



**ANALYSING SOUTH AFRICAN INDIGENOUS KNOWLEDGE POLICY AND
ITS ALIGNMENT TO GOVERNMENT'S ATTEMPTS TO PROMOTE
INDIGENOUS VEGETABLES**

By

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**COLLEGE OF HUMANITIES
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ABSTRACT

The study was concerned with examining if DST policy on indigenous knowledge is aligned with practice on the ground. It focussed on understanding the formulation process of Indigenous Knowledge Systems (IKS) policy enacted by the Department of Science and Technology (DST) in 2004. It also explored the implementation process of IKS policy by investigating the Agriculture Research Council (ARC) project funded by DST that promoted indigenous vegetables as a component of IKS.

The first phase of the study was an investigation of the formulation of the 2004 IKS policy using Fairclough's critical discourse analysis method and a decolonial theoretical framework. The study revealed that the formulation of the DST's, IKS policy of 2004 involved the co-operation and participation of stakeholders from various backgrounds, including indigenous knowledge holders and practitioners. The policy formulation process included people from different backgrounds in order to recognise the diverse nature of the subject as well as to redress colonial tendencies that discriminate against IKS holders and practitioners in decision-making and benefitting from the knowledge and resources. Critical discourse analysis revealed the African Renaissance, the commodification of IKS, the integration of indigenous knowledge and science, and Equity as dominant discourses in the policy. The study shows how 'naturalisation' of the above discourses in the IKS policy has tended to promote some IKS components while marginalising others.

The second phase of the study employed a food sovereignty theoretical framework to investigate the practices, successes and challenges of the KwaMkhwanazi community in KwaZulu-Natal, where the ARC and the University of Zululand (UNIZULU) promoted indigenous vegetables. Food sovereignty analysis of the case study shows that indigenous vegetables (IVs) were promoted because of their many positive attributes, namely their high nutritional value, adaptation to adverse climate conditions, potential for income generation, and resistance to disease and pest. Small-scale farmers were

shown as embracing indigenous vegetables and farming practices that enables them to be food secure. Small-scale famers were hindered by numerous challenges in attaining food sovereignty with the question of land shortage taking center stage.

The study adds to the body of knowledge that reveals experiences of food sovereignty on the ground. It departs from previous investigations on IVs that predominantly examined the nutritional, medicinal and agronomical factors, instead, this study places IVs in the context of food politics, identity issues, and cultural and socio-economic factors. This study has implications for policy makers and small-scale farmers in their practices.

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LIST OF ACRONYMS

AoA	Agreement on Agriculture
AATF	Africa Agricultural Technology Foundation
ACER	Africa Environmental Management Consultants
AEPS	Arctic Environmental Protection Strategy
ATM	African traditional medicine
ARC	Agricultural Research Council
ARIPO	African Regional Intellectual Property Organization
CBD	Convention on Biological Diversity
CDA	Critical Discourse Analysis
CoS	Centers of Excellence
CSIR	Council for Scientific and Industrial Research
DARD	Department of Agriculture and Rural Development
DST	Department of Science and Technology
DWAF	Department of Water Affairs and Forestry
FAO	Food and Agriculture Organization
ibid.	In the same place
IDAF	International Defence and Aid Fund for Southern Africa
IDP	Integrated Development Plan
IK	Indigenous Knowledge
IKS	Indigenous Knowledge System
IKSDC	Indigenous Knowledge System Documentation Centres
ICMWI	International Centre for Maize and Wheat Improvement
IP	Intellectual Property
IPR	Intellectual Property Rights
IVs	Indigenous vegetable
NRS	National Recordal System
NEMA	National Environmental Management Act
NRF	National Research Foundation
NIKSO	National Indigenous Knowledge Systems Office
NIKMAS	National Indigenous Knowledge Management System
OHOG	One Home One Garden'
OAPI	Organisation Africaine de la Propriete Intellectuelle
OAUML	Organization of African Union Model Law
Pers.Comm	Personal communication
TRIPS	Trade Related Aspects of International Property Rights
TYIP	Ten-Year Innovation Plan
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UDHR	Universal Declaration of Human Rights
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIZULU	University of Zululand
WIPO	World Intellectual Property Organization
WTO	World Trade Organizations

CHAPTER 1: INTRODUCTION

1.1 Background

For many reasons including colonisation, apartheid, modernisation and globalisation, black South Africans have, to a large extent, moved away from the use of indigenous vegetables (IVs) as food (Boonzaaier, 2005). However, despite this underutilisation of IVs by the public, there is an upsurge of interest among scientists and researchers in these crops. For instance, a lot has been written on IVs' nutritional and medicinal value (Flyman and Afolayan, 2006; Ndlovu and Afolayan, 2008; Erukainure et al., 2010) alongside climate adaptability (Muhanji, et al., 2011), and pest and disease resistance (Backeberg and Water, 2010), hence the possibility of ensuring food security (Modi et al., 2006; Legwaila et al., 2011; Muhanji et al., 2011), and alleviating poverty through income generation (High and Shackleton, 2000; Shackleton et al., 2010).

The many positive attributes of IVs mentioned above have also impelled the Department of Science and Technology (DST) to be at the forefront of funding research institutes working with these crops. For example, the DST allocated R2.8 million to the Agricultural Research Council (ARC)'s Roodeplaat facility in 2010 (Ngcoya and Kumarakulasingam, 2012). These funds were to support research on appropriate cultivation practices, improved planting and harvesting methods and determining the optimal water and fertiliser requirements of IVs (ibid). In addition to this, the DST is also committing funds to projects promoting IVs in rural communities such as KwaMkhwanazi, the case under investigation in this study.

It is however pertinent to note that the promotion of IVs should be understood in the context of burgeoning interest in indigenous knowledge systems (IKS) as a broad theme both at local and international levels. At the global level, various instruments are there to protect genetic and biological resources coming from IK, as will be elaborated on in chapter 2. Numerous fora addressing various issues of IK show its significance. Several issues seem to stand out in the aims and objectives of the conventions, treaties and

declarations pertaining to indigenous people and IKS. These include, revitalising and protection of indigenous culture, promotion of IKS, conservation of biodiversity and advancing the agenda of having indigenous people devising solutions to their own problems. An example is the 1992 Earth Summit (United Nations Conference on Environment and Development - UNCED) held in Rio de Janeiro that culminated in the Earth Charter, Agenda 21 and the Convention on Biological Diversity (CBD) (UN, 1992a and UN 1992b).

In South Africa, the inclusion of IKS in the DST serves to show its significance for the development of the country. In addition, the Department of Science and Technology launched a Ten Year Innovation Plan (TYIP) in 2009 as an effort to affirm and promote IKS. The plan was to use bio-economy to boost the economy by 2018 through what the government has branded grand challenges¹.

The DST also promotes IKS through its sub-programme– the National Indigenous Knowledge Systems Office (NIKSO) to develop South Africa's economy using IKS together with other knowledge systems such as biotechnology. For example, in 2013, the DST reported that, under NIKSO, the nutraceutical flagship developed seven commercial products from indigenous vegetables for the local and international market².

Apart from indigenous vegetables, the DST's policy on IKS has also seen other indigenous plants affirmed and promoted as evident in some of the well-

¹ According to the DST's Ten Year Plan for South Africa 2008–2018 available online at [www.dst.gov.za/ publications-policies](http://www.dst.gov.za/publications-policies), 'grand challenges' are: farmer to pharma that focuses on using indigenous resources in bio-technology and pharmaceuticals; space science and technology that emphasise growing the satellite industry, space science, earth observation, communication, navigation and engineering; energy security with a focus on innovation on clean technology, nuclear energy, renewable energy and possible hydrogen economy; global climate change; and human and social dynamics'. All these five grand challenges are eminent in shifting South Africa from a resource-based economy to knowledge-based economy necessary for economic and social development.

² Speech made by Hon Nqaba Ngcobo during the National Assembly Budget Vote Debate on Science and Technology downloaded from <http://www.anc.org.za/caucus/docs/sp/2013/sp0516.html> on 16 May 2013.

known success stories of bio-prospection of plants. For example, *hoodie*, historically used by San people to suppress hunger is now developed into a weight management product; rooibos tea from the *aspalathus linearis* plant (rich in antioxidants); aloe vera which is known for its laxative powers; buchu tea from *Agathosma betulina* used for hyper-pigmentation treatment and reducing the aging process; honey bush tea from the *Cyclopia genistoides* known for its health properties used for digestive and heart problems (Dlamini, et al., 2010). Furthermore, the DST's support of IKS under NIKSO's cosmeceuticals flagship has since seen other indigenous products patented successfully. These include products like sunscreens, anti-hair loss, wrinkle treatments and essential oils such as morula oil and buchu oil (Gqaleni, 2010).

The DST has also sought to protect IKS from intellectual property exploitation and bio- piracy through the National IKS Management System (NIKMAS), a sub-programme of the National Recordal System, launched in 2013. NIKMAS provides support to IK holders' communities by enabling them to record, protect and benefit from value-bearing services and products that are created using their IK (Fogwill et al., 2012). This background leads to the research problem of this study.

1.2 Research Problem

It is apparent from the discussion above that indigenous knowledge possesses positive attributes that can contribute to community development. The advantages of indigenous knowledge are also evident in indigenous vegetables that contain traits important in addressing food security thus their promotion by the South African government. However, in the case of indigenous vegetables, research shows a decline in their use hence two questions arise: a) Why promote something which is obviously losing its place in a society? (Voster et al., 2007). What successes and challenges are there in those programmes that are already promoting indigenous vegetables? These questions provide the justification of this study.

1.3 Justification of the Study

Although research on indigenous vegetables have been numerous, none has investigated them as a subject stirring the interest of policy makers. The value of this study lies in the fact that it interrogates the discourses used in DST IKS policy and aligns the promotion of IVs as an example of policy implementation. Aligning the discourses of the policy with the implementation process allows for an understanding of why IVs have suddenly become a subject of interest. The use of a case study also allows for an exploration of the practical issues faced in implementing the policy. At a theoretical level, the study is a departure from the norm where previous investigations on IVs have been predominantly on proving the nutritional, medicinal and agronomical factors to researching IVs in the context of food politics, identity issues, and cultural and socio-economic factors.

The study has endeavoured to produce research that has both policy and practical relevance. The study outputs are lessons to policy makers for further improvement and modification of efforts aimed at promoting indigenous vegetables. Participants (farmers, researchers, agricultural advisors, and policy makers) involved in the implementation process will be better informed by the study of the intended goals of DST's IKS policy, hence improve on their practices. It will also provide insight into aspects of the policy that may need improvement. The following section is the context of the study.

1.4 Context

Firstly, I discuss KwaMkhwanazi rural community as beneficiaries of the promotion of IVs. I discuss the social, geographical and economic aspects of the place in light of the reasons why the ARC might have chosen the place. The section discusses the ARC as the government entity responsible for the promotion of indigenous vegetables through research and community development programmes. I give an account of the organisation's objectives and examples of projects done over the years by the ARC. I finish by discussing the University of Zululand (UNIZULU) as a rural university that partnered with ARC in promoting IVs in KwaMkhwanazi. The section

discusses UNIZULU as a rural University established during apartheid³, explaining its location and composition of students. I discuss the role of rural universities after the 1994 independence in relation to the communities with a view to understanding the university's involvement in the project.

1.4.1 KwaMkhwanazi rural community

This study was conducted in the KwaMkhwanazi Tribal Authority area of jurisdiction. It is located within uMhlathuze local municipality⁴(KZ 282). The municipality is located on the northeast coast of KwaZulu-Natal province, about 180 kilometres northeast of Durban, South Africa (uMhlathuze local municipality, Integrated Development Plan (IDP) Review 2014/15:9⁵). The National N2 road divides KwaMkhwanazi Tribal Authority into North and South. The climate is described as humid and mild with warm moist winters (Kaschula, 2008). Daily maximum temperatures range from 23°C in winter to 40°C in summer. The mean annual rainfall ranges from 1000mm to 1228mm (ibid). UMhlathuze local municipality receives (80%) of the rains during summer that is from October to March with some winter rainfall of 20% (uMhlathuze local municipality, IDP Review 2013/14:42⁶).

The population of uMhlathuze local municipality is around 334,459 with 40% residing in the rural areas based on 2011 Census (ibid). There are slightly more females than males and 'female-headed households in the municipality

³ Apartheid was introduced by the National Party in 1948 to represent its policies based on separatism and inequality in a form of comprehensive doctrine (International Defence and Aid Fund for Southern Africa, 1991). It was adopted to maintain white domination and control of all aspects of life ranging from the political, cultural, economic and social systems (Dubow, 1989). At the University level, the segregation principles of apartheid were made possible by the University Education Act of 1959. The legislation was based on a separatist tenet which prevented blacks from registering at white universities and vice versa, resulting in government building universities such as the University of Zululand to cater for blacks in Bantustans (International Defence and Aid Fund for Southern Africa, 1991).

⁴ UMhlathuze local municipality is an administrative area of uThungulu now known as King Cetshwayo DM district. It 'incorporates Richards Bay, Empangeni, eSikhaleni, Felixton, Ngwelezane, eNseleni and Vulindlela as well as the rural areas under Traditional Councils namely, Dube, KwaMkhwanazi, Khoza, and Zungu (Madlebe)'. (UMhlathuze local municipality IDP review 2011/12:12, downloaded from <http://www.umhlathuze.gov.za/docs-umhlathuze/idp/idp2011-2012.pdf> on 27 June 2016).

⁵ UMhlathuze local municipality IDP review 2014/15 downloaded from www.umhlathuze.gov.za/docs-umhlathuze/idp/final-idp-2014-2015.pdf on 27 June 2016.

⁶ UMhlathuze local municipality IDP review 2013/14 downloaded from www.umhlathuze.gov.za/docs-umhlathuze/idp/final-idp-2014-2015.pdf on 27 June 2016.

are recorded to have increased from 36.29% in 2001 to 40.7% in 2011' (ibid: 70). Higher divorce rates and the expansion of women becoming independent attribute to the increase (uMhlathuze local municipality, IDP review, 2014/15). And working-age men are reported to leave the place in search of employment opportunities elsewhere (ibid). Furthermore, Kaschula (2008) points out that KwaMkhwanazi as one of the above mentioned rural areas in uMhlathuze is densely populated because it competes for land with low-density plantation and private farm land surrounding it. A study conducted by Africa Environmental Management Consultants (ACER) (2012) also reveals that between 2001 and 2007 KwaMkhwanazi has shown a trend of population increase. This is believed to be the result of in-migration mostly from foreigners who come seeking for places to settle whilst searching for employment in nearby urban areas like Empangeni and Richards Bay, reported to be fast-growing industrial hubs (uMhlathuze local Municipality, IDP Review, 2014/15).

According to the uMhlathuze local municipality IDP Review (2011/12:14)⁷ 'unemployment levels at the time were 37, 3% whilst that of uThungulu district lay at 45, 7%' with the rural areas such as the one under study being the most severely affected. Reports show that KwaMkhwanazi's income levels to be below the municipal (ACER, 2012). There are also very few people with formal education (ibid). The roads and public transport systems are also not good and there is a high rate of theft due to poverty and drug abuse (ibid). KwaMkhwanazi has high numbers of orphans attributable to high HIV/AIDS prevalence although there is no reliable statistical HIV/AIDS data at municipal level (uMhlathuze local municipality, IDP Review 2013/14).

The study area is formerly part of the KwaZulu homeland created under the Bantu Authorities Act of 1951⁸ enacted during the apartheid era. The region is

⁷ UMhlathuze local municipality IDP review 2011/12 downloaded from <http://www.umhlathuze.gov.za/docs-umhlathuze/idp/idp2011-2012.pdf> on 27 June 2016.

⁸ Bantu Authorities Act of 1951 was adopted 'as a step towards retribalisation, setting up a three-tiered authority structure in the reserves at tribal, regional and territorial levels, with government-appointed chiefs in effect becoming the state's administrative agents in the reserves' (Maylam, 2001:180). Reserves or Bantustans are areas that were designated for blacks as a way of separating them from other racial groups. These areas were and are still

largely homogenous both ethnically and linguistically, having predominantly Zulu speaking people (Kaschula, 2008). Farming is still an important means of livelihood for people in KwaMkhwanazi. Land use in the study area is mainly small-scale and commercial farming of sugarcane and forestry or woodlots (ibid). Small-scale farmers use their land for vegetable gardens and food plots. The type of vegetables and crops grown in the home and communal gardens include but are not limited to cabbages, sweet potatoes, chillies, carrots, peas, beans, maize, beetroot, spinach and indigenous vegetables that grow as acceptable weeds (ACER 2012).

It is also highlighted in the same report cited above that some people with land are underutilising it due to shortage of implements, seeds, lack of organised bodies to provide financial access to markets and market channels and access to powered farm implements such as tractors. In addition, the dual farming system has resulted in situations where small-scale farmers sometimes use very little land for food production and animal farming. Possible reasons why commercial farming seems to take centre stage among some farmers in KwaMkhwanazi are captured well by Karumbidza, (2005:9) who argues that at the core of the province is commercial plantation of trees, being the 'second largest area under industrial tree plantation after Mpumalanga whose national share is 42% compared to 38% for KwaZulu-Natal. Another 11% is in the Eastern Cape'. According to him (2005:7), this has led both the forestry industry and the government to believe that they can address poverty in surrounding rural areas by promoting:

...out-grower schemes as social or corporate responsibility or as employment creation schemes. The other has attempted to bring on board a BEE (Black economic empowerment) component into the existing asset structure of the major industrial tree-growing companies.

However, such initiatives meant to empower previously disadvantaged people seem to be causing many social, cultural and economic challenges among rural communities in KwaZulu-Natal (see Karumbidza (2005:10-11). Among the challenges posed by the forestry industry, of importance is the reduction in

overcrowded and they served as reserves of as well as dumping places of unwanted labour during the colonial period (ibid).

stream flow leading to water challenges in KwaMkhwanazi, as will be further discussed in chapter 7. Whereas this section has discussed the context of the area in which the study was conducted, the following section gives a brief background of organisations that were involved in the promotion of indigenous vegetables in the KwaMkhwanazi community area.

1.4.2 The University of Zululand

The University of Zululand (UNIZULU) was established in 1960 to serve Zulus and Swazi-speaking people (Reddy, 2004). Established during the colonial era by the National Party government, the institute is the only northern KwaZulu-Natal University. UNIZULU is located within the northern side of KwaMkhwanazi North, Tribal Authority known as Ongoye or KwaDlangezwa. Because of its political past and geographical location the majority of the students have remained Zulu-speaking and mainly coming from the surrounding areas. The university was established as one of the projects of the apartheid policy of 'separate development' under the University Education Act of 1959⁹ which separated universities on racial lines (Nkomo and Sehoole, 2007:1-2).

Inequalities between white and black universities were manifested on many fronts, ranging from gender and race inequality to financial as well as the content of education (International Defence and Aid Fund for Southern Africa) (IDAF), 1991; Nkomo and Sehoole, 2007). For example, Nkomo and Sehoole (2007) argue that white universities received more funding than former black universities. This was because most of the funding was inclined towards supporting science-oriented courses, and black universities taught subjects mainly in the humanities and education (Reddy, 2004; Nkomo and Sehoole, 2007). Furthermore, Reddy (2004) points out that manifestation of inequality were also between gender and race within the black institutions. He posits that white males trained at Afrikaner Universities occupied most of the high

⁹ One of the projects of Apartheid was to formulate universities meant to accommodate blacks whom the state classified on ethnic grounds. Besides UNIZULU, there was University of the North for the Sotho, Tswana, Venda, Tsonga and Transvaal University for the Ndebele and all were located in the reserves or Bantustans (Reddy, 2004:10). The Universities were located in rural areas to alienate student from cities where the National Party government feared students may get involved in politics, leading to the possibility of uprisings (ibid)

ranking and managerial positions. He adds that most of these white males were used to further government interest and suppress students.

According to Bunting (2002:74), training 'black people who would be useful to the apartheid state by being able to 'maintain the overall apartheid socio-political agenda' was one of the reasons for the establishment of black universities. For instance, teachers from these universities taught at black schools with curriculums that were fashioned to prepare a black child to take 'economically and politically subordinate positions in society' (IDAF, 1991:29). Similarly, Reddy (2004:9) points out that graduates from black universities like UNIZULU were trained to teach students who were going to fit in the

Apartheid social arrangement of society where ... subaltern youth were taught that their Otherness (inferiority) was "natural" aiming to imbue the subaltern child with an "ethnic" (tribal) cultural identity with the hope that it would identify with "its own" people and ethnically defined Bantustan, with the objective to create thoroughly docile subjects whose will to resist would be crushed and policed by themselves.

Bunting (2002) further discusses how graduates from these universities were not well trained to be leaders because the university curriculum, which was based on a 'positivist, Christian national education paradigm' (Reddy, 2004:18) was not tailored to equip students with skills in knowledge production, critical thinking or analytical skills.

I however dispute Reddy and Bunting's assumption that the designs of Bantu education were self-fulfilling. In other words, it does not necessarily follow that since apartheid wanted to produce docile graduates, all the graduates were therefore of poor quality. There are people produced by the apartheid university system that fought hard to overturn it.

Nkomo and Sehoole (2007:1) also elaborate that:

Historically, because of apartheid policies, these and other black universities were on the margins of the knowledge production process and have not effectively engaged in real development activities that would meaningfully improve the livelihoods of rural dwellers.

