company profits and budget allocations. Access to water is secure, with municipal bulk infrastructure maintained by local contractors, complemented by distributed water harvesting and remediation technologies. Marginalised households and individuals are able to access basic services through a minimum allocation of WitzenCoin.</p>
<p>Left with nothing among something (SC4)</p> 	<p>In 2038, 80% of the economic activities of the Witzenberg area are being controlled by a foreign company which has developed a highly mechanized/ automated agriculture. The local conditions make it difficult for local people to develop their own businesses/enterprises due to a corrupt and selfish government and the large foreign owned company. As a result, friends and family of local government officials receive support and preferential treatment regarding tourism, wind energy, small scale farms as well as employment. and Global/national large companies as well as local entrepreneurs/companies compete for 20% of economic activities in the Witzenberg region. Regarding tourism, support for local tourism is only given to the foreign owned company and friends and family of government officials resulting in slow awareness of tourism development opportunities. The public transport system has been crippled by corruption because infrastructure has only developed where friends and family of government officials own land and has prevented local economic initiatives and social economic development. Furthermore, the development of alternative energy such as wind energy has been made possible but only benefits foreign owned companies, farms. Large - scaled farms, owned by the foreign company are diversified, including integration into the tourism sector and are connected to local markets for perishable products and international markets for less perishable products that are mostly locally transformed. Farms are not using advanced water and energy saving technologies and are using harmful chemicals. Moreover, there's a high unemployment rate due to the high mechanization of large-scale farms. There is a large growing number of poor people due to a shortage in the job market and very little social assistance from the state. Furthermore, the foreign company has developed a wind energy plant which only benefits their farms and businesses</p> <p>A corrupt unstable local government provides only for its own needs with poor services to the population; government officials have taken the land and redistributed it to friends and family. The local communities have no capacity to influence public decisions, resulting</p>


	<p>in laws made by the state with no input from local citizens but they do, however, consider input from foreign owned company. Gangsterism, crime and activism has increased in the area. The main role models are political activists who engage with local authorities on the streets through protest and on the other side of the spectrum gang leaders are also role models who defy the law and harm citizens. However, law enforcement only serves and protects rich and privileged (which includes foreign owned company) and neglects the rest of the local people. The local municipality collects majority tax from rates and levies from foreign owned company which is at a discount. Residents in the area are charged property rates and levies as well as water and electricity at high tariffs. Service delivery to local people is very poor whereas the rich and privileged receive quality services. Water is available to all but quality is very poor causing further sickness such as E. Coli. Health care is available to all but the public health system is overburdened with patients leading to patients not receiving adequate treatment. There are no official planned housing schemes but only friends and family of government officials are guaranteed access to housing</p> <p>A selective education and training system is only available for the financially privileged. There is very little support from local institutions for innovative ideas for the local people, however there is an innovative hub supporting ideas by the foreign company. Only training for those employed by the foreign company takes place here. Only the rich and privileged developed their own processes for making ICT available, whereas the poor and underprivileged do not have access to ICT. Furthermore, the rich and privileged have access to social media to engage with each other and with the world whereas the poor and underprivileged have limited access to social media due to lack of money to buy data. The level of skills of the local population has developed in the main areas of the economy dominated by the foreign company such as farming, tourism, retailing etc. There are only aging recreational facilities for the youth.</p> <p>Individuality and selfishness prevail so that there is neglect and indifference with regards to the situation of other people, in a society where people actively abuse natural resources and the environment up to its destruction. Social illness has tremendously increased due to communities being marginalized by the state and the foreign company and resulting them to turn on each other resulting in growing tension between local people and authority. Furthermore, disabled people, women and elders and children are taken care of, their rights, needs and living conditions are respected. However, people actively abuse natural resources and the environment up to their destruction.</p>
<p>Blossoming Apart (SC5)</p> 	<p>In 2038, in the Witzenberg area, a new clustered social cohesion has developed with different communities living in separate groups, but with equal rights. With the emergence of the community's global social cohesion has reduced but local social cohesion has tremendously increased within each community as the reason for their constitution was social cohesion between people with the same kind of interests, ideology, value, culture. Each community identifies itself through a common set of values that include the youth. All adhere to the values of the community where they live and respect the local authority. In case of disrespect people are allowed to choose another community or may create their own ones. Disabled people, women and elders and children are taken care of in their own communities according to the values of the community. While their rights, needs and living conditions may vary between communities they are the same within each community.</p>


Each community has its own academic and technical college/schools that are accessible to all in the community with qualified educators providing adapted knowledge and technical skills needed for entrepreneurship and craftsmanship, as well as facilities for their own youth. While these may vary between communities, they are the same within each community. Each community supports innovative projects that contribute to the thriving of the community, based on its core orientations. Own processes for making ICT available to all their members have been developed, so that most advanced technologies can be tailored and used by all within the community. Specific social media have contributed to the shaping of the communities enabling people to identify where they wanted to belong and have been further developed in accordance to their own ethics. A network of networks has emerged across the communities of the municipality under the supervision of a consultative committee with members from all the communities. Altogether local professional skills have thus developed to ensure the proper specific development of the communities in accordance with their level of specialization and operating rules.