To rectify apartheid legacy that rendered universities unresponsive to community problems, the Higher Education Act 101¹⁰(South Africa, 1997:2) emphasises among other changes that Universities should 'respond to the needs of the Republic and of the communities served' through working towards achieving equal access to high quality education by all and equity in human resource development (Subotzky, 2003:354). He further argues that there is now increased pressure on the universities to be accountable by being amenable to the needs of the communities they serve. Although rural universities remain marginalised in terms of academic profile, institutional capacity, racial character and class status, they manifest distinct features that enable them to service rural communities. Nkomo and Sehoole (2007:11) list the following characteristics:

- Strategic location within rural communities;
- Existing and potential intellectual capital (with mission reorientation as a pre-condition including application of the appropriate development paradigm, enhancement of research)
- Potential to promote development of social capital; potential to promote appropriate and relevant teaching and learning methodologies; and
- Potential to build strong collaborative relationships (partnerships) based on the "community of trust" notion (involving university, community, business, government)
- Existing infrastructure (no need to build additional physical capital-consider multiple use)

As Waghid (2002) reiterates, exacerbation of problems in the economic, social and physical arena is forcing different entities of society to come together in search of solutions. I therefore view collaboration with the ARC as such an effort, hence the following section discusses context of the ARC as a partner to UNIZULU.

¹⁰ Higher Education Act 101 of 1997 downloaded from <http://www.che.ac.za/sites/default/files/publications/act101.PDF> on 7 July 2016.

1.4.3 The Agricultural Research Council

The Agricultural Research Council (ARC) is the principal agriculture research institution in South Africa, established in 1990 through the Agricultural Research Act 86 of 1990 (as amended by Act 27 of 2001) (ARC¹¹). According to the Act the main aim of the ARC as a public institution is to contribute to agriculture research, development and technology to 'promote agriculture and related industries, contribute to a better quality of life, facilitate/ensure natural resource conservation and alleviate poverty' (ibid). The ARC website provides its main functions as stipulated by ACT 27 OF 2001 as follows¹²:

- Undertaking and promoting research, technology development and technology transfer;
- Utilising the technological expertise in its possession and making it generally available;
- Publishing information concerning its objectives and functions, and establishing facilities for the collection and dissemination of information in connection with research and development;
- Publishing the results of research;
- Establishing and controlling facilities in the fields of research, technology development and technology transfer that the Council may determine from time to time;
- Co-operating with departments of state, institutions, persons and other authorities for the promotion and conducting of research, technology development and technology transfer;
- Promoting the training of research workers by means of bursaries or grants-in-aid for research, technology development and technology transfer, and contributing financially;
- Operating research, development and technology transfer programmes;
- Hiring or letting facilities; and
- Co-operating with persons and authorities in other countries conducting or promoting research, technology development and technology transfer in agriculture.

(Adapted from the ARC website)

¹¹ The ARC website downloaded from www.arc.agric.za on 13 January 2016.

¹² ibid

According to the ARC end-of-year reports reviewed, it is evident that as an organisation it has accomplished a great deal towards the achievement of these objectives. For instance, the ARC 2014-15 annual report¹³ records how the institution assisted small scale farmers to start income generation projects in the Eastern Cape, Mpumalanga, Gauteng, Limpopo, KwaZulu-Natal and the North West. The projects were on the production and marketing of medicinal plants, indigenous vegetables and sweet potatoes. Of particular significance is the success story recorded of one farmer who managed to sell 20 tonnes of sweet potatoes for R3000 per tonne.

The ARC also trained farmers in agro-processing with an emphasis on adding value to agricultural produce to facilitate an increase in profit margins. For example, the 2011-2012 report¹⁴ records that the ARC supplied machines and trained farmers on how to process peanuts into peanut butter.

The reports also indicate how the ARC seeks to alleviate poverty in rural communities by collaborating with other organisations to do research and develop varieties of plants that respond to climate change. An example is the 2014-2015 annual report that records that the ARC collaborated with the Africa Agricultural Technology Foundation (AATF), the International Centre for Maize and Wheat Improvement (ICMWI) and national agricultural research organisations from countries such as 'Mozambique, Malawi, Uganda, Kenya and Tanzania to produce a drought-resistant maize cultivar called DroughtTEGO'¹⁵.

The ARC also recognises that malnutrition, especially among pregnant women and children, is a major problem in rural communities of South Africa

¹³ Agriculture Research Council 2014/15 Annual Report- Department of Agriculture 'Transforming Africa's Agriculture downloaded from www.daff.gov.za/.../ARC_2014-15%20Annual%20Report%20-%201pgView%20-%20S on 13 January 2016.

¹⁴ Agriculture Research Council 2011/12 Annual Report- Department of Agriculture 'Transforming Africa's Agriculture downloaded from www.daff.gov.za/.../ARC_2014-15%20Annual%20Report%20-%201pgView%20-%20S on 13 January 2016.

¹⁵ Agriculture Research Council 2014/15 Annual Report- Department of Agriculture 'Transforming Africa's Agriculture downloaded from www.daff.gov.za/.../ARC_2014-15%20Annual%20Report%20-%201pgView%20-%20S on 13 January 2016.

(Beletse, 2013¹⁶). ARC adopted a number of initiatives to address the problem of malnutrition in rural areas. For instance, 2010-2011 end of year report¹⁷ indicated that the ARC's breeding programme produced a new sweet potato cultivar, Bophelo TM with high vitamin A. In addition, research on water efficiency and yield improvement of African leafy vegetables recognised for their nutritional value particularly vitamin A, such as jute mallow, cowpea and nightshade has been conducted (2010-2011 report). Apart from research, the ARC also marketed African leafy vegetables for food security and creation of business opportunities for small-scale farmers. It is against this background that this research investigates the promotion of indigenous vegetables in KwaMkhwanazi by the ARC and UNIZULU. The following section gives the aim and a list of the research objectives.

1.5 Research Aim and Objectives

1.5.1 Aim

- To explore the formation and execution of IKS policy and assess the activities that seek to promote indigenous vegetables.

1.5.2 Objectives

- To document and evaluate the development of DST policy on IK;
- To analyse practices, challenges and achievements arising from implementation of the policy through promotion of IVs;
- To examine if DST policy on indigenous knowledge is aligned with practice on the ground by farmers and practitioners
- To evaluate the extent to which primary objectives and intentions of the DST's IKS policy is being realised in practice using projects like the one under study.

1.6 Research Questions

- Why was the national policy on IK formulated?

¹⁶ Interview with Beletse, ARC, Pretoria, 2013

¹⁷ Agriculture Research Council 2010/11 Annual Report- Department of Agriculture 'Transforming Africa's Agriculture: harnessing opportunities for inclusive growth and sustainable development' downloaded from www.daff.gov.za/.../ARC_2014-15%20Annual%20Report%20-%201pgView%20-%20S on 13 January 2016.

- How was the problem formulated and what factors contributed to its emergence?
- What were the practices, achievements and challenges that arose from implementing the policy through promotion of IVs?
- How well does national policy on IK align with practice on the ground in KwaZulu-Natal?
- To what extent did practices reflect/satisfy the DTS's 2004 IKS policy aims and objective?

These questions helped to determine not only if there is good alignment between policy and practice but also to understand how the cultivation of indigenous vegetables can be improved. This was possible through the identification of the opportunities and constraints, best practices and possible improvements in the activities that were studied.

1.7 Conceptualising key terms

The following terms will be used within this study and for that purpose, it is necessary to clarify what they mean in this context.

1.7.1 Indigenous knowledge

The diversity of terms ascribed to knowledge that is indigenous attests to its contentiousness (Sillitoe, 2002:8). Examples of such alternatives include but are not limited to: local knowledge, rural people's knowledge, traditional technical knowledge, traditional environmental knowledge, common sense knowledge and insider knowledge. Ellen (2002:236) explains that the reason for the multiplicity of vocabulary used in relation to IK lies in the discourse, and the moral and ideological position of a particular people. IKS is adopted in this study in line with its use at national level through policy and because of its popularity in the field of development studies. I however desist from defining IK or IKS, following advice from Purcell (1998:259) who believes that attempting to do so would be 'deceptively difficult... because of the very fact that the category is an invention of colonial history and continues to be affected by the on-going decolonisation processes'. I therefore resort to describing what constitutes IKS based on ideas borrowed from several IK

writers:

People are a key factor in understanding the indigeneity of IKS (Purcell, 1998). According to Smith (1999:7) the term 'indigenous peoples' is believed to have been formulated in the 1970s, mainly resulting from the struggle and experiences of the colonised throughout the world. IKS is knowledge of people of a specific 'ancestral territory, collective cultural configuration, and historical location' (Purcell, 1998:258). Nakata (2003:21) posits that the use of the term has gained more meaning over the years as more groups of people are beginning to be identified with 'indigeneity'. He argues that indigenous:

has become an umbrella term, not limited to Indigenous peoples, but inclusive of those in the developing countries who struggle to survive and who still rely on traditional forms of knowledge whether they be Indigenous within developed and developing nation-states, formerly colonised, or distant or recent migrant groups in developing countries.

IKS is also characterised based on its geographical **location**. According to Nakata (2003), it is important to understand IK contextually, because different people in different places understand it differently. The implication of this assertion is that indigenous knowledge practitioners should not take IKS as homogenous. Agrawal (1995) critiques those who explain indigenous knowledge by contrasting it with western knowledge as a failure to appreciate the heterogenous nature of both forms of knowledge. He posits that 'a classification of knowledge into indigenous and western is bound to fail not just because of the heterogeneity among the elements – the knowledges filling the boxes marked indigenous or western' (ibid: 1995:14). Maila and Loubster 2003 as cited in Maila (2007:78) also add that the geographical aspect of IKS is not only confined to the rural population but also found among the urban population as well as in Western settings (Serrano, 1996 cited in George, 1999). This is because according to Nakata (2003:21), it has

become an umbrella term, not limited to Indigenous peoples, but inclusive of those in the developing countries who struggle to survive and who still rely on traditional forms of knowledge whether they be Indigenous within developed and developing nation-states, formerly colonised, or distant or recent migrant groups in developing countries.

The '**knowledge**' aspect of IKS is an important aspect of its characterisation. People through practice and their interaction in everyday life construct

knowledge as it is understood in the context of IKS. It is knowledge passed on from one generation to another using various ways such as narratives, stories, dance, paintings, writings, craft, cultural rituals and dance (Hart and Vorster, 2006). This knowledge is diverse and is found in fields of 'agriculture, agro-forestry resource management patterns, health care, food preparation and local beliefs and rituals, religion and spirituality, health care and many more' (Agrawal, 1995:15). In addition, Domfeh (2007:41) argues that IKS 'encompasses technological, economic, philosophical, learning and governance systems'.

It is dynamic, meaning it evolves over time (Hart and Vorster, 2006). People choose aspects of indigenous knowledge they want to keep whilst embracing new ways of knowing to suit their circumstance. Nakata (2003) asserts that the dynamism of IKS is evident when local communities embrace knowledge from other communities to inform their knowledge systems. To this, Agrawal (1995:2) also adds that:

In the face of evidence that suggests contact, variation, transformation, exchange, communication, and learning over the last several centuries, it is difficult to adhere to a view of indigenous and western forms of knowledge being untouched by each other.

Lastly, Hart and Vorster (2006) remind us that indigenous knowledge is sometimes equal or superior to western knowledge. They further add that this should however not be taken to mean that as a knowledge 'it is flawless and always equal to, or better than, scientific knowledge' (Hart and Vorster, 2006:10) (see chapter 2 for further elaboration). With this understanding of IKS, the next section elaborates on the concept of indigenous vegetables, a component of IKS that is also the focus of this study.

1.7.2 Indigenous vegetables

Like the category 'indigenous', defining indigenous vegetables is equally difficult (Shackleton et al., 2010). This is because 'there is often a blur of lines between what is regarded as indigenous and exotic food, and medicinal and culinary food' (Ngcoya and Kumarakulasingam, 2012:4). Van Rensburg et al., (2007:317) define IVs as 'plant species which are either genuinely native to a

particular region' whilst 'indigenised' as those plants which were 'externally derived but has since been incorporated in the local food culture' (Phillips-Howard (1999) cited in Jansen van Rensburg et al., 2007:318). Similarly, Ambrose-Oji (2009:10) says IVs can be either 'indigenous' or 'indigenized' and are 'plants which originate on the continent or those which have such a long history of cultivation and domestication to African conditions'. According to Shackleton et al., (2010:292) IVs covers 'cultivated and wild collected ones, leaves from trees, herbaceous species, both annual and perennial, and fruits of leafy species'. The term IVs in this study incorporates the 'indigenous' and the 'indigenised', as vegetables that were promoted in this case study would fit both categories.

1.7.3 Western knowledge

This is knowledge loosely associated with the Northern countries that is Europe and North America. Although this study is mainly towards indigenous knowledge system, it is not possible to understand this IKS fully without discussing the western knowledge system. This is because to understand IKS it is always important to understand the historical power relations between the two knowledge systems. Imposition of western knowledge system on the developing countries started from slave trade and colonialism and up to the present day. Throughout history, this knowledge has been presented as the 'truth', hence its dominance and hegemonic inclination in non-western communities. It is also associated with the subjugation and marginalisation of other knowledge systems. However, a lot of literature now points to its plurality and subjectivity, like any other knowledge system. Thus, I will use the terms western knowledge or western knowledge system in this study.

1.8 Theoretical Frameworks

Decoloniality and food sovereignty are complimentary theoretical frameworks used in this study. Both theories are discussed in detail in chapter 3. The study was carried out in two separate processes, though they are connected. Decolonial theory is used to inform the process of critical discourse analysis of South Africa's 2004 IKS policy. The concept of decoloniality is used to understand the processes of subjugation and suppression of IK. Three

concepts of **coloniality** are used to explain the theory. Firstly, Grosfoguel (2007) explains the **coloniality of knowledge** which is closely connected to **coloniality of being** (Maldonado-Torres, 2011) as a presentation of western knowledge as 'truth' and Europeans as 'modern', leading to the dismissal, subjugation and appropriation of IKS in Africa and South Africa in particular during the colonial and apartheid period (see chapter 2). Decolonial theory rejects the above claims and reveals the particularity and subjectivity of western knowledge, hence the evidence of affirmation of IKS in the discourses presented in chapter 5. The **coloniality of power** (Quijano, 2000) is manifested when people are classified through race (ibid), gender (Schiwy, 2007) and religion. This is also rejected in South African policy discourse that reveals the affirmation and recognition of women and indigenous knowledge holders through seeking their informed consent and sharing of benefits accrued from IKS (see chapter 5).

The second phase of the study is a case study representing one of the many projects by the government of South Africa that reaffirm IKS. The study presents indigenous knowledge in food as capable of solving contemporary issues facing South Africa such as hunger and malnutrition of the poor. Food sovereignty as a theory supports bottom-up philosophy where ordinary people are believed to be capable of coming up with solutions to their own problems. The major tenets of food sovereignty used in this study are: the ability of small-scale farmers to produce food that is nutritious, of the right quantity, and is culturally acceptable, using environmentally friendly methods of farming; access to resources and markets as imperative for small-scale farmers. Small-scale farmers' cultivation of IVs is therefore viewed as a way farmers use food sovereignty as a means to achieve food security, as revealed in chapter 6. It helps in understanding the real life challenges that farmers have to deal with in implementing ideas articulated in policy (as explained in chapter 7). In chapter 8, I reflect on both theories to explain the alignment of the IKS policy and the implementation process as it was revealed in the promotion of indigenous vegetables in the KwaMkhwanazi area.

1.9 Outline of Chapters

This chapter has introduced the motivation of the study by discussing the emerging interest of IKS at international level and in South Africa. It points out that the interest of IKS at policy level is happening concurrently as people are losing interest in IKS and in particular indigenous vegetables. It then poses a question on why put efforts to promote something that seems to be of less value. The contexts of the ARC and UNIZULU as collaborators are discussed with the aim of exposing possible reasons for these institutions' interests in promoting IVs in rural communities. The KwaMkhwanazi Tribal Area's socio-economic, historical and ecological issues are discussed in order to highlight the importance of promoting IVs in the community. The research goals have also been defined and the theoretical frameworks used discussed.

Chapter 2 reviews the literature. It gives a historical overview of IK during the colonial and post-colonial period. It also focuses on IKS policy issues both at international and local level. Debates on the value of IKS in various fields are highlighted. The chapter finishes with a review of IVs.

Chapter 3 discusses the theoretical frameworks that have been employed in the study. These are the decolonial and food sovereignty theories which have already been briefly introduced above.

Chapter 4 give details of the research design and process. It explains how data was generated and analysed. Validity and ethical considerations are also explained in the context of the study.

Chapter 5 is a presentation of the results emanating from a critical discourse analysis of IKS policy. It uses discourse to reveal the reason for IKS policy formulation in South Africa. The concept of discourse is used to explain why some aspects of IKS are promoted whilst others seem to be side-lined.

Chapter 6 is the second phase of the project. It discusses the implementation processes in the promotion of IVs. The role of IVs as a contributor to food security as an outcome of food sovereignty is discussed. Chapter 7 presents factors that challenge as well as support the principles of food sovereignty.

Chapter 8 concludes the study by giving a summary of the findings. It gives a reflexive review of critical discourse analysis, decolonial and food sovereignty frameworks used in the study. The chapter discusses implications of the study on policy and practice. It also highlights the contribution of the study to new knowledge.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter traces the history of IK literature. It discusses the colonial literature as bordering on romanticising as well as the subjugation, exploitation and appropriation of IK. Post-colonial debates comprise confusion on what IK entails, and questions regarding who should be talking about it. The literature also shows a loss of confidence in Western knowledge whilst validating and affirming IK as an answer to many problems facing developing countries. The shortcomings of IK literature during both periods are also discussed. The chapter also highlights policies and laws enacted to promote and protect IK. The value of IKS in various disciplines is also discussed. The chapter finishes by exploring IVs nutritional and curative, monetary value, adaptability to adverse climatic conditions, resistance to diseases and pests hence its usefulness in preventing hunger, malnutrition and poverty. The chapter concludes by highlighting the importance of IK and the relevance of studying the subject.

2.2 Indigenous knowledge during the colonial and post-colonial period

IK research done during the colonial period was largely anthropological and dominated by ethnographical work by missionaries and travellers coming from western countries (Agrawal, 1995; Morgan, 2003; Wilson, 2004; Huntington, 2005; Briggs, 2005; Akena, 2012). Several writers point out that colonialists regarded indigenous knowledge as primitive, uncivilised, backward, superstitious, and savage. This was a deliberate effort by the colonisers to delegitimise and hence have justification to colonise indigenous people with the pretence of civilising them (Wilson, 2004). Briggs and Sharp (2004:665) also note that IK was viewed as 'irrelevant to development, an obstacle rather than a force of change'. Sillitoe (1998), argues that, the premise which was used to confirm the insignificance of IK, was drawn from modernity and dependency models. Similarly, Kincheloe (2006) cited in Akena (2012:603) explains how:

With the birth of modernity, the scientific revolution and the colonial policy they spawned, many pre-modern indigenous ontologies were lost. Ridiculed by Europeans as primitive, the indigenous ways of being were often destroyed by the colonial conquerors of not only the military but the political, religious and educational variety as well. . . . Western, often Christian, observers condescendingly labelled such perspectives as pantheism or nature worship and positioned them as enemy of monotheism.... European Christian modernism transformed the individual from a connected participant in the drama of nature to a detached, objective, depersonalized observer.

Accordingly, Wilson (2004) and Akena (2012), also posit that with the advent of modernity came the promotion of western knowledge by Northern countries at the expense of IK. They argue that westerners perceived knowledge as universal and objective. For that reason, they considered their knowledge more valuable when seeking to address developmental and environmental health matters, poverty and many more challenges facing people. Consequently, colonialists assumed that they could simply transfer knowledge systems from the North to deal with problems of the South (Hobart, 2002). However, the same could not be said about IK which they [colonisers] perceived as subjective, local and therefore not capable of bringing positive change, even among the indigenous people themselves (Agrawal, 1995).

Hobart (2002) asserts that modernisation managed to suppress other knowledges like IK because it is centred on a theory of dependency, with principles that do not recognise diversity in social and historical processes. Furthermore, he explains that dependency theory is anchored on exploiting resources and labour of the local people creating inequalities among people

According to Morgan (2003:37), as IK was suppressed, 'the western system also allowed appropriation and exploitation' of it for the benefit of the colonisers. He adds, 'that which could be categorised and understood within the western ontological and epistemological system was readily appropriated'. The appropriation of IK is criticised by many as having contributed to the rejection of those aspects which did not fit the categorisation of science as it was perceived by the colonialist (Briggs and Sharp, 2004). For example, Simpson (2004:373-374) discusses how 'modern colonial societies' accept indigenous knowledge on environmental management because they would

have been proven useful through scientific methods. For the same reason they also refuse to recognise 'the spiritual foundations of IK and the indigenous values and worldviews that support itbecause they exist in opposition to the worldview and values of the dominating societies'.

However, the situation changed over the course of time. According to Morgan, (2003:38)

The western system that allowed the appropriation and exploitation of Indigenous peoples came into question during the 1960s. Colonialism and ethnocentrism were rejected, and the authenticity of science and its methodology as the arbiters of "truth" were increasingly distrusted. Principles of positivism, verification, objectivity and Western reasoning were widely rejected, providing a fertile space for the emergence of postmodern, postcolonial and feminist theorising.

However, the negative perceptions of IK during the colonial period notwithstanding, there were also some individuals who were advocates of indigenous people and their knowledge system. One such example is the work of Malinowski who although his perceptions were ambivalent, as he degraded IKS when he said 'primitive' 'savage', also had something positive to say. In his book, *Magic, Science and Religion and Other Essays*. (1948: 87) he commented:

Science, even as represented by the primitive knowledge of savage man, is based on the normal universal experience of everyday life, experience won in man's struggle with nature for his subsistence and safety, founded on observation and fixed by reason.

The post-colonial period witnessed the resurgence of interest in IKS on issues of development, agriculture, health, environment and law among others (Blunt and Warren, 1996, Odora Hoppers, 2002 and Pottier, 2003). Two main factors have been driving interest in indigenous knowledge. The first is the realisation that modernity has not been able to provide all the answers to human problems and two, modernity's failure to bring about expected change (Binns and Nel, 1999; Odora Hoppers, 2002). Hobart (2002:1) concurs when he notes how 'Anthropologists have long been among those who have questioned whether such scientific knowledge is as all-encompassing and efficacious as its proponents claim'. In fact, some of the scientific inventions have been sources of problems. For instance, industrialisation has been a

cause of numerous environmental problems (Jorgenson, 2003). Failure of modernity and science in some aspects has impelled many scholars and IKS practitioners to search for local solutions relevant to their contexts. For illustration purposes, Milburn (2005) makes reference to a book (*Western Diseases: Their Dietary Prevention and Reversibility*), edited by Denis Burkitt and Norman Temple. In this book, there is one study which investigated Aboriginals in the West Kimberly region of Australia. The study revealed that Aboriginals who had adopted a western lifestyle were suffering from high blood pressure and diabetes. Those who participated in the research were required to eat traditional foods for three months and the result was that they were able to reverse their health status in a positive manner.

One of the weaknesses of modernity and western knowledge as discussed by Briggs and Sharp (2004) is the concept of top-down strategy where experts bring ideas and resources from outside for the development of communities. This stance is clearly opposed in the IK literature of the post-colonial period that advocates for the participation of the beneficiaries of development as an alternative. For instance, Sillitoe (1998), indicates how fashionable IK and the participatory paradigm has become in the field of development as new strategies to solve the problems of the poor. Agrawal (1995), also agrees. He argues that participatory methods stress the ability of underprivileged people to make decisions pertaining to their progress and are popular among IKS and development practitioners. This is because of the failure of development initiatives introduced by outsiders to address problems of the local, indigenous and under-represented groups of people.

The other driver of the resurgence of interest in IKS has been the desire by indigenous people to reassert IK and redress the injustices done to it (Wilson, 2004). In his 1998 review of anthropological work on IK, Sillitoe likened the research that was done in the post-colonial period to a 'revolution'. This was because unlike the past, researchers in the field of IK were beginning to celebrate the value of IK to development. Sillitoe (1998:223) mentions that:

It is now recognised that research in less-developed countries is not just a question of coming up with technological fixes to others' problems, passing along scientifically validated information for them to

adopt. It is increasingly acknowledged beyond anthropology that other people have their own effective “science” and resource use practices and that to assist them we need to understand something about their knowledge and management systems.

Simpson (2004) argues that interest in IK can be viewed as a decolonisation process which allows the revaluing and recovering of the lost. He further says that those who were once colonised should initiate the decolonisation process. For instance, the works of some indigenous writers, including Ngugi waThiongo, (1993), Linda Tuhiwai Smith, (1999), Odora Hoppers, (2001, 2002) among others signify the desire to recover and affirm this knowledge.

Although research shows that interest in IK has been most welcome, literature reveals some weaknesses. Briggs and Sharp (2004) mention that there is an assumption among some researchers and development practitioners that IK can simply be incorporated into other forms of knowing to contribute to development. They add that ‘the approach can be naïve of political power relations which ensure that never can all knowledge sit equally together’ (ibid: 666). Wilson (2004) shares similar sentiments when he reveals how the education system continues to favour western knowledge over indigenous knowledge. Morgan (2003) also supports this argument, when he observes how western worldviews are still dominant in higher education. This is despite efforts by various groups to push for the recognition of indigenous knowledge in such institutions.

Briggs (2005:102) also mentions how the integration of IK into the education system that is dominated by the western worldview makes it occupy a lesser position to the other. This is because IK has to meet the standards set by science to be accepted. Agrawal (1995:11) cites Geertz (1983:148) who suggests that researchers and development practitioners seem to be committing the same mistakes made by early writers on IK such as ‘Malinowski, Boas, Levi-Bruhl, Mauss, Evans-Pritchard, Horton, and Levi-Strauss’ of dichotomising western and indigenous knowledge. For him, putting indigenous and western knowledge into these boxes is a failure to recognise the heterogeneity characteristic of these knowledges.

Briggs and Sharp (2004:664) comment on the lack of theoretical rigour and failure to recognise the political nature of IK by some proponents of the knowledge system. For instance, they cite Spikav's (1988) comments on the writings of indigenous people on the South Asian IK that lacks originality. According to Briggs and Sharp (2004), Spikav (1988) questions the validity of research conducted by indigenous people who are forced to use western methodologies to in-order to be accepted. They note how:

Spikav has argued that the subaltern cannot speak, so imbued must she be with the words, phrases and cadences of Western thought in order for her to be heard. In order to be taken seriously-to be seen as offering knowledge and not opinion or folklore-the life world of the subaltern has to be translated into the language of science, development or philosophy, dominated by Western concepts and Western languages. For Spikav (1988), the implications of this 'epistemic violence' mean that the ways of knowing the world and knowing the self in non-Western culture are trivialized and invalidated by Western scientists and experts. Hence the subaltern must always be caught in translation, never truly expressing herself, but always already interpreted.

Zeal for IK and its knowledge holders create some extreme perceptions when it is elevated to a level where its importance is exaggerated and romanticised (Pottier, 2003). Briggs (2005) concurs when he cites Schroeder (1999) who warns that romanticising IK might prevent some proponents from critically engaging with the subject and hence take everything for granted. He adds that, 'simply because indigenous knowledge exists does not mean that it is necessarily correct or unproblematic at the local level' (Ibid: 107). Agrawal (1995), Briggs and Sharp (2004) thinks that failure to recognise that IK is not faultless has resulted in some scholars presenting IK as if it were static. They further argue that, such a level of engaging IK may not be useful in addressing issues of a universal nature which require people to be sophisticated to enable them to engage with external forces for the purposes of development (Kalland, 2000). Briggs (2005:107) also says that romanticising IK may sometimes lead to situations where it is elevated above other knowledge, committing the same mistake made by proponents of the superiority of western knowledge. Cleaver, (1999: 605) warns that there is a possibility that in promoting IK people 'may swing from one untenable position (we know best) to an unequally untenable and damaging one (they know

best)'. He adds that professionals and development practitioners may fear to condemn negative traditions for fear of being perceived as criticising IK. For example, patriarchal systems that oppress other groups, such as women, may not be useful to development. To this, Briggs and Sharp (2004: 671) argue that:

Once the stable point of science or development has been challenged as a neutral position from which to judge the merits of different indigenous knowledge, the ground become difficult to stand upon with any certainty. Fear of imposing inappropriate judgments on different voices has led some to suggest relativism, and it seems that the fear of appropriating the voice of others has led some researchers to question their ability to say anything about communities of which they are not a member, creating a general anxiety around questions of representation.

Sillitoe (2010) also questions his own early writings of 1998 in which he was celebrating the role of IK, participation and development. He argues that IK is encountering problems of fulfilling expectations as it is becoming evident that its local orientation is failing to contribute meaningfully to developmental issues that are general.

However, despite all the differences in perceptions about IK and how it is being researched Huntington (2005), argues that the important thing is for each study in IK to be assessed in terms of its clarity of aims and whether other researchers can learn from it. In that respect, this study is relevant in that it addresses issues pertaining to the interface between policy on indigenous knowledge and the practices on the ground as indicated in chapter 1. As discussed in this section, the appropriation of IK continued in the post-colonial period just as had happened during the colonial period. Different organisations such as the World Trade Organisations (WTO), World Intellectual Property Organisation (WIPO), the United Nations Convention of Biological Diversity (CBD) and the Organisation of African Union Model Law (OAUML) have taken an interest in protecting IK, as will be discussed in the following section.

2.3 International initiatives to protect indigenous knowledge

In the past two decades, IK has increasingly been a subject of interest in the legal fraternity (Posey, 2000). It appears that various interest groups have come to realise the impressive wealth endowed in IK (Sinjela and Ramcharan, 2005). Indigenous genetic resources and associated knowledge which in the past were considered unscientific, are now relied upon by scientists, researchers, and corporate for science and technology advancement (Simpson et al., 1996).

Substantial commercial gains have been realised from the seed, pharmaceutical, agro-chemical, cosmetics and nutraceutical industries (Kalland, 2000; Posey, 2000; Odora Hoppers, 2002). As a result, national governments, policy makers, non-governmental organisations, legislators and indigenous knowledge holders are seeking ways to protect and ensure that benefits from indigenous knowledge are shared equitably amongst all the supposed beneficiaries (Sinjela and Ramcharan, 2005, Zerbe, 2005).

Commenting on the interest in indigenous knowledge and its resources, Zerbe (2005:494) notes that:

As genetic resources have assumed increasing scientific and especially commercial value, debates over access to and ownership of biodiversity have intensified. Indeed, as the raw materials necessary to realise the promises of the 'biotechnology revolution', control over genetic resources is increasingly contested.

The renewed interest in the protection of indigenous knowledge as articulated above is indeed contrary to the historical perceptions of indigenous knowledge that were characterised by negativity and usually perceived as primitive. Interest in IK is evident in international instruments that have sought to promote, preserve and protect IKS (Zerbe, 2005). The following section will highlight some of the treaties and conventions adopted to protect IK both at an international and national level.

The Trade Related Aspects of International Property Rights (TRIPS) agreement of the World Trade Organisation (WTO) is one of the widely recognised conventions in the field of intellectual property (IP) (Lettington,

2002). The purpose of TRIPS is to 'establish a set of minimum standards that national laws must uphold concerning issues of trade' (ibid:83). As an international convention, TRIPS does not create laws for nations but it has considerable influence on how nations create their own laws. Signatory member states are supposed to uphold the minimum standards as stipulated by TRIPS and failure to do so may result in sanctions being imposed on them through World Trade Organisation and Dispute Settlement Panels (ibid:2002).

The definition of IP as given by TRIPS in Article 1 (2) recognises that IK is intellectual property (Lettington, 2002). This therefore implies that nations can create laws that protect IK as IP without breaching the standards of TRIPS. TRIPS protects individual rights to IP over a specified period.

Several authors argue that this sort of intellectual property protection does not sit very well with IKS (Payle and Lebakeng, 2006; Sinjela and Ramcharan, 2005). Lettington (2002:82) explains that TRIPS cannot fully protect IK because 'dominant intellectual property rights was designed for the protection of types of knowledge developed through a radically different process, and in an equally different context, from that of indigenous and local community knowledge'. On the same note, Sinjela and Ramcharan (2005) point to the fact that existing intellectual property laws at an international level such as those prescribed by TRIPS are probably more suitable for Western types of knowledge. Ngenda (2005:66) concurs that TRIPS is 'individualistic, commodity and incentive based'. This creates gaps which allow for the manipulation and exploitation of IK because it is not normally used to the benefit of individuals but the whole community (Kalland, 2000; Mashelkar, 2002; Mshana, 2002).

The World Intellectual Property Organisation (WIPO) is a United Nations specialised agency mandated to promote IP worldwide. It facilitates co-operation among states and other organisations which work in this field (Bhatti, 2004). In 1979, WIPO in collaboration with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) started efforts to protect expression of folklore against exploitation (Ibid, 2004).

In 1998-1999, WIPO began an exploration of the IP needs and expectations of traditional knowledge holders to enable them to protect their knowledge and practices. The research resulted in WIPO engaging workshops and distance training of traditional knowledge holders on IK documentation and IP standards (ibid, 2004). WIPO also formed an intergovernmental committee on intellectual property and genetic resources, traditional knowledge and folklore. The task of this committee is to research the approaches taken by nations to inform national policy-making and capacity building pertaining to protection of IK.

Recently, the intergovernmental committee on IP and genetic resources, traditional knowledge and folklore came up with Draft Articles on the protection of traditional knowledge¹⁸. The preamble of the draft seeks to correct the colonial perceptions of IK which have resulted in the devaluation of the knowledge system. It recommends the need to:

recognise the [holistic] [distinctive] nature of traditional knowledge and its [intrinsic] value, including its social, spiritual, [economic], intellectual, scientific, ecological, technological, [commercial], educational and cultural value, and acknowledge that traditional knowledge systems are frameworks of ongoing innovation and distinctive intellectual and creative life that are [fundamentally] intrinsically important for indigenous [peoples] and local communities and have equal scientific value as other knowledge systems.

Two issues are clear from the above citation. Firstly, it is apparent that the committee is placing IK at the same level with other knowledge systems, a view contrary to perceptions that regard western knowledge as superior (see section 2.2 above). In addition, the document points out that everyone who uses indigenous knowledge should take into consideration the holistic nature of IK as its unique feature. Again, this differs from the manner in which some IK enthusiasts only recognise components of IK considered relevant at the expense of other aspects, as already mentioned by Simpson (2004) above.

¹⁸ World Intellectual Property Organization (WIPO) GRTKF/IC/28/5 (2014). Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. Downloaded from http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=276361 on 22 July 2016.

Besides recognition, WIPO seeks to promote and protect IK from misuse and exploitation. Awareness campaigns and prior informed consent by indigenous people before use of IK are some of the measures stipulated by the draft to preserve and conserve the knowledge. To avoid exploitation of IK, WIPO, advocates the fair and equitable sharing of benefits arising from their use (ibid).

The Convention on Biological Diversity is one of the well-known international laws created to prevent destruction of plants and restrict appropriation of plant resources for profit-making. The instrument also addresses aspects of the equitable distribution of commercial gains from indigenous knowledge with local communities (Lettington, 2002). Article 8 (j) of the Convention of Biological Diversity stipulates that:

Each contracting party shall 'subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional life styles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices (United Nations, 1992b).

Article 17 (2) also states that:

Each contracting party shall facilitate exchange of information, including traditional and indigenous knowledge, relevant to the conservation and sustainable use of biodiversity (United Nations, 1992b).

In addition, Article 19 was designed to enable equitable sharing of benefits from the proceedings coming from commercial application of indigenous knowledge (United Nations, 1992b). Two key aspects emerge from the above articles. The first emphasis is on the need to respect indigenous knowledge and those who hold such knowledge as a means to motivate them (local communities or indigenous people) to conserve biodiversity. Secondly, the CBD stresses the importance of benefit-sharing from indigenous resources (Mshana, 2002).

Lettington (2002) critiques the shortcomings of the CBD on the following: its failure to acknowledge the multi-facets of IKS when it only addresses the biological aspect of indigenous knowledge; lack of clarity on how issues of prior informed consent works; and the disproportionate amount of power that the CBD gives to national governments to control indigenous bio-diversity at the expense of local communities. He views this as problematic as national governments have not always worked in the interest of local communities. However, Lettington (2002:93) concedes that despite the CBD's shortcomings 'the agreement has already served its greatest role by raising the profile of the issue (of community rights over their knowledge) and to make it a serious subject of discussion at all levels from the community to international'.

Besides CBD there are also what Mauro and Hardison (2002) call conventions and soft laws that seek to protect the environment and the rights of indigenous people. The United Nations Convention to Combat Desertification (UNCCD) is such an example that was established in 1994. UNCCD corroborates with the CBD in its quest to protect traditional knowledge and indigenous people. It promotes the equitable sharing of dividends from traditional knowledge, technology and resources, as indicated in (Article 17 [c])¹⁹.

....protect, integrate, enhance and validate traditional and local knowledge, know-how and practices, ensuring, subject to their respective national legislation and/or policies, that the owners of that knowledge will directly benefit on an equitable basis and on mutually agreed terms from any commercial utilization of it or from any technological development derived from that knowledge;

The 1992 Rio Declaration, a product of the Earth Summit, is a convention that reiterates some of the objectives of the CBD. For instance, principle 22²⁰ indicates that:

Indigenous people and their communities and other local communities have a vital role in environmental management and development

¹⁹ United Nations Convention to Combat Desertification (1994) downloaded from <http://www.unccd.int/Lists/SiteDocumentLibrary/conventionText/conv-eng.pdf> on 18 July 2016.

²⁰ United Nations (1992), Report of the United Nations Conference Environment and Development downloaded from <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> on 18 July 2016.

because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

In addition, the UN Food and Agriculture Organization (FAO) also concur with the CBD. The one element of indigenous knowledge supported by the FAO that concurs with the CBD is its focus on the protection of farmers' intellectual rights that the individual intellectual property stipulated by the TRIPS cannot protect. The FAO recognises that indigenous farmers as communities have a capacity to develop new plant breeds through years of experimenting. And intellectual property of communities should be considered to protect such breeds (Mauro and Hardison, 2000).

2.4 Regional initiatives to protect indigenous knowledge

Regional agreements also sought to protect the rights of indigenous people and their knowledge. Examples include but are not limited to, the Organisation of African Union Model Law (OAUML), The Arctic Environmental Protection Strategy (AEPS), the Kari-Oca Declaration and the 1993 Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples, the African Regional Intellectual Property action (ARIPO) and Organisation Africaine de la Propriete Intellectuelle (OAPI).

The draft African Model Legislation was adopted in 1998 by African countries after the realisation that international laws (e.g. the TRIPs agreement) were failing to adequately protect traditional knowledge (Ekpere, 2004). Similarly, Munyi, et al., (2012:9) note that the concerns of OAUML were related to the fact that:

Existing IPRs regimes could not protect indigenous technologies, innovations and practices, or biodiversity. IPRs were instead seen as encouraging bio-piracy by allowing and protecting private ownership claims over the collective innovations and practices of local and indigenous communities, thereby robbing the community of the economic benefits derived from such products of collective intellectual endeavour. The types of rights that Africa needed were thought to be those that recognised and protected the livelihoods of local and indigenous communities.

The objective of OAUML is therefore to address some of the shortcomings of TRIPS, particularly the protection of Intellectual Property owned by communities, a usual phenomenon in the case with IKS. African Model Law is consistent with the tenet of the CBD which prioritises the importance of having the community share the benefits which accrue from indigenous knowledge (Article 22)²¹. In addition, it aligns with the CBD in its prioritisation of prior informed consent (Article 18) (Ibid) which gives local communities the right to refuse (Article 19), withdraw, or restrict access to natural resources and indigenous knowledge (Article 20) (ibid). In 2001, OAUML was modified to align with the TRIPS agreement by including an African tailored sui generis law meant to protect plant breeders' rights (Munyi et al., 2012). That way, OAUML takes into cognisance the requirement of intellectual property as defined by TRIPS and considers the importance of community in ownership of IKS (Mshana, 2002). Although OAUML can be applauded for managing to counter the shortcomings of TRIPS as already discussed above by emphasising the rights of community, (Munyi et al., 2012) it still has gaps, which include ambiguity on how non-monetary benefit of IKS would be shared, which still need to be addressed for the law to effectively protect indigenous knowledge.

The Arctic Environmental Protection Strategy, formed in 1991 by the eight Arctic Member States (Mauro and Hardison, 2002), also supports the rights of indigenous people in that it recognises 'new local voices in interpreting environmental phenomena and their implications for Arctic socio-ecological systems' (Martello, 2004:108).

Similarly, the Kari-Oca Declaration, a product of the Earth Summit in 1992, calls for the participation of indigenous people in all the decisions made concerning the use of resources. The declarations reject the commodification of natural resources and indigenous knowledge as advocated by the 'Green

²¹ African model legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources, Algeria, 2000. Downloaded from <http://www.wipo.int/edocs/lexdocs/laws/en/oau/oau001en.pdf> on 2 July 2015

Economy'. The declaration also rejects commercialisation of natural resources that it perceives as the continuation of colonialism that supports the accumulation of wealth by multinational enterprises at the expense of the indigenous people. Like the CBD, the Kari-Oca declaration places emphasis on the importance of the prior informed consent of indigenous people on decisions made on the use of resources to ensure sustainable use and benefit sharing²².

Likewise, the 1993 Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples 'insists that the first beneficiaries of indigenous knowledge (cultural and intellectual property rights) must be the direct indigenous descendants of such knowledge'²³. In agreement with the CBD, the Matautau Declaration is conscious of the shortcomings of the TRIPS position on intellectual property as a tool that can effectively protect intellectual property as it is defined within the context of indigenous knowledge systems (ibid).

The African Regional Intellectual Property Organization (ARIPO) is a regional organisation which was formed following the Lusaka agreement of 1976. The organisation consists of 18 Anglophone countries and the initial reason for its establishment was to register patents, trademarks and designs. Consistent with WIPO, ARIPO expanded its mandate after adopting the Swakopmund Protocol in 2002 to include the protection of indigenous knowledge and expressions of folklore (Munyi, et al., 2012). In concurrence with the CBD, the principles of ARIPO also include the significance of prior informed consent of local communities and equitable benefit sharing of proceeds from indigenous knowledge. Again, like OAUML, ARIPO allows local communities of its

²² Kari-Oca 2 Declaration, 'Indigenous people global conference on Rio+29 and mother earth' downloaded from <http://www.earth.org/docs/DECLARATION-of-KARI-OCA.2.Eng.pdf> on 20 July 2016.

²³ The Matautau Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples Commission on Human Rights: Sub-Commission of Prevention of Discrimination and Protection of Minorities Working Group on Indigenous Populations 19-30 July 1993 downloaded from <https://www.ngatiawa.iwi.nz/cms/CMSFiles/File/Associations/mataatua%20declaration.pdf> on 21 July 2016.

member states to refuse access to traditional knowledge and natural resources. It enables indigenous people to take legal action against anyone deemed to be violating their rights to access and exploitation of indigenous knowledge (ibid).

The Organisation Africaine de la Propriete Intellectuelle (OAPI) consists of 16 Francophone African countries. It performs similar work to ARIPO in the context of indigenous knowledge protection, as briefly summarised by Munyi, et al., (2012:45):

A significant development in OAPI's promotion and development of IP policy is the adoption in 2007 of the instrument *Africain Relatif a la Protection des Savoirs Traditionels*. This instrument is similar to ARIPO's Swakopmund Protocol for the Protection of Traditional Knowledge and Expressions of Folklore, except that the OAPI instrument does not address the protection of folkloric expressions.

As reflected in the above discussion, regional and international organisations have taken into cognisance the importance of IKS and they are making efforts to protect IKS from misappropriation, misuse, bio-piracy and all forms of exploitation. South Africa as a member state of some of the above international organisations has also been playing its part in the protection and promotion of IKS through its policies and legislation reflecting the principles of these organisations. The following section is a discussion of some of these policies and pieces of legislation.