The local government has evolved into a consultative group of members elected from each community which is advising a decisional network of citizens representing the interests of each community. Public goods are locally provided through a collective consultative and decisional network of citizens involving the different communities and land is reallocated by a representative body from all communities with criteria of use/productivity and benefits to the communities and also for social needs (schools, shops) to well-trained beneficiaries and small farmers. This decisional network is connected to the national government through a smaller group of representatives. Each community has its own role models and values which are at the core of the constitution of the community. All adhere to the values within the community or are allowed to move to another community or create their own ones. Being fully in charge of its own development, each community has established its own local laws which are transparent and equally applied to all members, ensuring stability and cohesion within the community. Conflicts between members of different communities are non-existent. Each community has established its own local finance based on local tax collection under the larger umbrella of the national system. High quality of service delivery is a core element of the constitution of the community. Health care with adequate facilities for all is provided. Access to quality water is granted to all, thanks to the implementation of clean and green projects. Access to quality housing is supported by each community in accordance with their specific regulations as housing schemes are planned and implemented at community level ensuring access to all.

As a result, local businesses have developed with equal economic partnership, engaging in farming (small-scale, fruits and vegetables, wind energy generation), textile and tourism sectors, with high levels standards for local trade and export. Local fresh product markets have developed in each community. Global and national large companies have developed new kind of agreements guaranteeing local employment and benefit sharing in accordance to the local regulations of each community. Awareness of tourism development opportunities depends on the orientation of the communities. In tourism-oriented communities' local awareness is extremely developed. There, local tourism-related opportunities are supported by the local education system, the development of integrated innovation hubs connecting tourism with other local activities as per the orientation of each

	<p>community. In the more farming-oriented communities, small-scale farms have developed based on family entrepreneurship. They are diversified, including integration into the tourism sector and are connected to local markets for perishable products and international markets for less perishable products that are mostly locally transformed. Farms are using very advanced water and energy saving technologies and zero chemicals.</p> <p>There is a general public transportation system established by the collective consultative and decisional network of citizens across the communities. In parallel, each community has developed its own internal transportation system and more generally its own infrastructure as separate networks serving each community in accordance with their own orientations for development.</p> <p>The communities within the municipality have equipped themselves with a diversity of renewable/alternative energy sources, mainly locally produced by local entrepreneurs. This development of alternative sources of energy across communities has made it possible for almost all to have access to renewable energy sources particularly wind energy. Unemployment is limited to episodic adverse conditions of the local labour market and in each community a marginal number of people is poor, mostly due to their inability to fit in the society or adverse economic situation.</p> <p>Residents and communities now live in tune with the environment and engage in collective clean and green projects to preserve nature. These projects (composting of organic waste, reduction of non-degradable waste, regular cleaning of the environment, water purification system and tree plantation, reduction of pesticides and chemicals in agriculture) have resulted in the replenishment of the natural resources providing shelter against drought and climatic hazards and recreational facilities for all.</p>
<p>Cheatah Pty is “caring” for you (SC6)</p> 	<p>In 2038, Cheatah Pty, a foreign company which controls more than 80% of the economic activities in the region, is ruling unilaterally, deciding on services and goods allocation. It has developed a highly mechanized/automated agriculture, and other companies as well as local entrepreneurs/companies compete for 20% of economic activities in the Witzenberg region. The conditions under which they operate are set by the foreign owned company and are not conducive for local people to develop their own businesses. While the local population is aware of local tourism and see its potential for development local tourism-related activities are not supported by the local government and are controlled by Cheatah Pty. Through investment from the company, the state of infrastructure has developed across the Witzenberg region and there is an efficient public transport system for all. All people in the region have access to energy provided by Cheatah Pty Clean Energy Ltd through use of wind and biomass energy. The retailing facilities are franchised to Cheatah Pty outlets, but they do not support local economic development in the region. Most of the local population of working age is directly or indirectly employed by the company and its local sectorial subsidiaries. This results in a marginal amount of people living in poverty. A local finance system has developed based on local tax collection under the larger umbrella of the national system. Additional funds are pumped into the local fiscus via Cheatah Pty which has resulted in quality service delivery, which is a core element of the constitution of the local governance system. Health care with adequate facilities for all is provided. Access to quality water is</p>