2.5 Protection and promotion of indigenous knowledge in South Africa

In concurrence with what is happening in international fora, South Africa has also sought to protect and promote IKS through its laws and legislations. To this end, the South African government has adopted a policy on indigenous knowledge systems (South Africa, 2004a). To assert the importance of indigenous knowledge, South Africa placed IKS in the Department of Science and Technology (DST) (ibid). Locating IKS in the Department of Science and Technology stimulate and strengthen the position of IKS in the social and economic development of South Africa (ibid). Four drivers, as will be

discussed below prompted inclusion of indigenous knowledge in the DST policy by the South African government.

The first driver was to affirm African cultural values as a way to redress past ills which were perpetuated by apartheid and colonialism. Apartheid together with colonialism had led to the subjugation and suppression of indigenous ways of life, as already discussed in preceding sections. This was because the colonialists considered IKS as backward and not worthy of any development when compared to other worldviews.

Besides issues of redress, DST's policy on indigenous knowledge systems was also created to affirm African ways of life in a world which is fast becoming a global village where stronger cultures dominate weaker ones. It is also important to note that there is an upsurge in the promotion of indigenous knowledge at a global level and South Africa had to play its part in promoting its own indigenous knowledge and contribute to this cause (ibid).

The development of services provided by indigenous knowledge holders and practitioners is important in the field of previously suppressed indigenous knowledge system. The government has already fulfilled its commitment in the health sector by acknowledging traditional healers and medicinal plants through integrating IKS into health policy (South Africa, 2008a).

The government has also been supporting indigenous knowledge and its holders by providing research and developing human resources working in the field of IKS through the National Research Foundation (NRF) (South Africa, 2011/12). The government is committed to supporting research and human development through allocating funds specifically for IKS and IKS practitioners and knowledge holders. The NRF endeavours to promote research focusing on areas that will contribute to the affirmation and improvement of this formally ignored knowledge system. The funding instrument covers research on African traditional medicine, food security, technology, nutraceutical and health (ibid).

In accordance with the DST's objectives, the NRF also takes into consideration the need to show recognition and respect for the holders of indigenous knowledge by funding projects that 'require joint or active participation and equal ownership between scientists and IKS knowledge holders who must be clearly designated as principal investigators or co-investigators in the application' (ibid, 2011/12:2). This is to make indigenous people active participants and beneficiaries of research done in their communities and on their indigenous knowledge system. This is contrary to previous research on indigenous knowledge systems where researchers from outside would come to indigenous communities and get information without any compensation or acknowledgement of the holders (Smith, 1999).

The South African government has been using IKS together with other knowledge systems such as biotechnology to develop and improve indigenous natural resources for the socio-economic development of South Africa (South Africa, 2012). The nature of indigenous knowledge is multifaceted; it is found in agriculture, culture, health, law, the environment, governance and leadership. This multifaceted nature of IKS has prompted the DST to work with other departments in its promotion and protection. For instance, the Department of Environmental Affairs and Tourism through its National Environmental Management Act 10 of 2004 (NEMA) promotes indigenous knowledge by ensuring that indigenous biological resources are used sustainably and the benefits of the resources are shared equitably (South Africa, 2004b). The NEMA act 10 of 2004 tallies with the principles of the CBD (discussed above).

Similarly, the Department of Health drafted policy to support the integration of African traditional medicine (ATM) into the public health sector. ATM was included in the public health sector to acknowledge diversity in the health system relied upon by South Africans. The inclusion also serves to support and protect traditional healers and those who use traditional medicine from exploitation (South Africa, 2008a). The decision by the Health department to include ATM in the public health sector is in line with the principles and recommendations on how to deal with traditional medicine of international

organisations such as the World Health Organisation, the African Union and the Southern Africa Development Community, of which South Africa is a member state.

The Department of Agriculture and Rural Development (DARD), through the Agricultural Research Council (ARC), has been involved in projects that promote indigenous plants by supporting various projects throughout the country by developing and improving these plants to improve the livelihoods of local people²⁴ (see chapter 1 for details). For instance, the ARC has been supporting research and providing training sessions on appropriate cultivation practices of indigenous vegetables, improved planting and harvesting methods, and determining the optimal water and fertiliser requirements of indigenous vegetables (ibid). An example of such a project is run by the ARC-Roodeplaat and it has resulted in communities in six provinces growing these vegetables for their food security (Venter et al., 2007).

As in many developing countries, South Africa has realised the value of its indigenous knowledge system, something which is now evident in commercial ventures to benefit indigenous communities. A well-known example is the case of the Khoi and San communities and the Council for Scientific and Industrial Research (CSIR) who share benefits from the patent of *hoodia*. *Hoodia* is an indigenous plant historically used by the Khoi and San people to suppress appetite. CSIR developed *hoodia* into a drug used for weight management (Masango, 2010). The sharing of benefits was agreed in 2003 after negotiations between the two parties; initially the CSIR had registered a patent on P57 (the appetite suppressant component of *hoodia*) and sold the licensing rights to an English biopharmaceutical firm, Phytopharm, in 1997. Phytopharm then sold the licence to American pharmaceutical giant Pfizer for 25 million dollars without having consulted with the San people²⁵.

²⁴ ARC downloaded from <http://www.daff.gov.za/daoDev/sideMenu/links/Digest4.htm> on 20 February 2016

²⁵ study: Hoodia Cactus. n.d downloaded from <http://www.ipngos.org/NGO%20Briefings/Hoodia%20case%20of%20benefit%20sharing.pdf> on 20 February 2016.

Cases like the one just described is an example of why the government of South Africa wants to counter bio-piracy of indigenous knowledge and resources by passing laws which protect IKS (Masango, 2010). The Department of Trade and Industry protects traditional knowledge through its policy and laws (Intellectual property system policy and Intellectual Property Laws Amendment Act, 2013) (South Africa, 2013). The Act explains how traditional or indigenous knowledge can be protected using trademarks, geographical indicators, patents, designs and copyrights. South African Intellectual property law follows the principles of international law (TRIPS) described above. This implies that, like TRIP, current South African law on IKS intellectual property systems allows for the protection of intellectual property rights of individual but not intellectual property owned by communities (ibid). It is for this reason that a number of stakeholders in South Africa are lobbying for the adoption of a *sui generis* approach to protect indigenous knowledge systems.

DST has also sought to protect IKS from intellectual property exploitation and bio-piracy using the National Recordal System (NRS) established in 2013. Oral transmission of indigenous knowledge system is the reason why there is lack of written documents and that has led to its misuse and misappropriation (Dountio, 2011 and Andrzejewski, 2010). A practical example of IKS that has been misappropriated and has failed to benefit South Africa fully is rooibos tea. The South African Rooibos industry sought geographical indication protection (GI) after suffering from 'intellectual property usurpation' (Troskie and Biénabe, 2013:96). This happened when Forever Young assigned a US citizen, Virginia Burke-Watkins, Principal of Burke International to use rooibos as a trademark. Forever Young was a South African company based in the US and had registered for exclusive rights over the Rooibos trademark in that country. This meant that by assigning rights of trademark to individuals, South African companies could not export Rooibos products to the US. The South African company Rooibos Ltd contested Virginia Burke-Watkins' exclusive rights over Rooibos on the basis that 'it was generic and therefore non-

distinct' (Biénabe et al., 2009:58). Although Virginia Burke-Watkins later gave in, and gave up her exclusive rights to Rooibos, Rooibos Ltd had incurred many expenses and invested a lot of time on the case. Burke International later allowed South African companies to use Rooibos as a trade name but never gave back the legal right to the name.

Given instances like the one described above, the DST trusts that recording will allow recognition and benefits of IK go to the rightful holders of knowledge. It would also prevent granting patents to wrong people, as databases will be able to show existing indigenous information. Recognition of databases as a means of protecting indigenous knowledge systems through preventative measures like recording and documenting is happening at international level. Examples of such international initiatives include the Traditional Chinese Medicine database, the Traditional Knowledge Digital Library (TKDL) and the Biozulua database from Venezuela²⁶ (Alexander, 2004). All these show the value accorded IKS worldwide, hence its promotion in South Africa as well. It is evident from the discussion above that both local and international fora have put efforts to protect IK, although there are some shortfalls. Agriculture, conservation and health sectors have also promoted indigenous knowledge, as I will discuss in the following sections.

2.6 Indigenous knowledge in agriculture development

South Africa is food secure at a national level and is one of the biggest exporters of food in the world. For instance, between 2008 and 2010 agricultural exports grew by 10%, accounting for 5% of the country's total exports (Mail and Guardian, 2012²⁷). However, there is evidence of food

²⁶ The State Intellectual Property Office (SIPO) of the People's Republic of China compiled the Chinese Medicine database. The database focuses on bibliographic-type data related to TCM (WIPO, 2002:12). Biozulua is a Venezuelan database. The scientific and academic community to protect traditional medicine, technologies, agriculture and nutrition initiated it. It also serves to make information on traditional medicine accessible to scientists for further development. Disputes between India and some US companies over turmeric and neem form background of the TKDL. TKDL is an Indian database formed by various government departments to record Indian Traditional Knowledge System as a defence mechanism against future misappropriation after experiencing a costly and time-consuming dispute with US companies.

²⁷ South Africa's food export on the rise. Downloaded from <http://mg.co.za/article/2012-02-02-sas-food-exports-on-the-rise> on 15 November 2016.

insecurity at the household level (Altman et al., 2009). Similarly, Statistics South Africa, (2012)²⁸ shows that 'a large percentage of households (21.1%) continue to experience difficulty to access food'. The dilemma of food insecurity in South Africa is especially evident in the Northwest (32.9%), the Northern Cape (29.7% (Ibid 2012: ii) and remains high in the rural areas of KwaZulu-Natal (Haese et al., 2013). The report also shows that households in Limpopo accessed more food when compared to other provinces, including richer provinces like Gauteng and Western Cape (Ibid). Rural communities, 'which represent 58% of the poor' (Bvenura and Afoloyan, 2015:1002) are prone to hunger and food shortages as compared to urban dwellers. This is because the majority rely on subsistence farming and have no other source of income to purchase food (Statistics South Africa, 2012).

Like many countries, South Africa has adopted food security policies whose major tenets are based on agribusiness. Large-scale commercial agriculture uses technology and requires vast pieces of land and capital to mass produce food which is then sold by capitalists to the majority of the people for profit making (Hart and Voster, 2006). Greenberg, (2010) argues that the system has failed to meet the food requirements of all South Africans. He adds that consumers have very little control over food quality and a small number of firms, namely, Shoprite, Pick n Pay, Spar, Massmart, Metcash and Woolworths, control food prices.

The recognition that conventional agriculture and its ways of producing food has failed to solve food shortages for local and rural communities has resulted in many indigenous knowledge scholars advocating the revival of indigenous knowledge in agriculture (Hart and Mouton, 2005; Hart, 2007; Nwonwu, 2008). It is believed that adoption of indigenous knowledge by local communities will be useful because of its capacity to facilitate context-specific, relevant knowledge (Altieri, 2004). Hart (2007) also argued that it is important to encourage the use of indigenous knowledge because it is cheaper, as it

²⁸ Statistics South Africa (2012). Downloaded from, www.statssa.gov.za/publications/Report-03-18-03/Report-03-18-032011.pdf on 17 August 2014.

allows natural means of farming. This is in light of the fact that rural communities are normally characterised by low income, small land holdings and short supply of capital (Hart and Mouton, 2005).

Numerous authors agree that indigenous knowledge plays an important role in crop and animal protection, cropping practices, weather forecasting, soil classification, and food preservation (Magoro and Masoga, 2005; Hart and Mouton, 2007; Agea et al., 2008). For example, using the Rapid Rural Appraisal method (a participatory research method), Hart (2007) studied the usefulness of indigenous vegetables. The study indicated that farmers were able to combat food insecurity by experimenting with indigenous vegetables without the help of conventional inputs. The author views this as an advantage of indigenous knowledge in that it enabled productive farming in rural areas where the majority of people are poor and need to grow their own food with minimum agricultural inputs. He further argued that indigenous plants are resistant to drought, pests and diseases. The study resonates with the concept of food sovereignty promoted in many developing countries. Indigenous people who advocate food sovereignty feel that there is a need for people to grow their own food which is culturally suitable for them, appeals to their tastes, conserves biodiversity and empowers the poor to be in control of their food production (Wittman, et al., 2010) (see further discussion in chapter 3).

African rural communities also use indigenous knowledge for protecting animals and plants from pests and diseases. People from Mogatle and Madisha Leole villages in Eastern Cape Province mix maize grain with wood ash or paraffin to control pests. They also use aloe forex ashes as an insect repellent on vegetables (Odeyemi et al., 2007). The Setswana speaking people of North West province in South Africa were found to rely on their rich ethno-veterinary knowledge as conventional medicines are expensive for them (Van der Merwe et al., 2001). In Uganda, Hart and Mouton (2005) and Agea, et al., (2008) found that homemade solutions made of urine, chilli pepper, water, ash and acacia leaves were commonly used to protect indigenous vegetables.

Magoro and Masoga (2005) also indicated that farmers were able to maximise their output with the use of minimum capital because they used indigenous ways of growing crops. Their research showed that farmers use cropping methods such as crop rotation, mulching, slash and burn, ploughing crops back into the soil and composting to improve the nutrient components of the soil. Besides improving the crop output, it is said that farmers use these cropping methods because they are considered cheaper and have a longer working period as compared to fertilisers (ibid).

Research by Magoro and Masoga (2005), conducted in South Africa also reveals that farmers possess vast empirical knowledge on weather patterns. These studies indicated that by studying wind patterns, and the celestial behaviour of certain animals and plants, farmers are able to predict whether there will be good rains or drought and adjust their farming activities accordingly by growing crops which they know will be suitable for the amount of rain they will be receiving. Use of indigenous knowledge by farmers enables them to know the times to perform different tasks as farmers. For instance, Magoro and Masoga (2005) discovered that people from Madisha Leole and Mogatle village in Limpopo province in South Africa, use indigenous knowledge to mark times of seasonal labour like the appearance of certain insects and the growth of certain shrubs.

It is however important to note that indigenous knowledge in agriculture has its particular limitations. Odeyemi, et al., (2007), argue that indigenous knowledge is lacking among young farmers because they lack faith in indigenous knowledge due to its lack of scientific procedural explanations.

2.7 Indigenous knowledge and the conservation of biodiversity

Indigenous people possess vast empirical knowledge about the environment and have interpretations that are very different from scientific knowledge (Kalland, 2000). Several studies on the conservation of biodiversity indicate that indigenous people use myths and taboos to conserve their fauna and flora. For instance, Babalola et al's., (2014) research indicates that the existence of sacred forests in South West Nigeria have been for a long time

been able to preserve fauna and flora as it was considered offensive to enter them unless one was a forest custodian or a priest. Similar studies were also done in South Africa by Mutshinyalo and Siebert (2010) in Vhavhenda district and Kambizi and Afolayan (2006) in Guruve, Zimbabwe, where the existence of sacred forests have preserved these areas because of their sacredness.

Kambizi and Afolayan (2006) also indicates that medicinal plants were protected from being overharvested using indigenous knowledge. For instance, indigenous knowledge prohibits use of metal implements such as hoes to harvest certain plants such as muubvu (*Bowiea Volubilis*); children are not allowed to harvest mutunga (*Eucomis Autouminalis*) because it is believed the plant possess spiritual powers, and a limited number of roots of munhunguru (*Ximeria Caffra*) can only be harvested (Ibid).

Mutshinyalo and Siebert (2010) also observed protection of useful plants where the Vhavhenda would protect certain plants because of their medicinal properties or because they host animals. For instance, indigenous knowledge protects *Burkea Africana* because of its role in hosting edible caterpillars, locally known as Mafhulu worms. The protection of biodiversity was also extended to animals which were either not allowed to be killed or were captured only to be presented as a gift to the royal family. In Zimbabwe, if one captures a pangolin they are supposed to present it to the chief. The Vhavhenda also believed that killing a pangolin or certain species of frog would lead to drought (Mutshinyalo and Siebert, 2010).

Although it is evident that indigenous knowledge can be useful in the protection and conservation of biodiversity, like any type of knowledge it has its limitations. Several authors concur that use of indigenous knowledge in conservation is losing its impact because of westernisation, Christianity and education, which explain empirical knowledge in a way different from indigenous knowledge, and leading people to question myths and taboos which are used by indigenous people (Mutshinyalo and Siebert, 2010; Babalola et al., 2014).

Kalland (2000) also indicates that the growing desire in some sectors to find answers in everything considered indigenous has led to wrong assumptions in instances where conservation of biodiversity occurred because there were very few people living in certain areas. This is evident in areas where indigenous knowledge was seemingly working for the conservation of biodiversity only to have the situation change with the growing of the population. This is evident in Nigeria and South Africa where population growth led people to enter sacred forests for firewood, hunting, farming and the building of structures (Mutshinyalo and Siebert, 2010; Babalola, et al., 2014).

Kalland (2000) gives a detailed account of some of the limitations of indigenous knowledge in addressing issues of the environment. He argues that researchers and scholars should be careful not to take theory on how indigenous knowledge protects biodiversity at face value as theory does not always translate to practice. He gives examples of various indigenous people who in theory seem to respect the environment but have been the cause of many destructive tendencies towards the environment. Kalland (2000) explains that the reason why theory does not always amount to practice may be the uneven distribution of knowledge. He points out that this is true of all IK as there is a tendency for the younger generation not to possess as much knowledge as their elders. Because of this anomaly, research has revealed a younger generation not adhering to indigenous ways of preserving biodiversity because they are lacking in knowledge.

The existence of conflicting values in any cosmology is another reason for discrepancies between theory and practice. In explaining this, Kalland (2000) indicates that it does not always follow that people's values, which tend to protect natural resources will always be respected as sometimes social and economic needs override the importance of the environment.

Furthermore, he views provision of means to circumvent religious norms as another reason why IK fails to protect biodiversity. For him, religious beliefs always provide the means for people to get out of trouble in case of

transgression. For instance, use of sacrifices or payment of damages may prompt some people to disregard religious beliefs that protect the environment, knowing there will be a way out.

2.8 Indigenous knowledge and health

Traditional medicines have always been used for the prevention and curing of diseases in South Africa and continue to be used despite the advent of orthodox medicine. Eighty percent of the black population in South Africa is reported to use traditional medicine for their well-being (Gavriilidis and Östergren, 2012). Traditional medicines are worth about R2.9 billion per year in terms of trade in South Africa with about 27 million consumers (Mander et al., 2007). Gavriilidis and Östergren (2012) argue that South Africans choose traditional medicine because of its holistic approach, which meets both the spiritual and physical needs of a patient. The use of traditional medicine in South Africa is widespread in all provinces and among different age groups, genders and social classes and different education levels (Steenkamp, 2003; Bhatti, 2004; Van Wyk et al., 2008; York et al., 2011; De Wet et al., 2012).

Research has also indicated several other reasons for use of traditional medicine in South Africa. They include easy accessibility and affordability of medicinal plants, the individualised nature of traditional medicine, cultural appropriateness, extensive local knowledge of traditional medicine, lack of medical facilities in some parts of South Africa especially rural areas, and lack of newly developed medicine (Stafford et al., 2008; Street et al., 2008; Gavriilidis and Östergren, 2012). Several researchers have recorded a variety of illnesses which are referred to traditional healers, including gynaecological health issues (Kaido et al., 1997; Varga and Veale, 1997; Steenkamp, 2003), venereal diseases (Buwa and Van Staden, 2006), mental problems (Stafford et al., 2008), infectious diseases such as flu and diarrhoea (Mathabe et al., 2006), and respiratory problems (York et al., 2011).

Although traditional medicines are widely used in South Africa and the government now promoting them through policy, there are still challenges and shortcomings presented by this medicine. Some traditional healers lack

knowledge on issues such as informed consent, safety, dosage and potential side effects (Nyika, 2007; Gavriilidis and Östergren, 2012). Despite its potential as medicine and its promotion in South Africa, there are still no standardised measures in place to check for safety. Lack of regulations on how these medicines are harvested, stored and prepared compromise their safety. In urban areas, vendors sell indigenous plants on pavements that are not safe and sometimes pollution contaminates them, as they are usually exposed. Industrialisation, and mining activities, which, dispose of waste materials in the environment contribute to indigenous medicine being unsafe as some of them are collected close to disposal areas. (Street, et al., 2008).

Bogus healers and conmen who purport to be traditional healers are common in traditional medicine that combines spiritualism and use of medicinal plants. These criminals exploit people and encourage criminal acts such as the killing of people for their body parts for use in ritual practices and raping of children to cure HIV/AIDS (Nyika, 2007; Gavriilidis and Östergren, 2012).

2.9 Indigenous vegetables

The nutritional value of indigenous vegetables, their collection and consumption, harvesting and preservation, marketing, and perceptions of people towards them and their role in food security have received an increasing amount of attention from a number of studies globally. In anthropological, ethno-ecological and ethno-botanical contexts, attention has been on the collection and consumption of indigenous food with the aim of documenting traditional knowledge in specific contexts worldwide (Balick and Cox, 1996; Chweya and Eyzaguirre, 1999; Van Wyk and Gericke, 2000; Hadjichambis et al., 2008). In nutrition and food science, the literature abounds in evidence of the nutritional value of specific indigenous foods (Faber et al., 2007; Erukainure et al., 2010; Feyssa et al., 2011; Hamlin and Latunde-Dada, 2011; Kunyanga et al., 2011). Research in the fields of agriculture and development has been concerned with the cultivation of indigenous vegetables, their marketability and their use in improving the livelihoods of local communities. These studies have investigated the potential of indigenous vegetables in food security (Gockowski et al., 2003; Modi et al.,

2006; Kaschula, 2008; Legwaila et al., 2011) and their marketability (Shackleton et al., 2010 and Muhanji, et al., 2011). The following section is a detailed discussion of all the above aspects of indigenous vegetables.