	<p>granted to all, supported by the implementation of clean and green projects. The local population is obedient and submissive towards the local government but there is no capacity to influence public decisions. Land is concentrated without redistribution and the local government allocates housing on existing state land, to the employees of Cheatah Pty.</p> <p>Academic and technical college/schools are accessible to all with qualified educators providing adapted knowledge and technical skills needed for the requirement of the company. ICT's are accessible to all in the community provided it is used for educational and work purposes. The use of social media is highly monitored and restricted by the local government and Cheatah Pty. There is very little support from local institutions for innovative ideas for the local people, however there is an innovative hub supporting ideas for the company. Only training for those employed by Cheatah Pty takes place here. In addition, the youth are highly skilled as they are trained by high quality teachers in high quality schools and colleges. There are also youth hubs where the youth play and develop their coding ability by creating educational games.</p> <p>Strictly applied powerful laws force people to respect environmental rules, and respect and care for each other which results in no abuse of any sort. This is due to a high level of surveillance established by Cheatah Pty and the local government. This surveillance is used to track which people are abusing drugs and committing violence etc...In addition, the local government monitors people's movements, actions and behaviours towards each other through cameras placed all over the regions as well as tracking devices on each person.</p>
<p>Collapsing (SC7)</p> 	<p>In 2038, a corrupt unstable local government provides only for its own needs with poor services to the population. This poor governance prevents the full use of constitutional rights and the development of local regulation. This wrong behaviour discredits public officers and councillors. Communities are not anymore considered as a partner for governing the municipality and supporting socio-economic development. They cannot contribute to decision making which is captured by vested interests. Law enforcement is poor which contributes to insecurity and prevents support to disadvantaged groups. Tax collection is ineffective and unpredictable which increases the feeling of injustice. As a consequence, service delivery to the community is hectic with poor quality and unequal access. The health system and social safety nets are particularly affected as well as access to drinkable water</p> <p>A dysfunctional corrupted education/training system is accessible to all but with very low quality and high-level drop outs. Due to the deterioration of basic infrastructure, ITCs development has stopped, and professional training services are bankrupt, accelerating the erosion of local skills and hindering innovation. Social media are not used anymore and prevent positive networking for youth. Specific equipment and services for youth are not maintained and increase the feeling of exclusion.</p> <p>As a result of political and institutional instability, failed local government and wrecked services, all economic activities have collapsed. Business opportunities have vanished resulting in massive unemployment and poverty increase with direct impact on access to basic needs and child malnutrition. Infrastructure maintenance has been stopped. Streets have potholes, several roads are going back to dirt, and some country bridges have collapsed. The national provider of electricity has disconnected the municipality from the grid because</p>

	<p>of dramatic arrears, and local production of energy (solar and wind) is stopped due to lack of maintenance. Public transportation is not provided anymore; petrol supply is chaotic and vehicle repairs are closed. Local dwellers increasingly rely on basic individual transportation means when they can afford them (bicycle, horses, donkeys and carriages). In that context, orchards and vineyards are abandoned as a result of deterioration of irrigation systems, lack of care and market disruption. Very small plots of staple crops and goats provide basic products for self-consumption. Retailing facilities are closed. Ceres mall is occupied by homeless. Even petty trade and craft are not any more an option for income generation due to lack of solvent customers. Tourists do not visit Witzenberg anymore and local touristic services related to outdoor activities, promotion of cultural heritage (Togryers Museum is closed) have bankrupt as well as tourist facilities (guesthouses and restaurants).</p> <p>Due to the economic crisis, poverty, failed education system, weakening of family cohesion, disrespect for the elders and for authority, individuality and selfishness prevail. It leads to neglect and indifference with regards to the situation of other people. It is particularly true for disabled people who face a dire situation with no care and who are fighting for their survival. Youth violence is growing with gang development, drug abuse and frequent assault against women whose rights are not protected</p> <p>Individualistic behaviour also affects the environment, causing pollution, mismanagement of waste, and degradation of resources, which impact the quality of water for human consumption. Combined with recurring climatic hazards (droughts and floods), the lack of natural resources management and infrastructure maintenance result in dramatic slope erosion and contribute to the acceleration of agriculture's collapse and deterioration of roads. Abandonment of spatial planning and lack of public finance to support basic housing needs result in chaotic settlements, illegal occupation of closed facilities, and a growing pressure from all types of local stakeholders, ultimately resulting in no more land available for any use.</p>
<p>Is it the end? (SC8)</p> 	<p>In 2038, in the Witzenberg community, all economic activities have collapsed due to a divisive society where abuse, violence and corruption prevails as a corrupt unstable local government only provides for its own needs with poor services to the population. As a result, local finance collected via the national fiscus as well as rates paid by local residents was looted by corrupt local government officials. All business opportunities have halted as a result of the corruption and violent outbreak by the community and due to this, the levels of poverty have increased drastically and almost all people of the region are living in poverty. All public transportation services have been destroyed and all existing infrastructure has been damaged or destroyed by the local people. All energy access has been halted and/or stolen by the local people (stolen connections) with no further energy development. The agriculture sector at large has collapsed but the corrupt leaders in local government still own a portion of the remaining activity. Food retailing facilities have been destroyed and looted resulting in severe food insecurity and a lack of basic supplies and goods for people. In despair, the local people are violent towards authority. All tourism activities have shut down as tourists fear coming to the Witzenberg region due to the violence. All local government services have come to an end resulting in an unhealthy and hazardous environment. The water is contaminated, and people become very sick. Disabled people, women and elders and children are being neglected by the community. Laws are made by the national</p>