2.9.1 Collection and Consumption of indigenous vegetables

Survey studies of indigenous vegetables have focused on identifying plants still used in their communities as a way of using documentation to preserve this knowledge. There are worldwide examples of such studies. Hadjichambis, et al., (2008) carried out a survey in seven circum-Mediterranean countries, namely Cyprus, Greece, Italy, Spain, Albania, Egypt and Morocco and recorded that 406 plants are still gathered and consumed in these areas. Orech et al., (2007a) documented sixty indigenous vegetables that are collected and consumed in Western Kenya. In South Africa, Shava (2000) compiled an inventory comprising more than 80 species of edible wild plants used in kwaTuku in Peddie, Eastern Cape. In addition, he classified these plants as wild spinach or *imifino*, wild fruits, edible roots/tubers, beverage plants, and 'other' edible plants. Steyn et al., (2001) conducted a survey in South Africa's Northern Province and identified that 32 species of wild vegetables were consumed by people who participated in their study.

Indigenous vegetables have always been a source of nourishment, particularly for rural people and the urban poor (Balick and Cox, 1996). Van Wyk and Gericke (2000: 63) argue that these vegetables '... are not far behind the cereals in terms of their importance as a source of food in southern Africa'. A survey by Chweya and Eyzaguirre (1999) in Botswana, Zimbabwe, Cameroon, Kenya and Senegal revealed that leafy vegetables are usually used as an accompaniment to people's starchy, staple diets. Likewise, Lewu and Mavengahama (2010) note that, in South Africa, indigenous vegetables are served with *pap*, *sadza* in Zimbabwe, *ugali* in East Africa and *fufu* in West Africa.

Use of indigenous vegetables is influenced by availability, taste preferences, regions, economic status, culture and gender differences (Weinberger and Swai, 2006; Vorster et al., 2008; Faber et al., 2010; Dweba and Mearns,

2011). Van Rensburg et al., (2007) note that people who live in rural areas tend to consume indigenous vegetables, as compared with those in urban areas, because of the accessibility of these vegetables. Indigenous vegetables are used in dried form during winter when there is a scarcity of food (Hart, 2011). Modi et al., (2006) argue that these wild indigenous vegetables are usually used when there are no alternatives during difficult time such as drought or when there is loss of income by the bread winner. Taste also plays an important factor in the consumption of indigenous vegetables (Voster et al., 2007). For instance, Voster, et al, (2007) report *imbuya* or *morogo* (amaranth) as a popular indigenous vegetable in various cultural and geographical spaces because of its taste. This resonates with Faber et al., (2010), who record amaranth species as popular in both Limpopo and KwaZulu-Natal province, and an earlier study by Steyn et al., (2001) in the Northern Province which also found amaranth to be popular.

2.9.2 Nutritional value of indigenous vegetables and their role in combating food insecurity

Research done in South Africa and elsewhere shows that the role of indigenous vegetables in providing food security is more significant in vulnerable communities, for several reasons. They are considered more valuable in providing food security to poor people because they are a cheaper source of food (Faber et al., 2010). This is because they are harvested freely from the wild (Shackleton and Gumbo, 2010). Those that are grown require less inputs than conventional vegetables (Muhanji et al., 2011). Faber, et al., (2010) indicate that African leafy vegetables are more popular in the Limpopo than in KwaZulu-Natal province. The authors attributed the difference to the existence of more poverty in Limpopo province than in KwaZulu-Natal. Muhanji, et al., (2011) and Orech et al.,(2007b) also argue that indigenous vegetables have a great potential in addressing poverty in vulnerable communities because of their adaptability to the climate, making them more resistance to drought and pests.

Indigenous vegetables are also useful in combating 'hidden hunger' by providing the micro-nutrients necessary to prevent malnutrition (Hughes,

2008). Research that has been conducted thus far clearly demonstrates that the nutritional value of many indigenous leafy vegetables and other indigenous foods including fruits, cereals tubers and roots is not in doubt (Hamlin and Latunde-Dada, 2011). Researchers such as Chweya and Eyzaguirre, (1999); Babu, (2000); Steyn et al., (2001); Faber et al.,(2007); Odhav et al., (2007); Ndlovu and Afolayan, (2008); Afolayan and Jimoh, (2009) have recorded indigenous vegetables as containing nutrients such as proteins, copper, iron, potassium; calcium riboflavin, nicotinic acid, vitamins, A, B and C, and thiamine.

For example, Faber, et al., (2007:409-410) carried out a repeated cross sectional dietary study in the rural areas of Ndunakazi and Bhasobha to quantify the amount of micro-nutrient intake among children aged between two and five years. The results indicated that 'dark green leafy vegetables contributed significantly to calcium intake (21-38%), iron (19-39%), vitamin A (42-68%), and riboflavin (9-22%) among children'.

Odhav et al., (2007: 434) also conducted similar studies by investigating nutritional components of indigenous vegetables in KwaZulu-Natal. Their results indicated that these plants have high levels of minerals and proteins. They did a nutritional analysis of about 20 indigenous vegetables found in the area. Results indicated that the vegetables *Momordica Balsamina*, *A spinosus*, *A. Hybridus*, *Cleome Monophylla*, *B. Pilosa*, *C. Album*, *P.viscosa*, *Wundulata* contained significant amounts of protein. Furthermore, they also recorded high levels of minerals in species such as *B. Pilosa*, *C. Nodiflorum*, *P. Oletacea* and *E. Australis*.

Kruger et al., (1998), Steyn et al., (2001) and Nnamani et al., (2009) state that frequently utilised South African species such as *Amaranthu sspp*, *Chenopodium album* and *Bidens Pilosa* have been found to have at least 200 times more carotenoids and up to 8 times more vitamin A than cabbage. Ndlovu and Afolayan (2008) compared the nutritional value of wild indigenous okra (*Corchorus Olitorius L.*) to cabbage and spinach and discovered that wild okra had iron, calcium and magnesium levels which were significantly higher.

Similar results were found in other African countries where indigenous vegetables were compared with conventional vegetables and were found to be nutritionally superior (Steyn et al., 2001; Lyimo et al., 2003; Gupta et al., 2005; Nnamani et al., 2009 and Kwenin et al., 2011). For instance, Kinabo et al., (2006) indicated that indigenous vegetables which were consumed in the Morogoro and Iranga regions in Tanzania were high in micro-nutrients such as iron, calcium, magnesium and copper.

2.9.3 Medicinal properties of indigenous vegetables

Besides the abundance in micro-nutrients, indigenous vegetables are believed to contain medicinal properties (Flyman and Afolayan, 2006). Studies that were done on the perceptions of people from various countries in Africa and worldwide indicate that people believe that indigenous vegetables can cure diverse ailments. For instance, carotenoids, along with Vitamin A found in the frequently used *Amaranthus*, have been shown to play a major role both in reducing the risk of infection as well as slowing the progression of HIV into AIDS (Mehendale et al., 2001 and Melikian et al., 2001). Odhav et al., (2007:434) state that the evidence from their study ‘...raised the possibility that indigenous vegetables can be used as a concentrated form of essential mineral nutritional supplements’.

Adepoju (2009) concurs that the antioxidant properties of indigenous vegetables may have health-promoting properties. Erukainure et al. (2010) indicated that an indigenous vegetable (*Clerodendrum volubile*) contained high levels of micro-nutrients and flavonoids which they believe can protect against chronic, degenerative and age-related diseases. Similar studies done by Odhav, et al., (2009:435) also indicated that indigenous vegetables such as *P. Oleracea*, *M balsamina* and *S. Sinuatum* have antioxidant properties.

The Tonga and the Shangaan people ‘...use *Rapoko* together with *Plumbago Zeylanica* as an internal medicine for leprosy’ (Tredgold, 1986:24). The Kilifi believe that a vegetable called *Mtsunga* can prevent or cure malaria, and among the Kisii, *enderama* (*Basieila Alba*) is believed to cure skin diseases and to increase the volume of blood (Maundu et al., 1999). The Tharaka use

Muthunka and *Managu* to stimulate the appetite (ibid). In Kenya, the Luo use most of the indigenous vegetables to treat diverse ailments (Ogoye-Ndegwa, 2003). A survey done in Benin by Dansi et al., (2008), also indicated that various indigenous vegetables such as *basella alba* and *hibiscus* were perceived to cure sores, stomach ache, coughs and colds.

2.9.4 Cultivation of indigenous vegetables

Although ethno-botanical studies on indigenous vegetables show that a variety of these vegetables are consumed worldwide, it is surprising that they were rarely grown until recently (Bvenura and Afoloyan, 2015). Shackleton and Gumbo, (2010) mention that people collect indigenous vegetables from the wild in South Africa. Similarly, Van Rensburg et al's., (2007) review of indigenous vegetables shows that, in South Africa cultivation of indigenous vegetables is very limited. Many indigenous vegetables are left to grow in the fields as volunteer crops whilst sometimes they are broadcasted (Hart and Vorster, 2006). Other studies in South Africa also indicate that women are the ones who normally cultivate indigenous vegetables to provide food for their families (Vorster, et al., 2008). Shackleton et al., (2010) did a study in the peri-urban areas in Durban KwaZulu-Natal on the production of indigenous vegetables and found out that 96,9% people indicated that they were growing indigenous vegetables for their own consumption whilst 50,3% grew them for income generation. Their study also indicated that the cultivation of indigenous vegetables was limited to popular species such as blackjack *bidens spp* (90,9%) and wild *amaranthus spp* (57,6%). Dweba and Mearns, (2011), also did a study in eMantlaneni village, in Eastern Cape province which indicated that only 5 out of 33 indigenous vegetables that were utilised were being cultivated.

One of the major reasons why these vegetables have never been taken seriously by farmers is that, since the 1960's, both research and modern agriculture practices have discouraged the growing of indigenous vegetables, labelling them as weeds, whilst promoting the growth of exotic species (Vorster et al., 2008, Voster et al., 2007). Adebooye and Opabode (2005) point to the non-availability of improved seed as a constraint on widespread

cultivation of indigenous vegetables. However, recent interest in indigenous vegetables has prompted their promotion by various organisations in South Africa. These organisations include the Agricultural Research Council, the Morogo Research Programme, Pelum South Africa, the KwaZulu-Natal Department of Agriculture and Rural Development, the Council for Scientific and Industrial Research, and the African Centre for Crop Improvement.

2.9.5 Contribution of indigenous vegetables to household income

Although research reveals a loss of interest in indigenous vegetables, important work has been conducted to show the value of IVs as food and their contribution to household income. For instance, High and Shackleton, (2000) conducted a study in Dingleydale, a rural area in Bushbuckridge in the low-veld region of South Africa where they compared the value of wild plants and those of domesticated plants. They quantified the contribution of wild plants and discovered that their value amounted to 31% of the total value. Similar studies were done by Shackleton et al., (2010) in urban and peri-urban areas of Durban and discovered that indigenous vegetables were a thriving business for women vendors. In the central low veld of South Africa, the business of indigenous vegetables flourished during the dry season (Shackleton et al., 1998).

Voster et al., (2007) conducted research in seven villages in South Africa from different provinces and among different ethnic groups; their findings show that the contribution of indigenous vegetables in terms of income generation should not be underestimated. The study also revealed that most households which did not have constant income benefited from indigenous vegetables. This is because they used income derived from sales of these vegetables to cover costs such as hospital bills. All these South African studies indicated that indigenous vegetables play a double role. The first role, as already discussed, is that they provide cash to poor families. Secondly, households that sell these indigenous vegetables can also save their money by consuming them.

The contribution of indigenous vegetables in income generation is also evident in other countries, as indicated by Gockowski et al.,(2003) and Oladele (2011). Pouliot and Treue (2013) also reached the same conclusion in West Africa in their research on the value of non-forest products. Non-forest products are 'all biological materials other than timber, which are extracted from forests for human use' (de Beer and McDermott 1989 cited in Shackleton and Gumbo, 2010:63). The results indicated that non-forest products contribute 30%-35% of total income amongst the poor.

In many studies which were reviewed on the contributions and marketing of indigenous vegetables in South Africa and other African countries, it was evident that women were the main players in the selling of indigenous vegetables mainly because it required very little income to start the business (Shackleton et al., 1998; Gockowski, et al., 2003; Shackleton et al., 2010). The fact that the business required less capital is very important as this allows the poor to be involved in small scale businesses for self-help, and especially so for rural women who are usually poorer than men (Hart and Vorster, 2006).

2.9.6 Current interest in indigenous vegetables

The role of indigenous vegetables as a source of food, which is significant for its nutrients and healing properties, and the importance of cultivating it can only be true in those communities and groups of people who use them. Although research abounds in evidence that people in South Africa have always used indigenous vegetables for nourishment, there are indications that these foods, especially vegetables harvested from the wild, are no longer popular (Voster, et al., 2007). Several authors give different reasons why indigenous vegetables seem to be losing their place in South Africa and many other parts of the world despite the wealth endowed in them.

Lack of knowledge about indigenous vegetables among the younger generation is one of the reasons given by Pouliot and Treue, (2013). This concurs with a study conducted by Modi, et al., (2006) in KwaZulu–Natal which showed that the older generation (those who were 70 years and older) were able to recall more indigenous vegetables as compared to those who

were younger. From these studies it appears that it is the older generation who are interested in indigenous vegetables. One can infer lack of knowledge transfer from one generation to another, both from practice and word of mouth.

Furthermore, Voster et al., (2007); Ekesa et al., (2009); Dweba and Mearns, (2011) point out that the decrease in the number of people using IVs is due to them being regarded as poverty foods usually consumed when households are financially stressed or during periods of drought. This concurs with Pasquini, and Young (2009: xxi-xxvi) who conclude that many city residents see these vegetables as “old fashioned or poor people’s food”. This attitude toward indigenous vegetables leads to their stigmatisation and hence people ignore them despite their nutritional benefits. This is evident in a study which was done by Dweba and Mearns (2011) in eMantlani village in the Eastern Cape where young women indicated that they would only consume 2 out of the 33 vegetables which were identified by an older generation of women. They also discovered that young women who participated in the study would never serve indigenous vegetables at public functions, although they would sometimes serve them in the privacy of their homes. Rather, some writers indicate that people preferred to eat western foods (Viljoen et al., 2005; Raschke and Cheema, 2008; Faber et al., 2010).

This negative attitude to IVs points to the notion that the value, or otherwise, of food goes beyond its nutritional contribution (Caplan, 1996; Glanz et al., 1998; Mintz and Christine, 2002). Viljoen et al., (2005) and Voster, et al., (2007) attribute this shift away from indigenous food by many South Africans to factors such as education, migration, urbanisation and acculturation. For Raschke and Cheema (2008) the effect of colonialism goes a long way to explain the poor perceptions of indigenous vegetables. They further argue that the effects of shifting of diets due to colonisation and globalisation has resulted in many people getting sick from non-communicable diseases such as cancers and diabetes.

2.10 Conclusion

As indicated by several studies discussed in this chapter, much of the research is concerned with the content of indigenous knowledge in agriculture, food security, medicine, conservation of bio-diversity. And how it contributes in those areas pointing to the significance of indigenous knowledge for development purposes. Area, which has been of much interest in this chapter, is the protection of indigenous knowledge systems, as evident at both international and national level. South Africa has not only sought to protect but to promote IKS practically by implementing its DST policy on IKS in communities, and one of the areas has been the promotion of indigenous vegetables. My contribution to the body of knowledge on indigenous knowledge will be in the area of the application of IKS through policy, looking at the successes and the constraints that have confronted development projects for future improvement of indigenous knowledge policies.

CHAPTER 3: THEORETICAL FRAMEWORK

3.1 Introduction

This chapter is a discussion of the theories which were employed in this study, namely decoloniality and food sovereignty. Decolonial theory was used as an underpinning philosophy because it allowed for the examination of epistemological inequalities that were created because of colonialism and apartheid in South Africa. These inequalities continue to exist, sometimes overtly, but mostly in hidden and subtle ways. Food sovereignty was used to explain the activities of small-scale farmers in KwaMkhwanazi as they are understood at a global level. This was possible because the food sovereignty concept, a brainchild of peasant farmers of La Vía Campesina in Tlaxcala, Mexico, can explain challenges, successes and practices of farmers as they are seen by farmers themselves. Ideas from food sovereignty were used to explore existing differences among farmers. The reason for using two theories was that they complement each other in that they both challenge the dominant power structures by giving voice to the subjugated.

The following section discusses decolonial theory; it begins by giving a brief background of the theory, followed by exploring the coloniality of power, the coloniality of being, and the coloniality of knowledge as analytical concepts that were used to understand the formulation of indigenous knowledge policy in South Africa. The section concludes by discussing critiques of decoloniality. Food sovereignty theory is discussed in the next section, starting by locating food sovereignty in the history of food regimes. In this section, I then discuss four pillars of food sovereignty namely the right to food, agro-ecological farming, farming resources and market as analytical concepts in relation to implementation of indigenous knowledge policy through the promotion of indigenous vegetables. The section concludes by discussing critiques of food sovereignty.

3.2 Decoloniality

According to Maldonado-Torres (2011:2) decolonial turn:

...does not refer to a single theoretical school, but rather points to a family of diverse positions that share a view of coloniality as a fundamental problem in the modern (as well as post-modern and information) age, and of decolonization or decoloniality as a necessary task that remains unfinished.

Mignolo (2005:33), defines decoloniality 'as "an-other thought" that seeks to inaugurate "an-other logic," "an-other language," and "an-other thinking" that has the potential to liberate ex-colonised people's minds from Euro-American hegemony.' The above definition presents decoloniality as 'an epistemic project...seeking liberation and freedom for the people who experienced colonialism and who are today subsisting and living under the boulder of global coloniality.'(Ndlovu-Gatshen, 2013:46).

Maldonado-Torres (2007:243), differentiates coloniality from colonialism in that the later continued to exist after the abolishment of colonialism. He views coloniality as continuing to exist in education, economy, culture and people's image when western ideologies continue to dominate worldviews. For example in most African countries, light skin tone is considered more beautiful than darker ones. The effect of this perception has seen some black people especially women resorting to bleaching their skins in pursuit of lighter skin tones. This example serves to show that although colonialism is long gone in Africa, some people still believe that white people are superior hence aspirations for a white man's body.

Coloniality is also described by Tlostanova and Mignolo (2009:132) as the 'unconscious, the hidden weapon of both the civilising and developmental mission of modernity'. To Vázquez (2012) and Quijano (2007), coloniality is the darker side of modernity. This is because, on the surface, modernity can be seen to bring about democracy, globalisation and liberalisation. These systems seem as if they are of benefit to all and yet they are the cause of cheap labour, overexploitation of resources, suppression, disavowal, and exclusion of all that is found outside of 'reality' as it is articulated by the global powers such as Europe and the United States of America (Tlostanova & Mignolo, 2009).

Ndlovu-Gatsheni (2013:5) writes that decoloniality differs from other existing critical social theories in its 'locus of enunciations and its genealogy – which is outside Europe'. For instance, Quijano (2000) explains that decoloniality emerged in Latin America as a result of the 'coloniality of power' (see section 3.2.1). Mignolo (2013:130) also discusses the way decoloniality came about in Asia and Africa when he indicates that it has:

...its historical grounding in the Bandung Conference of 1955, in which 29 countries from Asia and Africa gathered. The main goal of the conference was to find a common ground and vision for the future that was neither capitalism nor communism. That way was "decolonization". It was not "a third way" à la Giddens, but a delinking from the two major Western macro-narratives.

The writings of Frantz Fanon's *Wretched of the Earth, Black Skin White Mask* are also considered as some of the works which mark the beginning of decoloniality in the third world countries (ibid). According to Ndlovu-Gatsheni (2013) there are three main concepts that constitute decoloniality as a critical social theory, to wit, coloniality of power, coloniality of knowledge and coloniality of being. The sections which follow will discuss each of these concepts in relation to their relevance to this study.

3.2.1 Coloniality of power

Quijano (2000) explains that coloniality of power had its foundation in racism, rooted in the history of Latin America. He further argues that the classification of people according to race gave colonisers the basis for their actions, as they believed they were superior to the colonised. Tlostanova and Mignolo (2009), discuss how coloniality of power or the colonial power matrix was characterised by four spheres of life which were interconnected. These spheres of life consisted of: the struggle for economic control; domination of knowledge and subjectivity; the control of authority; and domination of the public realm (mainly through sexual normativity and dual 'natural' gender relations). Ultimately, for Mignolo and other decolonial scholars, race is the driving anchor of the coloniality of power; control of resources, knowledge, being and power gained depending on one's race. This means that one's skin colour determined one's social class. Those considered white occupied the top part of the hierarchy with blacks at the bottom. Gender also played a part

in how much power and control of resources one could get, with white males dominating and females being the inferior. In the sphere of religion, Christianity was favoured, with other religions viewed as inferior or barbaric.

Maldonado-Torres (2011) recognises that even after gaining political independence coloniality continued to be experienced in the form of administration, knowledge, culture and religion through the rhetoric of modernity. This is supported by several authors who recognise that there is continued repression of the once-colonised through suppression of being (Grosfoguel, 2007; Mignolo, 2009; Tlostanova & Mignolo, 2009), gender and sexuality (Schiwy, 2007).

This key concept of coloniality of power as an analytical tool was useful for this study in seeking to explain why and how DST policy on indigenous knowledge is used to address existing inequalities that are a result of:

- South African historical apartheid, which saw indigenous knowledge holders not recognised for their contribution because colonialists saw this knowledge as inferior (see chapter 5, section 5.3).
- South African patriarchal structures which prevent women from occupying positions of power. Previously, women were important as informants in indigenous knowledge research and were not benefiting or even recognised for their efforts and knowledge (see chapter 5, section 5.4.3).

3.2.2 Coloniality of knowledge

According to Grosfoguel (2007), Western, Eurocentric views hold knowledge as objective, universal, modern, and neutral. He further indicates that the hegemonic Eurocentric view of knowledge as universal is a myth in the following observation (Grosfoguel 2007:213):

This is not only a question about social values of knowledge production or the fact that our knowledge is always partial. The main point here is the locus of enunciation, that is, the geo-political and the body-political location of the subject that speaks. In Western philosophy and science the subject that speaks is always hidden, concealed, and erased from the analysis. The 'ego-politics of knowledge' of Western philosophy has always privilege a myth of a non- situated 'Ego'. Ethical/ racial/ gender/ sexual epistemic location and the subject that speaks are always

decoupled. By delinking ethical/ racial/ gender/ sexual epistemic location from the subject that speaks, Western philosophy and science are able to produce a myth about a Truthful universal knowledge that covers up, that is, conceals who is speaking as well as the geo-political and body-political epistemic location in the structures of colonial power/ knowledge from which the subject speaks.

In the above argument, Grosfoguel (2007) demonstrates that the mythical part of western knowledge is achieved by a deliberate effort to conceal that western knowledge represents thoughts and ideas of Europeans from North America and Europe. Grosfoguel (2007) traces the universality of western knowledge back to Descartes' '*cogito ergo sum*' (I think therefore I am) that separates the mind from the body. He further argues that this is an attempt by western man to assume the role of God who is all knowing. They claim their knowledge to be immune to geographical, social, racial and body influences. To Mignolo (2009:160) this means that 'the first world has knowledge, the third world has culture'. Similarly, Grosfoguel (2007:214), traces the claim of the universality of western knowledge to what Castro-Gomez refers to as 'point zero' which is defined as:

the point of view that hides and conceals itself as being beyond a particular point of view, that is, the point of view that represents itself as being without a point of view. It is this 'god-eye view' that always hides its local and particular perspective under an abstract universalism.

Mignolo (2013:133), concurs when he says 'theo- and ego-politics of knowledge were grounded in the suppression of sensing and the body, and of its geo-historical location. It was precisely that which made it possible for both theo and ego-politics to claim universality'.

From the above arguments (Grosfoguel, 2007; Mignolo, 2013), it is evident that decolonial turn is a rejection of the universality of western knowledge which is argued to have been built based on a myth. They believe that, western countries created the myth to elevate western/imperial forms of knowledge as superior to other knowledges that are not originally from Europe.

According to Teffo (2011) coloniality of knowledge also had an impact on the indigenous knowledge of South Africa with its history of subjugation,

appropriation and exploitation (see chapter 2). As I discuss in more detail in chapter 5, the South African government adopted an IKS policy in 2004 to protect, affirm and promote indigenous knowledge. In this thesis, therefore, I use coloniality of knowledge as an analytical tool to show that indigenous knowledge is an alternative form of knowledge that South Africans can use to bring about change and solve the country's problems. As shown in chapter 5, indigenous knowledge is an equally important form of knowledge that all interested parties can employ to bring about change through technological advancement, sustainable development and poverty eradication.

3.2.3 Coloniality of being

Maldonado-Torres (2007:252) depicts coloniality of being as closely connected to coloniality of knowledge. He explains coloniality of being by refining and adding to Heidegger and Descartes' philosophical views on being by explaining it in the following way:

If the *ego cogito* was built upon the foundations of the *ego conquiero*, the 'I think, therefore I am' presupposes two unacknowledged dimensions. Beneath the 'I think' we can read 'others do not think', and behind the 'I am' it is possible to locate the philosophical justification for the idea that 'others are not' or do not have being.

There are various arguments on what encompasses modernity (Quijano, 2007; Maldonado-Torres, 2007; Tlostanova and Mignolo, 2009; Vázquez, 2012). One of the arguments is that one can find modernity in any society as long as there is something new advanced in the rational-scientific or secular manner (Quijano, 2000). The other view, which is relevant to the proponents of decolonial theorists is the rejection of modernity as created by Europe. The dominant and Eurocentric view of modernity separates Europeans from the rest of the world by classifying Europe as new, modern, and the most advanced of all humanity, and the rest as not modern, inferior, backward, anterior and belonging to the past (Quijano, 2000). Similarly, Dussel (1993:65) notes that modernity 'appears when Europe affirms itself as the "centre" of the world history that it inaugurates; the "periphery" that surrounds this centre is consequently part of its self-definition'. Quijano (2000:220) adds that modernity is a 'specific historical experience that began with America when new material and subjective and inter-subjective social relations were

produced, alongside the emergence of the Eurocentered, capitalist, colonial world powers'. In summary, the above sections have indicated that modernity/coloniality has managed to separate Europe and the US as superior to the rest of the world. The next section discusses the views of proponents of decoloniality, what they say about decoloniality and its purpose.

In contrast to the Eurocentric view of modernity, Vázquez (2012:242) argues that decoloniality seeks to 'contextualize and denaturalize the universal validity claims of modernity, its semblance to totality'. However although decoloniality rejects the totality of modernity, Mignolo, (2013) also points out that decoloniality should not be seen as denying the right of existence of Eurocentered modernity. This is because Eurocentered modernity is essential and serves the needs of a particular region. It should be accepted as subjective and representing a certain way of thinking and a particular way of doing things which may not be well suited to other groups of people. Teffo (2011:26) concurs by rejecting the validation and measuring of IKS using Western epistemologies when he says:

It is important to stress the validity of Western epistemologies, minus their hegemonic assumptions, are not being questioned, within a certain cultural background and material conditions; they are well founded and are thus valid and dynamic. The challenge arises when a different yardstick is used to measure and appraise the validity of other cultures, including its claims of knowledge.

Mignolo (2013:143) elaborates that if modernity means to emulate western worldviews that may not necessarily serve the interests of the south, then developing countries should reject it. He argues that those who were once colonised need to desist from making their history by following western worldviews. The subaltern should put effort in reaffirming their own worldviews for their own development

In as much as decolonial proponents accept that Eurocentred modernity should co-exist with other modes of viewing the world, they also caution against making decoloniality another universal but rather to consider it as an option (Mignolo, 2013:130). On another note, Mignolo (2009:168) cautions that decolonial turn should not be regarded as encouraging people to go back

to what he calls 'traditionalist, essentialist and out of fashion and out of time'. Vázquez (2012: 243) presents another view of what decoloniality should be like. He asserts:

...reaches out to those who have been disdained, made invisible or dispensable and listens to the alternatives from the outside of modernity. Its struggle is orientated under the sign of remembrance, a remembrance that wrests the voices out of the silence and oblivion of coloniality. A remembrance that provides an ethical orientation, as it engages in the tasks of understanding the suffering of the oppressed. It is the moment of delinking from the logic of modernity and recognising the alternatives and hopes that are alive in the outside of modernity.

In the above statement, Vázquez (2012) is suggesting two courses of action. Firstly, decoloniality acknowledges existence of subjugated and silenced people. Secondly, there is urgent work necessary to bring about change. Mignolo (2013) reiterates that to achieve the second step above, the silenced and subjugated have to delink. Delinking in this case is one's realisation that they are not inferior but equal to other human beings And that they need to assert themselves towards realising their rights and opportunities as everyone else.

For Mignolo (2011:45), decolonisation can also be viewed as an epistemic disobedience which:

leads to the decolonial option as a set of projects that have in common the effects of experienced by all the inhabitants of the globe that were at the receiving end of global designs to colonize the economy (appropriation of land and natural resources) authority (management by the monarch, the state and the church) and police and military enforcement (coloniality of power), to colonize knowledges (languages, categories of thought, beliefs systems, etc.) and being (subjectivity).

In the African situation, Teffo (2011:32) proposes that Africans should strive for an African way of dealing with their problems through what he calls Africanisation. He argues that Africanisation is 'the only factor that can rescue the African from the curse of mental fatalism'. To him, mental fatalism happens when people have a false sense of who they are, that is, when their identity is defined by others and they actually believe in that identity. And it is only when Africans begin to 'see through the hoax of white supremacy' (ibid) that they will begin to believe in themselves and look for their own solutions to address their challenges

In other words, the authors above are saying that, being critical about modernity/coloniality is not an adequate course of action against coloniality. Decoloniality should be concerned with 'confronting, challenging and undoing the dominative and assimilative force of colonialism as a historical and contemporary process, cultural and epistemological Eurocentricism that underwrites it' (De Lissovoy, 2010:280). Looking through the lens of decolonial theory, the promotion of IKS through policy is a response to denigration of indigenous knowledge during the apartheid system in South Africa. Decolonial theory has helped in investigating if IKS policy in post-apartheid South Africa has emanated from the need to recognise and correct the relations of power that have shaped the economic, cultural, political and epistemological processes.

Decolonial theory has enabled the viewing of the continuation of the segregation of indigenous knowledge in South Africa as an aspect of coloniality. Research shows that people still consider indigenous foods and plants as inferior years after liberation from the apartheid system. Pasquini and Young (2009: xxi-xxvi) argue that many city dwellers view these crops as 'old fashioned or poor man's food'. In this research, I view segregatory attitude that favoured research of exotic vegetables at the expense of indigenous vegetables as an expression of coloniality (see chapter 2). Again, I regard interest in indigenous vegetables by research institutions like the Agriculture Research Council as a decolonial option (see chapter 6).

In conclusion, decoloniality rejects assumptions that knowledge is universal, real knowledge has to be western, and that social and environmental factors do not affect it. In other words, proponents of decoloniality argue for the pluriversality of knowledge; western knowledge is not the only truth because like any other forms of knowledge it is situated. If this is the case, it therefore follows that it is important to consider other knowledges when explaining and solving life's challenges.

3.2.4 Critiques of decolonial theory

Although the virtues of decolonial theory are numerous, as I have demonstrated above, there are some cautionary observations articulated by a few critics. For example, Vambe and Khan (2013) criticise African scholars for rushing to embrace a theory emanating from the West without critically thinking about its suitability in the African context. This study may also be criticised based on the preceding point. However the appropriation of decolonial theory in this research was necessitated by the fact that it illuminates relevant issues in the study that apply to South Africa. In this case, I followed Ashcroft, Griffiths, and Triffin's (2003:166) advise who contend that there is nothing wrong with using western theory in trying to understand our own situations when they write:

It is possible to argue that post-colonial discourse may appropriate what it requires from European theory. Discursive formations are not hermetically sealed, they overlap and intersperse in ways that may be fruitfully and reflexively utilised. It is, after all, at the point of intersection with other discourses that any discourse becomes determined.

Smith (1999:39) concurs when she says that:

Decolonization, however, does not mean and has not meant a total rejection of all theory and research or Western knowledge. Rather, it is about centering our concerns and worldviews and then coming to know and understand theory and research from our perspectives and for our own purposes.

Working with the arguments of Smith (1999) and Ashcroft, Griffiths, and Triffin (2003), decolonial theory proved relevant to this study because it illuminates the thinking behind promoting indigenous knowledge at a national level. It also helped in understanding and explaining the environment that triggered the formulation of the policy.

Vambe and Khan (2013) also criticise Quijano's (2000:215) 'coloniality of power' where he argues that:

One of the fundamental axes of this model of power is the social classification of the world's population around the idea of race, a mental construction that expresses the basic experience of colonial domination and pervades the more important dimensions of global power including its specific rationality.

Vambe and Khan (2013:305) comment that Quijano's colonial matrix of power is lacking in that it does not recognise the existence of what they call the 'indigenous coloniality of power' which existed 'in African communities before the trans-Saharan and Transatlantic slave trade'. To them, coloniality of power in Africa existed well before colonialism. They believe that it existed in the form of class, race and gender differences. Because of that they argue that it is wrong to explain all forms of oppression happening in the African context by basing them 'on a binary of an oppressor/oppressed continuum' (Hall, as cited Vambe and Khan, 2013:305) with the west on the oppressor side and Africa on the receiving end. To explain their argument Vambe and Khan (2013) give an example of how, in Africa, class differences can express coloniality of power, with the rich oppressing the poor or, patriarchally, with men oppressing women.

However, to deal with the challenge presented above, the study resolved to use literature that reveals the existence of coloniality within African communities, as evident in chapter 7 where people in power (such as chiefs) use their positions to grab land from poor farmers (see chapter 7 for further details).

Griffith (1994:307), as cited by Vambe and Khan (2013), questions the voice that decolonial theory represents when researchers employ it in real-life situations. He doubts if ordinary people are concerned about decoloniality. He points out that what we see, as decoloniality options could just be voices of researchers claiming that the oppressed people's actions are acts of decolonisation. He says that 'there is a real concern as to whether what we are listening to is really subaltern voices, or whether subaltern is being spoken by the subject position they occupy with the larger discursive economy of Euro-capitalism'. (see chapter 2 section 2.2). In other words, Griffin (1994) is concerned that academics may be misrepresenting the voices of those they think are voiceless as decoloniality voices. Similarly, Vambe and Khan, (2013) also cite Hall (1994:307) who warns decolonial theorists to be cautious and not assume that those who were once oppressed want to claim their past. To him, it is necessary to realise that some people may seek their freedom. 'This

is also true of food because it is evident in research and everyday life that indigenous people have assimilated Western foods in their diets. (simultaneously as resistance, incorporation and obeisance'. To some extent, I agree with Hall that it is not true that previously colonised societies dislike everything that colonialists introduced to them. For instance, many African countries use the language of the former colonisers as their official language. It is also common to find some indigenous people taking pride in speaking those languages fluently. see chapter 1).

To address some of the critiques levelled against decolonial theory, the research employed food sovereignty as a theoretical framework. This is in response to Griffin's (1994) concern that decoloniality may not necessarily be the voice of the subaltern. Food sovereignty, conceptually and practically, emanated from the voices of peasant movements associated with La Vía Campesina (meaning 'the peasant way'). As indicated earlier in the introduction, food sovereignty complements decolonial theory in that they are both critical social theories that critique the world power system as it exists today. They explain the dominance by Europe and America through their economic, political, social and knowledge impact on countries that were once colonies. Whereas decolonial theory is general in its approach and was useful in understanding South African IKS policy, the study also used food sovereignty to allow for an exploration of agricultural practices and challenges and solutions as expressed by farmers. The following section discusses this theory and its relevance to the study.

3.3 Food Sovereignty

One of the most cited definitions of food sovereignty is given by Wittman, Desmarais and Wiebe (2010:2) who describe it as the 'right of nations and peoples to control their own food systems, including their own markets, production modes, food cultures and environments'. International 'food regimes' form part of the historical background of food sovereignty. Fairbairn (2010) argues that the concept of food regimes was introduced by Harriet Friedman and Phillip McMichael in 1989. Food regimes describe the political

and economic structures of world food systems. Fairbairn gives an overview of 'food regimes'. These regimes are the 'right to food' and 'freedom from hunger', and 'food security' and 'food sovereignty' (Ibid).

3.3.1 Right to food and Freedom from hunger

'Right to food' and 'freedom from hunger' are world food regimes. These regimes started after the Second World War (Fairbairn, 2010). These food regimes came into being because of the precedent set when European countries introduced a programme of distributing food rations and conducting nutrition education for their citizens. The adoption of the programme was a response to the lack of food resulting from war (ibid). According to Helstosky (2000), as cited by Fairbairn (2010), after setting the precedent, it became difficult for these countries not to react to acute shortages of food, even after the war. Following this example, the United Nations, as an international organisation, then declared food as a right. This right was to be upheld by all member governments by following Article 25 section 1 of the Universal Declaration of Human Rights (UDHR) of 1948 which reads:

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food; clothing; housing; medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age and other lack of livelihood in circumstances beyond his control.

The UDHR of 1948 also led to the International Covenant on Economic, Social and Cultural Rights. This meant that citizens could demand food from the state. They could also take states to court in situations where the governments had failed to provide food to those who could not provide for themselves (Fairbairn, 2010).

Fairbairn (2010:20) also points out that the Cold War between the United States of America and the Soviet Union led to the development of distinct food regimes. In the United States, freedom from hunger was concerned with 'civil and political rights'. This meant that people had the right to be free from hunger. On the other hand, the Soviet Union's right to food favoured the view that people had the right to 'economic, social and cultural' aspects of food

(Fairbairn 2010:20). However, the freedom from hunger regime became dominant and influenced world food regimes that came after it. Some of the important characteristics of the freedom from hunger regime that persisted even after its collapse in 1972-73 were: world hunger could only be eradicated through industrialising agriculture for mass production of food; the universality of US development, developing countries' agricultural systems that promotes small-holder farming is not important and that US aid to the developing countries is important. According to Friedman (1993) as cited in Fairbairn (2010), this was a mechanism for finding dumping sites for US excess grains, creating US future markets, and the creation of a dependency syndrome on the part of receiving countries

3.3.2 Food Security

Food security came into being when the 'post war food regime' ended (Fairbairn, 2010). This regime is regarded as having emerged in 1974 during the World Food Conference, which was necessitated by the world food crisis that occurred when:

Several parts of the world experienced poor harvest, leading to the massive sale of U.S. grain to the Soviet Union, which effectively eliminated the U.S. grain surplus. These conditions were compounded by the failure of the Peruvian anchovy catch, which greatly reduced the supply of the fishmeal used in animal feed, and by the 1973 oil embargo, which increased the cost of industrial agricultural production (ibid).

Since then, perceptions of food security have been shifting as evidenced by numerous definitions that it attained over the years. In fact, Hoddinott (2001) cited in Abdu-Raheem and Worth (2011) indicates that food security has attained over 200 definitions. Fairbairn (2010) divides food security into what he calls state-centric and household food regimes. The state-centric concept emerged just after the Cold War freedom of hunger regime. This concept subscribes to control of food prices by the state, and encouraged nation states to work together towards attainment of food security and development, as well as encouraging industrialisation of the agriculture sector and external food aid. The household food regime arose after a realisation that national food security does not always translate to food security of households or

individuals (Abdu-Rahem and Worth, 2011). It emphasises the importance of individual purchasing power. It also favours the liberalisation of agricultural markets. However, despite these apparent differences in the conceptualisation of food security, Fairbairn (2010) suggests that a consistent characteristic of food security that remains intact is the influence of US and European powers over food systems.

3.3.3 Food Sovereignty

The FAO (2001) cited in Wittman et al., (2010:3) presents food sovereignty as an alternative to food security, where food security is viewed as:

a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Fairbairn (2010) views the tackling of hunger as the main objective of food sovereignty. Having its origins in the peasant movement, La VíaCampesina, food sovereignty is presented as a bottom-up philosophy (Wittman, Desmarais and Wiebe, 2010)²⁹. It seeks to address the root causes of hunger. It rejects food security because it promotes 'globalization of a neoliberal, industrial, capital intensive and corporate-led model of agriculture' (Wittman, Desmarais and Wiebe, 2010:2). In other words, food security is seen as a concept that promotes policies which emphasise maximisation of food production and its access. Contrary to food security, food sovereignty seeks to address concerns of how food is produced and by whom. It highlights the need to consider questions of cultural preferences, environmental protection, and the rights of indigenous people to be in control of their own food (Fairbairn, 2010). In the sections that follow, I offer an elaboration of the major principles of food sovereignty and their application in the study. Figure 3 below is a summary of the food sovereignty conceptual framework.

²⁹ Marc Edelman in his work 'Food sovereignty: forgotten genealogies and future regulatory challenges' rejects that the concept of food sovereignty started by La VíaCampesina. Edelman traces the origins of food sovereignty to the 1983 Mexican government programme called Programa Nacional de Alimentación, (PRONAL) which had food sovereignty as its first objective. He further argues that Central America then imported the concept from Mexico although it is not clear by what means it did that. However, this research presents food sovereignty as having originated from La Vía Campesina as this is in line with claims by many of its advocates (McMichael, 2015; Fairbairn, 2010; Holt Giménez, 2009; Patel 2009; Wittman, 2009) as well as its critics.

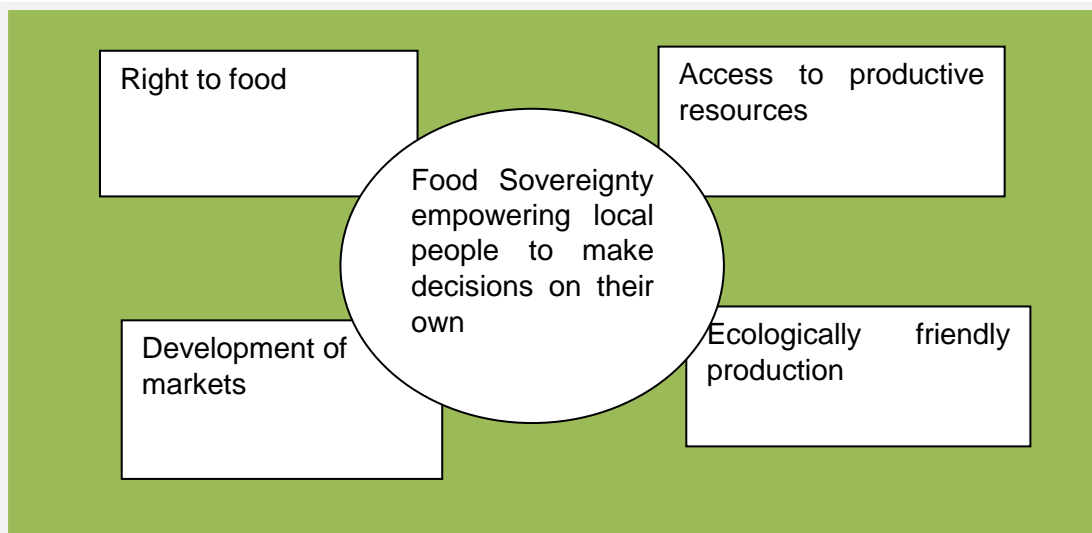


Figure 3:1 Conceptual framework of food sovereignty

Source: Adapted from Quaye, et al., (2009).

- **Individuals have the right to food which is safe, nutritious and culturally appropriate.**

La Vía Campesina (1996:1) defines food sovereignty as:

...a basic human right. This right can only be realised in a system where food sovereignty is the right of each nation to maintain and develop its own capacity to produce its basic food respecting cultural and productive diversity. We have a right to our own food in our own territory. Food sovereignty is a precondition to genuine food security.