	<p>government but cannot be implemented in the local region due to civil unrest, as a result, local law enforcement have been tasked with protecting the corrupt government leaders from the violent community.</p> <p>Similarly, the local education/training system collapsed, forcing people to go outside for learning. All IC technologies have been damaged and/or unusable as people cannot afford internet connection in the region. All social media has been shut down and there is no support for innovative ideas. Similarly, all youth facilities have been destroyed.</p> <p>People actively abuse natural resources and the environment up to their destruction, take land without consent; squatters occupy by violence and conflicts prevail. As a result, there are no housing schemes as land has been occupied by the local people.</p>
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Annexure 3: Major characteristics of the food system

Valley of Abundance	Everyone has access to fresh fruit & vegetables, organic produce, meat & poultry. Everyone has access to clean water. There are large shopping malls, fresh food markets as well as online food retail services. People get their food from Subsistence farmers, local farms and some imports. In terms of the food economy, there are local processing plants, A good mix of small + large scale farming. Waste is being used to fertilise food.
Community Breakthrough	There are high levels of employment in food processing, food exports, green economy, energy, food and waste management. People are eating healthy, fresh, diversified & nutritional diets for all. They get their food from fresh produce markets, malls, their own production and automated delivery services. There are developed communal gardens, small holdings, large farms and local processing plants.
Blossoming Apart	The community farms' and then buys and sells food to each other. A governing body regulates the inter-community trade. People eat nutritional and culturally preferred meals, and they get their food from small shops, fresh produce markets & food stalls. The food is locally produced, some are imported and food processors.
Left with Nothing Amongst Something	Poor people are eating cheap and unhealthy food (what they can afford) from local markets and the rich are eating healthy/expensive food including a wider variety of food. Poor people buy food from supermarkets owned by a foreign company. 20% economic opportunities are owned by local people whereas 80% is owned by a foreign company with control over the economy and agriculture. This includes fruit, vegetables, packing and other farming activities.
Is it the End?	All mostly eat low quality staple made of milk/ sorghum, some beans and roots, potatoes and cassava. People get food from locally grown products grown from their own little "gardens" + barter against services from informal food economy. Food comes from local and a bit from imports + some food aid that is controlled by local warlords
Collapsing	Everyone eating poor quality maize and goat meat in very limited quantities as well as food rations. All public access water is contaminated. People get their food from the UN collection points as well as a food black market and from small farming plots. The food comes from the UN as well as other donations, Seeds from the UN, small-scale farmers as well as gang who have taken over the distribution of food.
“www.Witzenberg@Pty-Ltd.com”	There's a changed diet, everybody eating healthy food such as fresh fruit & vegetables. People get their food from Farmers markets, drone delivery and automated supermarkets. Fresh products (meat, fruit & vegetables) and grains locally supplied. Additional imports. There are small farmers, large farms, processing factories, robots. Waste is turned into bio-energy.
Cheetah Pty is caring for you	Most of local people work for Cheatah Pty. Only 20% of population doing other activities. People are eating imported & processed food. The food is cheap and not fresh (not freshly picked fruit) Mostly from Cheatah Pty.

Annexure 4: Certificate of Attendance



**DST-NRF
Centre of Excellence
in Food Security**

CERTIFICATE OF ATTENDANCE

We hereby confirm that

***attended the
Co-elaborative Scenario-Building Process
about the Futures of the Witzenberg Area
consisting of four two-day workshops
held in June, August, September 2018
and February 2019***

**UNIVERSITY of the
WESTERN CAPE**

Prof Julian May

**Director of the DST-NRF Centre of Excellence in Food Security
and
Director of the UNESCO Chair in African Food Systems**

The DST-NRF Centre of Excellence in Food Security is an initiative of the national Department of Science and Technology - National Research Foundation, jointly hosted by the University of the Western Cape and the University of Pretoria.