From its conception by La Vía Campesina in 1996 in Tlaxcala, Mexico, food sovereignty has been the subject of many conferences and discussions (Lee, 2007)³⁰. The right to food as proposed by the food sovereignty concept

³⁰ Food sovereignty has been an agenda of many meetings, conferences, statements which include the following but not limited to these: Statement by the NGO Forum to the World Food Summit, NGO Forum to the World Food Summit, 1996. 'Our World is Not for Sale. WTO: Shrink of Sink', Our World is Not For Sale Network, 2001; 'Sale of the Century? People's Food Sovereignty. Part 1- The Implications of Trade Negotiations' Friend of the Earth International' 2001; 'Food Sovereignty in the Era of Trade Liberalization: Are Multilateral Means Feasible? Steven Suppon, Institute for Agriculture and Trade Policy'; 'Statement on People's Food Sovereignty: Our World is not for Sale' Mexico, 2002; 'what is Food Sovereignty? Via Campesina, 2003; 'Towards Food Sovereignty: Constructing an Alternative to the WTO's AoA' Geneva, Switzerland, 2003; 'Trade and People' Food Sovereignty' Friends of the Earth, 2003; 'Food Sovereignty: Towards Democracy in localized Food Systems, Michael, Windfuhr and Lennie Jonsen, FIAN International, 2005; 'Agrarian Reform and Food Sovereignty: Alternative Model for the Rural World', Peter Rosset, University of California at Berkely/ Global alternatives, 2006; 'Forum for Food Sovereignty: Declaration of Nyéléni', Mali, 2007; 'Ecuador includes food sovereignty in its constitution, 2008; 'Meeting for the

emulates several international laws³¹. These laws make it an obligation for member states to ensure that their citizens have the right to food through respecting, protecting and fulfilling the rights of individuals to have access to food (ibid: 2007). Chaifetz and Jagger (2014) cited by Oliver De Schutter (2010), a UN Special Repporteur clarified what the right to food implies. First, it means having the ability to feed oneself directly by producing food from the land or other resources. It also implies having enough resources to purchase food if one cannot produce it by themselves. In short, food should be available, accessible, and in the right quantities and quality which fulfil the cultural values of an individual (Chaifetz and Jagger, 2014:87).

Secondly, to achieve what Oliver De Schutter, (2010) as cited by Chaifetz and Jagger, (2014) is advocating (i.e. the right to food) food sovereignty promotes production and consumption of food at the local level. Promotion of local food production ensures that consumers have food which is nutritious and safe (Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture, 2003).

In her critical appraisal of the contradictions and conciliations of food sovereignty, Agarwal (2014) explains that the right to food can be achieved by promoting family farming. She argues that family farming can ensure that countries avoid relying on imports. She gives the example of how the 2007-2008 food price hikes were heavily felt by countries which relied too much on grain imports.

Food sovereignty differs from food security on the gender dimension aspect that food sovereignty promotes. It recognises women as both producers and

development of the European Food Sovereignty Movement', 2011; 'UN Global Network for the Right to Food and Nutrition identifies detrimental hunger –generating policies with the intention of eliminating them', 2013.

³¹ Such international laws include but are not limited to Universal Declaration of Human Rights, The International Covenant on Economic, Social and Cultural Rights; World Food Summit Plan of Action; The Convention on Biological Diversity; The International Treaty on Plant Genetic Resources for Food and Agriculture; Agenda 21; Beijing Platform for Action; Habitat Agenda; Convention on the Rights of the Child; Universal Declaration on the Eradication of Hunger and Malnutrition (Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture, 2003:15)

consumers of food. In her analysis of small-scale farmers Agarwal (2014:1252) supports food sovereignty's position to promote women's rights to food as they constitute the majority of farmers when she comments that:

In Asia, for example, in 2008, 57 percent of female workers relative to 48 percent of male workers depended on agricultural-related livelihoods. In Africa, these percentages were 63 and 48 respectively. Women also constitute a substantial proportion of the total agricultural workforce. In Asia 43 percent of all farm workers in 2008 were female, with percentages close to 59 percent in many countries. In the world's major rice producing and exporting countries, therefore, almost half the agricultural workforce is female. In Africa, again, almost 50 percent of agricultural workers are women.

The reason given for the increasing proportion of women in the agriculture sector is that more men are leaving agriculture for work elsewhere, hence the 'feminisation of agriculture' around the world (ibid: 1252).

The Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture (2003) conceptualise food sovereignty to include the need for people to have access to safe food. Proponents of food sovereignty believe that consumers should be able to trace the source and way food is produced. The argument is that it is such rights which inform consumers on food choices. However, the monopolisation of food production and marketing by only a few food corporations means that people as consumers have limited knowledge about the production and origin of the food they eat. They also point out to the violation of consumer rights to safe food in the current World Trade Organisation's (WTO) rules. The document identifies WTO's rules as restricting governments from putting in place regulations which prohibit the importation of food produced under unsafe conditions. This is because the WTO does not make it mandatory for the producers to disclose all their methods of production. In response to this, food sovereignty advocates 'local food systems which bring together providers and consumers in the protection from poor quality and unhealthy foods including development aid and genetically modified foods' (Chaifetz & Jagger, 2014:87).

Following this trend, this study explored the production of indigenous vegetables at the local level and how these local practices interplay with national policy. The study used the concept of food sovereignty to explore reasons for growing indigenous vegetables by small-scale farmers. As I discuss in chapter six, I also explored reasons that were given by government officials, the ARC and the University of Zululand for promoting these vegetables. The food sovereignty concept was also useful in gaining an understanding of other reasons for promoting indigenous vegetables beyond their culinary value as food.

- **Access to productive resources which include water, land, seeds and other natural resources**

Lee (2007) outlines the leading causes of the deprivation of resources suffered by small-scale farmers. He explains that poor countries are failing to distribute land because the International Monetary Fund and the World Bank force them to use land for debt bondage. World Bank and International Monetary Fund models 'are attempting through privatization programmes to transfer peasants' land rights and access to water as public resources to private corporations and large scale producers' (Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture, 2003:8). Lee (2007) states that land is no-longer used for its social and cultural values but is now viewed more for its economic value. The effect of this shift has been to leave most of the land concentrated in the hands of the rich people or countries.

This phenomenon described above has deprived many peasant farmers of their land across the world. For example, Bello and Baviera (2010) note that in India many peasants have taken to committing suicide because they are robbed of their source of life and culture when commodification of land in capitalist agriculture either displace or marginalise them.

The Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture, (2003:6) comments on how:

World Trade Organisation agreements such as the agreement on the Trade-Related Aspects of Intellectual Property Rights (TRIPS), and on Sanitary and Phytosanitary Standards (SPS) strengthen corporate control and further displace family farming and peasant production. Farmers are rapidly losing control over seeds and other genetic resources while the corporates are increasingly consolidating their control over these resources through patenting, bio-piracy and genetic engineering. Genetic engineering and patenting of life forms not only threaten our ecology and food security; they also threaten the economic independence of farmers.

Similarly, Kloppenburg (2014:1225) comments on how:

The erosion of farmer sovereignty over seed –via corporate appropriation of plant genetic resources, development of transgenic crops and the global imposition of intellectual property rights which are now widely recognised as serious constraints on the free exchange of seeds and the development of new cultivars by farmers, public breeders and small seed companies.

Kloppenburg (2014:1226) further explains how farmers as well as plant breeders are restricted in their farming activities because of few big corporate who control a huge share of intellectual property rights of seeds. He states that intellectual rights lead to the commodification of seeds. Commodification of seeds in Kloppenburg's (2014) view creates several problems for farmers as well as plant breeders. Below are some of the challenges as asserted by him:

- Farmers have gained very little from buying genetically modified seeds which do not necessarily lead to high yields
- The existence of genetically modified crops leads to loss of biodiversity, thereby decreasing the chances of farmers to use their own seeds even if they wanted to
- Prohibition of farmers from saving and replanting of seeds through patenting in some countries forces farmers to buy seeds every planting season, which is an expensive exercise especially for the poor
- Farmers are not able to share seeds as this is prevented by Intellectual property laws

To address the above challenges Bello and Baviera (2010) suggest two steps that need to be taken: 1) peasants and small-scale farmers should control their own seeds; 2) they should avoid depending on the corporates for seeds they may not be able to afford. Complimenting Bello and Baviera (2010), Kloppenburg (2014:1234) writes that farmers can gain control of the seeds if big corporate allow small-scale farmers to 'save and replant'. He adds that the right to control seeds closely linked to the 'right to share seed' (ibid).

Besides the need for farmers to have rights to controlling and sharing seeds as discussed above, another concern of food sovereignty proponents is that small-scale farmers should preserve their own seeds for crops which are culturally acceptable, nutritious, adaptable to the climatic conditions and resistant to pests and diseases (Wittman, 2010; Kloppenburg, 2014). These seeds are important to small-scale farmers as they are able to meet their food requirements both quantitatively and qualitatively (Kloppenburg, 2014).

However, food sovereignty proponents comment that their opposition to the monopolisation of seeds by big corporations such as 'Monsanto, DuPont, and Syngenta [who] control 39 percent of the world's commercial seed market' (Holt-Giménez, 2009:145) does not mean that they are opposed to technological improvement of heritage seeds. They argue that local seeds also need to be technologically improved as long control of the seeds remains with peasants, as echoed by one of the Brazilian activists cited in Wittman, (2010:99-100).

The principle is to cooperate in a flexible way, so that everyone has access to forms of cooperation. We are searching for the technological change in the area of seeds. This isn't just looking for seeds from our grandparents' past just because it's a seeds that our grandparents planted. We are looking to improve that seed, not within the concept of change related to agro-chemicals and transgenic but within technological change that is productive, that is honourable for the producer.... What is important is that the seeds and this agricultural productivity is not in the hands of a company that guards these seeds, that guards this historical archive, but that they are taken by the population in millions and that a million peasants can reproduce this technology so that it's in the service of agrarian reform and not for some company to earn money later. It's to be absorbed by the people....

Kloppenburg (2014:1234) who writes that farmers should be given the 'right to use seed to breed new varieties' supports Wittman's (2010) view discussed above. Kloppenburg (2014) also discusses the need to have farmers participate in policy formulation if they are to be able to control, share and breed seeds.

Advocates of food sovereignty indicate that small-scale farmers have a right to water as a resource. This is because water determines the production of crops and the availability of food. Discussing the importance of water, Allouche (2011:53) points out that 'water for food has become an important slogan in the current debates on poverty reduction and climate change in sub-Saharan Africa'. The importance of water to agriculture is also evident in that '70% of fresh water worldwide is used for the purposes of agriculture' (ibid: 53). Agricultural production depends on rainfall and irrigation as means of water. Bates, et al.,(2008) add that most of the land used for agriculture (about 80%) in the world relies on rainfall. Bates et al., (2008:365) claim that '19% of agricultural land cultivated through irrigation supplies 40% of the world's food and has thus brought socio-economic gains'. From these figures it shows that water for irrigation is also important, as irrigation result in higher yields compared to rain-fed agriculture.

Despite its importance, water has become a scarce commodity (Allouche, 2011; Hanjra & Qureshi, 2010; Bates, et al., 2008). Five hundred million people are living in places where water is a scarce resource (Allouche, 2011; Hanjra and Qureshi, 2010). Allouche (2011) points to drought as the main cause of water deficiency in sub-Saharan Africa. Hanjra and Qureshi (2010) list reasons for water scarcity which are: increasing costs of developing new water sources, land degradation in irrigation areas, ground water depletion, water pollution and ecosystem degradation.

Hanjra and Qureshi (2010) argue that water scarcity is likely to increase inequality between the poor and rich, and the poor will likely face more hunger and malnutrition because of water scarcity. The food sovereignty concept therefore advocates for the provision of water to small-scale farmers. This is

done by encouraging them to develop and adopt resilient varieties that are tolerant to drought, such as hardy crops and wild crops like the indigenous vegetables studied in this research and practice of agro-ecological farming methods such as intercropping, as opposed to mono-cropping (see discussion in the following section).

Using food sovereignty's argument of the need for productive means to be food secure, the study explored challenges faced by small-scale farmers in growing indigenous vegetables as a way of realising their food sovereignty (see chapter 7)

Agri-businesses are believed to be detrimental to the environment because of heavy use of technology and chemicals, and the practice of mono-cropping. All these practices do not add value to the land or the environment and are blamed for the current adverse climatic conditions that the Earth is currently facing. In critique of agri-business, Wittman (2009:809) says:

The reduced genetic variability required by the simplified production system necessary for long-scale, mechanised agriculture led to decreased resistance to pests and predators, while extensive mono-cropping, requiring elevated levels of chemical inputs, has caused soil degradation, desertification, and water pollution.

As a solution to the current state of climate decline, food sovereignty advocates an entirely different model of practising agriculture. For instance, Chaifetz and Jagger (2014:87) argue that food sovereignty emphasises ecologically sustainable production or to 'work with nature (low external input agro-ecological production and harvesting methods that maximise the contribution of ecosystems and improve resilience and adaptation)'. This shows the holistic nature of food sovereignty in that it considers the environment, the social, the cultural and the economic as important factors in food production. In as much as small-scale farmers would benefit from the natural resources such as land and water they are supposed to give back to nature by taking care of it by practising agro-ecological farming. Altieri (2010) makes the following suggestions for what agro-ecological farming should entail in a summary below:

- Agro-ecological farming is bio-diverse. This means that unlike in agri-business where farmers focus on specialisation, farmers practise poly-culture which promotes beneficial interactions of crops and leads to the improvement of soil fertility, productivity and also protects crops from diseases and pests
- It is farming that encourages small-scale farmers and puts value on the innovation and technology of the farmers themselves. Agro-ecology believes in the abilities of the farmers to initiate innovating way of improving their production
- It is a practice which encourages self-sufficiency of farmers rather than for them to rely on external inputs such as fertilisers and pesticides. Farmers are encouraged to engage in farming practices that include using composts and green manure, practising crop rotation, the use of native seeds that are adaptable to the environment, and encouraging natural enemies of pests
- It encourages farming practices which take into consideration the importance of preserving and conserving natural resources such as water and soil. Such practices include mulching, composting and the use of green manure

Chaifetz and Jagger (2014) concur with Altieri (2010) that agro-ecology farming benefits both the environment and people. Many people in developing countries have been able to improve their productivity without depending on expensive inputs for their farming practices. This allows poor farmers to be food secure. Agro-ecological farming allows farmers to access safe and culturally appropriate foods. It is a farming system that is believed to 'address major contributors to climate change, including deforestation for large scale agriculture production, and methane emissions from livestock production' (Chaifetz and Jagger, 2014:88).

In view of the food sovereignty principle that encourages small-scale farmers to use indigenous seeds and practise agro-ecological methods, the study explored farming practices of small-scale farmers in growing of indigenous

vegetables in KwaMkhwanazi. I also discuss the reasons for their choice of farming methods in chapter 6.

According to the Farmer Food and Trade International Workshop on the Review of the Agreement on Agriculture (AoA) (2003:5), food sovereignty 'rejects the liberalization of agriculture markets under the parameters of the WTO's Agreement on Agriculture (AoA)'. It also denies WTO's AoA proposals that inhibit states a 'right to food self-sufficiency as a national strategy and its rules on importation which requires all member states to allow import of food up to at least five percent of the volume of domestic consumption' (McMichael, 2005:281).

Contrary to the WTO's AoA, food sovereignty proponents suggest that 'agriculture, fishing and biodiversity should not be treated as mere commodities, but rather as elements of complex social, environmental and cultural patterns which should therefore not be opened indiscriminately to trade liberalization' (The Farmer, Food and Trade International Workshop on the Review of the Agreement on Agriculture, 2003:7). However, despite recommendations from Food Sovereignty proponents, McMichael (2005) give a historical account of how poor countries have tried to lobby for change of the WTO's AoA without success. For instance, in 2001, in the Doha round, southern countries tabled their concerns without success. Their concerns were: excessive dumping of food on the world market at very low prices which were forcing local farmers to be non-competitive; the need by southern countries to have access to markets in the North; and the removal of subsidies which were benefitting agri-businesses from the North who were exporting their goods at prices which were well below cost

In 2003 another Doha round was held in Cancun, and according to McMichael (2005:272)

Northern states adopted a more aggressive stance, reformulating the Doha Round as an opportunity to impose a corporate agenda of equal domestic treatment of foreign corporations, notably in private investment and public services, in response for Northern action to end farm subsidies.

Consequently, the WTO's AoA did not benefit the farmers from the Southern countries. They still suffer from unfair practices of foreign corporates who dump cheap agri-products on the world market. In response to the situation described above by McMichael other food sovereignty proponents propose:

- Trade in agriculture which will allow small-scale farmers to provide food for their families and their local markets which is nutritious, and socially and culturally acceptable.
- International trade in agriculture which will not affect the food sovereignty of other states.

In response to aspect of trade in agriculture, the study used the concept of food sovereignty to explore local markets for the indigenous vegetables of KwaMkhwanazi community. However, despite its strengths, critics have highlighted numerous shortcomings of the food sovereignty framework and I discuss these below.

3.4 Critiques of food sovereignty

Bernstein (2014) queries the ability of peasant farmers to provide food security in the face of apparent land shortages (where large-scale farmers are grabbing land from poor countries to further their interest) and water shortages due to climatic changes (Hanjra and Qureshi, 2010). He argues for capitalist agriculture as the only means to feed the rising world population which is estimated to have risen from 750 million in 1750 to 6 billion in 2010. This argument is also supported by Agarwal (2014) who perceives the persistence of population growth as one of the reasons why peasants cannot manage to feed the growing world population. To support this assertion, Bernstein (2013) cites Robert Brenner (2001:171-172) on the merits of capitalist farming, of being able to produce more food at a faster pace (which he doubted peasant farmers are able to do). Bernstein (2013) further argues that capitalist agriculture has led to the reduction of hunger as well as an improvement in the nutritional needs of the world's population. McMichael (2015) refutes Bernstein's 'celebration' of capitalist agriculture by commenting on how peasants are contributing up to 70% of the world's (ETC 2009 as cited

in McMichael, 2015) food. This view is supported by Van der Ploeg (2014:999) who writes that 'peasant agriculture has the potential for meeting food sovereignty largely because it has capacity to produce (more than) sufficient good food for the growing world population and it can do so in a way that is sustainable'.

McMichael (2014) further points out that Bernstein's critique of food sovereignty and the 'celebration' of capitalist agriculture does not mention the negative impacts of capitalist agriculture. Van der Ploeg (2014) who mentions that capitalist agriculture is unsustainable because of its reliance on technology and chemicals and is detrimental to the environment supports this. Edelman (2014) challenges the credibility of capitalist agriculture on the effects it has on people's health as it encourages food processing. McMichael (2015:196) concludes by saying 'modernity is more than population growth and productivity' but an alternative which 'embraces ecological practices and rights-such as seed commons (Da Via 2012), gender and human rights (Patel, 2009)'. This is contrary to Bernstein's understanding of modernity which focuses on technological advancement as the means to ensure food security.

One of Bernstein's (2014) most scorching critiques of food sovereignty is based on its conceptual limits. He argues that as a theoretical framework food sovereignty falls short as it fails to distinguish classes within peasants (Bernstein, 2014). In other words, there are variations and contradictions within what proponents of food sovereignty call 'the peasantry'. In fact, Bernstein (2014:1044) even questions the existence of peasants at all in this period of 'contemporary capitalist globalisation'. Rather, he believes that those who food sovereignty proponents call peasants are 'petty commodity producers' (ibid). He explains this assertion by pointing out how people in rural areas are engaged in several activities other than farming for subsistence. These activities include selling of labour power, crafts and services, and farming of cash crops. This view is supported by studies done in South Africa by Cousins (2013) and Neves and Toit (2013) which reveal the existence of classes among small scale farmers. Cousins (2013) shows how farming and working for money in South Africa's small irrigation schemes are

normal practices. Similarly, Neves and Du Toit's (2013) study of rural livelihoods in South Africa shows how farmers benefit from non-farm activities such as small-scale economic activities, urban employment of relatives, and old age and child governments grants to meet their needs.

Bernstein (2014) therefore denies Food Sovereignty's conception of community within peasant farmers as space where everyone gets to share and receive from their neighbours. He points to the existence of classes which renders some as custodians of resources and others as receivers who are sometimes segregated. He gives an example of how South African households with young women, and those affected by HIV/IDS usually struggle for seeds because of the low class status accorded to them by the society. On the same note, Agarwal (2014) notes how gender lines create classes within small-scale farmers. She argues that women farmers have a lower social status than their male counterparts do, having less access to farming resources such as land, seeds and water. Agarwal (2014:1255) further critiques food sovereignty on this by saying:

A nod toward gender equality is not enough. The problems women face as farmers are structural and deep-rooted, and would need to be addressed specifically. This would include redistributing productive assets such as land and inputs within peasant households in gender-equal ways, and directing state service to cater better to the needs of women farmers, such as services relating to credit, extension, training, information and new technology, field trials, input supply, storage and marketing.

In other words, Agarwal (2014) is saying that food sovereignty's promotion of gender equality is weak because it fails to stipulate how it will address the constraints faced by women in agriculture. Agarwal (2014) then suggests encouragement of co-operatives as a means to address women's problems. She gives several examples of how co-operatives help small farmers to pull their resources together as a way of improving their agriculture production.

The effect of classes within peasant agriculture also manifests itself on land issues. Rural African elites, who are normally chiefs, tend to own and control land. This creates inequalities within the peasant community (Cousins, 2013). In some cases, these elites or traditional leaders grab land from their subjects.

All these actions incapacitate those who occupy the lower ranks in society with regard to the production of food for self-consumption. Bernstein (2014) indicates that inequalities often lead to the less privileged selling labour to farmers with land to supplement their farm produce.

Bernstein (2014) also argues that lack of labour prevents peasants and small-scale farmers from growing excess food. He gives an illustration of how, in Brazil, small-scale farmers have access to land but a limited labour force affects their agricultural outputs. Similarly, Agarwal (2014) also notes constraints in her discussion of 'family farming'. She writes that farmers face shortages of land, water, farming implements and capital to be effective in the farming activities.

Agarwal (2014) draws attention to how some of the aims of food sovereignty may fail to materialise on the ground. She comments that what food sovereignty campaigns for may not necessarily be what small-scale farmers need. In other words, given the choice, some farmers would leave farming all together for other occupations. The attitude of the majority of farmers who do not wish for their children to become farmers reflect this (ibid). Drawing on a survey conducted in India in 2003, Agarwal (2014) shows that not all small-scale farmers are interested in producing food for self-sufficiency. Reasons why farmers may not be interested in farming for self-sufficiency are varied. These include less profit, lack of status and the risks associated with farming. To this Agarwal posits a question on how realistic food sovereignty is if the people whom it is claiming to represent are losing interest in farming altogether.

On farming methods, Bernstein (2014) states that peasants are not necessarily practitioners of agro-ecological farming. This is because small-scale farmers may practise agro-ecological farming because they lack resources like fertilisers and chemicals. He explains how peasants with resources have initiated the use of heavy machines and chemical application and the practising of monoculture to get more out of their land. He further argues that given the chance these farmers would actually want to be

commercial farmers. In the same vein, Agarwal (2014:259) gives an example of how in India 'according to 2013 statistics from the World of Organic Agriculture, only 0.6 percent of agricultural land is certified organic production, despite policies in many states to promote low chemical farming'. This argument is however defeated in the face of other developing countries which adopted agro-ecology farming systems and have been able to provide food security for their communities. For example, Rosset, et al., (2010) discuss how Cuba solved its problems of food security by practising agro-ecology. They explain how the 'Campesino-a-Campesino Agro-ecology Movement in Cuba' (ibid: 162) was adopted to enable the country to ensure food security. This happened after the country faced serious food shortages after the collapse of the socialist bloc in Europe in 1989, which led to Cuba facing embargoes. However, Rosset, et al., (2010) argue that Cuba has managed to become one of the most food-secure countries because after adoption of Campesino-a-Campesino they were no-longer relying on importing food and farming inputs. They managed to do this by shifting from conventional agriculture to agro-ecological farming. By shifting to agro-ecological farming practices farmers learned from each other new methods of farming that did not require external inputs.

In their critique of food sovereignty, Edelman et al. (2014:915) argue that the theory is underdeveloped in its promotion of 'relocalizing food systems' which criticises 'long distance and international trade of food'. These authors argue that proponents of food sovereignty do not address the question of 'what should be done with millions of small holders who produce agriculture commodities (and not only food) for export, particularly when they do so on the basis of relatively equitable land and social relations and sustainable multi-cropped or sustainable agro-forestry systems?' (ibid:915). Similarly, Agarwal (2014) also queries how food sovereignty intends to address small farmers who grow crops for exportation. Li's (2015) study of highland Sulawesi, in Indonesia, resonates with Agarwal (2014) and Edelman et al., (2014) by giving an example of small-scale farmers who moved from growing crops for subsistence to growing mono-cropped cacao for cash. The scenario of highland Sulawesi in Indonesia as discussed by Li (2015) is evident in

many parts of the world as evidence that defeats some of the pillars of food sovereignty. For instance, Agarwal (2014) argues that aspects such as democracy, sustainability, self-sufficiency and proximity may not necessarily cohere. This means that small-scale farmers may fulfil other aspects at the expense of others to meet their needs. Edelman et al., (2014) support this view by giving an example of how beneficiaries of democracy through access to land may need technology and chemicals to realise more profits. And, farmers who use agro-ecological methods in their farming system may fail to be self-sufficient.

Food sovereignty is also criticised on its position against international trade as promoted by the WTO. Firstly, Bernstein (2014) argues for international trade, as it enables the provision of food throughout the year in some regions that would not be possible if food trading was to be localised. Similarly, Edelman (2014) supports international food trade as a necessary exercise for regions that cannot be self-sufficient. Furthermore, whilst Edelman, et al., (2014:917) acknowledge that international food trading has led to the consumption of poor quality food which is highly processed. They also caution advocates of food sovereignty 'not to underplay the extent to which dietary aspirations have been affected by long-term trade patterns and corporate branding, and the extent to which consumer preferences now lean towards processed products...' In other words, Edelman and others are advocating that food sovereignty must do more than defend 'food cultures' but should also move towards 'reinvigorating or even rebuilding them...' (ibid: 917). In the same vein, Edelman (2014:973) points out that 'food is not just a source of physiologically necessary nutrients but a major source of pleasure and sociality'. The reason why Edelman said this is that he wants to point out that consumer tastes sometimes necessitate the international trade of some foodstuffs that people would have acquired tastes for. For this reason, Mintz (1986) argues that food products such as sugar, tea and coffee have gained acceptance in countries that do not produce them such that they have become necessities. In conclusion, I feel that despite all the shortfalls of food sovereignty mentioned above the theory's principles are relevant in the South African context. This is because the majority of the rural people to some

extent still depend on farming and by adopting food sovereignty principles, they may be able to provide for their families nutritious and culturally acceptable food at a lower cost.

3.5 Conclusion

In this chapter, I outlined the theoretical framework used to guide this study, that is, decoloniality and the food sovereignty theory. I have explained the reasons for choosing these theories, their commonalities and their relevance to this study. I have discussed the major critiques of the selected theories. Having considered the strengths and limitations of my conceptual tools in this chapter, the following chapter elaborates on the research design and methods, explaining how I undertook the research.

CHAPTER 4: METHODS

4.1 Introduction

This chapter is a presentation of the research design and methods that were used to collect data in this research. It begins by explaining critical discourse analysis (CDA) as a method employed to explore the formulation and purpose of the 2004 IKS policy in South Africa. The case study approach was used to explore the implementation process of IKS policy through the promotion of IVs. I also describe interviews, documents, focus group discussions and observations as data collection methods that were used in the case study. Induction, deduction, abduction and retroduction inferences are discussed as strategies that were used to analyse data. The chapter ends by explaining validity, ethical considerations and limitations of the study.

4.2 Critical Discourse Analysis method

This study used Critical Discourses Analysis (CDA) as a method to enhance understanding of the formulation process of South Africa's IKS policy enacted in 2004. However, before explaining how CDA was used in this study, it is essential to explain what it entails as understood by scholars reviewed here.

There are numerous definitions attached to the term discourse and discourse analysis. This is due to many disciplines that are now employing discourse analysis as method and theory in their research (Schiffrin et al., 2008:1). They further argue that:

For many, particularly linguists, "discourse" has generally been defined as anything "beyond the sentence." For others (for example Fasold 1990: 65), the study of discourse is the study of language use. These definitions have in common a focus on specific instances or spates of language. But critical theorists and those influenced by them can speak, for example, of "discourse of power" and "discourses of racism," where the term "discourses" not only becomes a count noun, but further refers to a broad conglomeration of linguistic and non-linguistic social practices and ideological assumptions that together construct power or racism.

However, for the purposes of this study, I will only define discourse as it is understood in the context of CDA. An example of a critical theorist definition is one by Gee (1999:13) who defines discourses as:

Different ways in which humans integrate language with non-language "stuff," such as different ways of thinking, acting, interacting, valuing, feeling, believing, and using symbols, tools, and objects in the right places and at the right times so as to enact and recognize different identities and activities, give the material world certain meanings, distribute social goods in a certain way, make certain sorts of meaningful connections in our experience, and privilege certain symbol systems and ways of knowing over others.

In the preceding excerpt it can be gleaned that discourses are social practices, mental entities and material realities which are always governed by the contexts in which they exist to constitute ideologies that influence or are influenced by ideas and practices (Johnstone, 2008).

Foucault (1972:48) defines discourse as 'practices that systematically form the objects of which they speak. Discourses constitute objects'. In this sense discourse is also understood as statements which have a historical context and can be repeated. In other words, discourses are not mere language or speech; rather they are statements that represent a certain meaning, knowledge and way of thinking. According to Foucault, the historical nature of discourse implies that in every action, situation, knowledge or event, there are possibilities of many statements that one could make. However, people express those statements deemed acceptable, prompting Foucault (1972:27) to ask a rhetoric question: 'how is it that one particular statement appeared rather than another?'

On the 'critical' aspect of CDA, Wodak (2001:10) points out that it is so as it does not take social phenomena for granted or seek just to 'describe and explain, but also to root out a particular kind of delusion'. In concurrence critical theory is also defined by Somekh and Lewin (2005:344) as '...looking beyond the surface of what people say, write, or do...' It is critical because it is used to reflect issues of power and ideology. On the notion of power, CDA shows how dominant groups of people in a society use discourse to 'persuade' this persuasion also viewed as naturalization of ideas (Fairclough,

1995) or hegemony by Gramscian (Fairclough, 2001b). Naturalisation or hegemony occurs when dominant groups present their ideas in such a manner that the weaker take them up as if they were theirs (Fairclough and Wodak, 1997).

The 'critical' component of CDA is that it reveals 'social order' (Fairclough, 2001a) or 'social power' (Van Dijk, 2001:355) by taking the position of the oppressed or disadvantaged by revealing how the dominant discourses affect their social life. Social power is when certain groups or institutions have power to control other people's minds and action. Van Dijk (2001) adds that this power is possessed in different proportions by those who have 'access to scarce social resources, such as force, money, status, fame, knowledge, information, "culture", or indeed various forms of public discourse and communication' (ibid:355). Furthermore, power is exercised using different methods (such as force, persuasion and manipulation).

Having clarified what the terms 'discourse' and 'critical' entail, the following section is an explanation of CDA focusing on Fairclough's (1992) three dimensional model and how it was used in this study. Fairclough's CDA can be used either as a theory or method. In this case it was used as a method guided by decolonial theory. Decolonial theory was used to inform the analysis because Phillip and Jørgensen, (2002:69) argue that 'discourse analysis is not sufficient in itself for analysis of the wider social practice, since the latter encompasses both discursive and non-discursive elements' as will be explained in sections that follow. I must however emphasise that I did not use Fairclough's (1992) model in its entirety, following suggestions by Fairclough (2001a) who warns against its use as if it were a 'blue print', and his advice that it should be used to address the needs of a particular research.

Fairclough (1992) discusses discourse as text, social practice and discursive practice. Fairclough's discourse analysis as text involves focusing on 'linguistic features of the text' which are 'speech, writing, visual image or a combination of these' (Phillip and Jørgensen, 2002:68). The focus here will be

on looking at aspects of grammar and vocabulary used as well as syntax and coherence of sentences. However, the study did not use text for analysis but focus was put on discursive practice which 'inevitably involves analysis of text' (ibid), as will be shown later.

Discourse as a discursive practice is viewed as the 'production and interpretation' of text in a society (Fairclough, 1993:137). He adds that discursive practice is 'based on the concepts of 'intertextuality' and 'interdiscursivity' - 'intertextuality' meaning the discourse draws from other text, whilst 'interdiscursivity' is found in various discourses, genres and conventions. Both interdiscursivity and intertextuality 'highlight the historical view of the texts as transforming the past-existing conventions, or prior text - into the present' (ibid).

For a discursive analysis of IKS policy, speeches listed in table 4.1 below were used to explore the 'production and interpretation' of IKS discourses following the example of Lotriet, et al., (2009). I selected speeches delivered by senior officials from the Department of Science and Technology and other related departments at expositions, cabinet meetings and conferences to promote indigenous knowledge. The speeches were searched from the South African Government website based on the content which addresses aspects of indigenous knowledge. Selected speeches were those that were presented from 2004 to 2015 and which made substantive reference to IKS. The audiences were from diverse backgrounds including Provincial cabinet members, Traditional leaders, Indigenous knowledge holders, Scientists, Academics Non-governmental Organisations, Civil organisations and the general public. For example, table 4.1 shows government leaders addressing various audiences on various topics concerning indigenous knowledge systems.

Government leaders and their positions	Speech, event and venue	Addressees
Edna Molelwa http://www.gov.za/speeches/minister-edna-molelwa-address-during-2nd-biodiversity-economy-indaba-5-nov-2015-0000	2015 Opening address during 2nd Biodiversity Economy Indaba, Durban, KwaZulu-Natal Province	Members of Parliament, Members of the KwaZulu-Natal Legislature, Traditional Leaders (Amakhosi) and other Community leaders
Rejoice Mabudafhasi: Deputy Minister of Arts and Culture http://www.gov.za/speeches/deputy-minister-rejoice-mabudafhasi-isikhumbuzo-samahlubi-heritage-celebration-ebenezer	Isikhumbuzo Samahlubi Heritage Celebration in Ebenezer Khayakhulu Village North West	Guests
Rejoice Mabudafhasi: Deputy Minister of Arts and Culture http://www.gov.za/speeches/heritage-month-speech-honourable-rejoice-mabudafhasi-deputy-minister-arts-and-culture-22	2015 Heritage Month speech, at the National Council of Provinces	National Council of Province (NCOP) Honourable members
Deputy President Cyril Ramaphosa: (Ramaphosa 2015) http://www.gov.za/speeches/deputy-president-cyril-ramaphosa-2015-heritage-day-24-sep-2015-0000	2015 Keynote address on the occasion of Heritage Day at Ramokgopa Stadium, Mokomene, Limpopo	Premier of Limpopo, Ministers, Deputy ministers, MECS and MMCs, Amabassadors and High Commissioners, Mayors, Traditional leaders, Religious leaders, Traditional healers, South Africans
Minister Naledi Pandor http://www.gov.za/speeches/speech-naledi-pandor-mp-minister-science-and-technology-indigenous-knowledge-systems	2015 Indigenous Knowledge Systems Interface conference	Professors, Vice Chancellors, Principals, Deputy Vice Chancellor and Directors
Minister of Science and Technology Derek Hanekom http://www.gov.za/minister-science-and-technology-derek-hanekom-launched-south-africas-bio-economy-strategy	2014 Launch of South Africa's Bio-Economy Strategy	Participating organisations interested in Bio-economy
Minister of Science and Technology Derek Hanekom http://www.gov.za/address-minister-science-and-technology-derek-hanekom-launch-indigenous-knowledge-systems%E2%80%99	Launch of the Indigenous Knowledge Systems' Bio prospecting and Product Development Platform and Signing of the Consortium Agreement, Pretoria	Participating organisations on the Bio-prospecting and product development
Minister of Science and Technology Derek Hanekom http://www.gov.za/opening-address-minister-science-and-technology-derek-hanekom-launch-national-recordal-system	Launch of National Recordal System in 2013	Programme Director, Traditional leaders (Amakhosi), Premier, Mayor, Media and Community

Minister of Science and Technology Derek Hanekom http://www.gov.za/keynote-address-derek-hanekom-deputy-minister-3rd-international-conference-science-and-indigenous	Address of the 3 rd international conference of Science and Indigenous Knowledge systems in 2011.	Professors, Rectors, Deans and Vice Chancellor and Directors
Naledi Pandor MP, http://www.gov.za/speech-minister-naledi-pandor-mp-2011-indigenous-knowledge-systems-expo-mahikeng-north-west	2011 Indigenous Knowledge Systems Expo, Mafikeng, North West	The Premier of the North West, Members of the Provincial Cabinet, Chairperson of the Portfolio Committee on Science and Technology, Members of the Ministerial Advisory Committee on Indigenous Knowledge and other delegates
M. Mangena, Minister of Science and Technology. Downloaded from http://www.polity.org.za/article/sa-mangena-launch-of-knowledge-for-africa039s-development-book-17032008-2008-03-17	Remarks at the launch of the Knowledge for Africa's Development Book, Pretoria in 2008	Finnish ambassador, experts, scientists, holders and practitioners of IKS discipline
M. Mangena, Minister of Science and Technology. Downloaded http://www.polity.org.za/article/sa-mangena-induction-of-ministerial-advisory-committee-22042008-2008-04-22	Address at the Induction of the IKS Advisory Committee Director General in 2008.	Members of the Advisory committee, elders, practitioners
M. Mangena, Minister of Science and Technology. Downloaded from http://www.gov.za/m-mangena-science-and-technology-dept-budget-vote-200708	2007 budget vote speech, Parliament, Cape Town	Members of parliament
M. Mangena, Minister of Science and Technology. Downloaded from http://www.gov.za/m-mangena-address-sadc-indigenous-knowledge-system-workshop-27-march	2007 Keynote address to the second Southern African Development Community (SADC) workshop on indigenous knowledge systems Livingstone, Zambia	Representatives of SADC countries attending the SADC workshop
N. Hangana, Deputy Minister for Provincial and Local Government (Hangana 2007)	Speech at the Human Rights and Indigenous Knowledge System Conference	Experts, scientists, holders and practitioners of IKS discipline.
M. Mangena, Minister of Science and Technology. Downloaded from http://www.gov.za/m-mangena-tci-conference-indigenous-knowledge-system	Opening speech for the 2006 TCI Conference on Indigenous Knowledge Systems	Experts, scientists, holders and several practitioners of IKS discipline

Table 4.1 Selected speeches used for a Critical Discourse Analysis of the South African policy on Indigenous Knowledge Systems

Historicising is an important part of understanding the discourses of IKS policy. It gives a background to the present situation of the policy in conjunction with what is happening in its immediate context (that is, how it relates to the discourses of other policies in South Africa) as well as how it relates to IKS regionally and internationally. Annual reports, Acts, declarations and conventions (shown in the table 4.2) addressing aspects of IKS were also analysed to acknowledge Foucault's historical aspect of discourse discussed above.

Type of documents	Document
Policies	<p>DST 2004 IKS policy, Downloaded from, http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=5918125 September 2015</p> <p>Department of Agriculture policy (National and provisional) Downloaded from, http://www.gov.za/ on 23 October 2015</p> <p>Department of Agriculture Food security policy Downloaded from, http://www.gov.za/on25 October 2015</p>
Annual Reports	<p>DARD Annual reports 2004-2014, Downloaded from, http://www.gov.za/sites/www.gov.za/files/ on 25 September 2015</p> <p>The ARC Annual Reports 2004-2005 Downloaded from http://www.arc.agric.za/Pages/ARC-Annual-Report.aspx on 28 September 2015</p> <p>DST Annual Reports 20004-2014, Downloaded from www.dst.gov.za/index.php/resource.../annual-reports on 25 September 2015</p>
Acts	<p>National Empowerment Fund Act, 1998. Downloaded from http://www.polity.org.za/article/national-empowerment-fund-act-no-105-of-1998-1998-01-01 on 29 September 2015</p> <p>South Africa DST protection, promotion, development and management of indigenous knowledge systems Bill, 2014 Downloaded from http://www.gov.za/sites/www.gov.za/files/38574_gen243.pdf NOTICE 243 OF 2015 on 14 January 2016</p>
Speeches	<p>The African Renaissance, South Africa and the world. United Nations University. 9 April 1998 http://archive.unu.edu/unupress/mbeki.html</p>
Other	<p>NIKSO Story Line Indigenous Knowledge Systems Knowledge Fields Development (KFD) Framework document https://nrfs submission.nrf.ac.za/nrfmkii/FormView.aspx?AttachmentId=278976 Document updated by Fortuin, H., CSIR, 1998 accessed on http://www.polity.org.za</p>

<p>Declarations and Conventions</p>	<p>ILO (International Labour Organisation) (1957). <i>Indigenous and Tribal Populations Convention (Convention 107)</i>. Geneva: General Conference of the ILO</p> <p>ILO (International Labour Organisation). (1989). <i>Convention concerning indigenous and tribal peoples in independent countries (Convention. 169)</i>. Geneva: General Conference of the ILO. Downloaded from http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100_INSTRUMENT_ID:312314</p> <p>African Model Law PART IV COMMUNITY RIGHTS Recognition of the Rights of Local and Indigenous Communities http://www.wipo.int/edocs/lexdocs/laws/en/oau/oau001en.pdf downloaded 5 August 2015</p> <p>Convention on Biological Diversity, downloaded from, https://www.cbd.int/convention/ on 20 July 2016 Agenda 21 downloaded 5 August 2015, from, https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf</p> <p>The Earth Charter downloaded from, www.unesco.org/education/tlsf/mods/theme_a/img/02_earthcharter.pdf 5 August 2015</p> <p>World Intellectual Property Organization (WIPO) GRTKF/IC/28/5 (2014). Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore Downloaded from http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=276361 on 22 July 2016</p> <p>Kari-Oca 2 Declaration, 'Indigenous people global conference on Rio+29 and mother earth' downloaded from http://www.iearth.org/docs/DECLARATION-of-KARI-OCA.2.Eng.pdf on 20 July 2016</p> <p>The Matautau Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples Commission on Human Rights: Sub-Commission of Prevention of Discrimination and Protection of Minorities Working Group on Indigenous Populations 19-30 July 1993 downloaded from https://www.ngatiawa.iwi.nz/cms/CMSFiles/File/Associations/mataatua%20declaration.pdf on 21 July 2016</p> <p>United Nations Convention to Combat Desertification (1994) downloaded from http://www.unccd.int/Lists/SiteDocumentLibrary/conventionText/conv-eng.pdf on 18 July 2016</p> <p>African model legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources, Algeria, 2000. Downloaded from http://www.wipo.int/edocs/lexdocs/laws/en/oau/oau001en.pdf</p>
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Table 4.2 Documents used for a Critical Discourse Analysis of the South African policy on Indigenous Knowledge Systems

As a social practice, Fairclough, (1993) defines discourse as analysis of the relationship between social practice and semiosis, with social practice being any form of practice produced in economic, political, cultural and everyday life spheres. On the other hand, semiosis 'include all forms of meaning-making – visual images, body language as well as language' (Fairclough, 2001a:122). CDA is then understood as an analysis which acknowledges that one can learn about social processes by paying particular attention to semiosis. This is because of a dialectical relationship between social practices and semiosis (Fairclough and Wodak, 1997). A dialectical relationship is described as a two-way relationship in which social structures, situations and institutions shape discourse in as much as discourse shapes them (ibid:258). Fairclough (2001b), adds that language use is not static but always changing, reflecting the social situation of the time. In short, CDA involves analysis which takes into consideration 'concrete, linguistic textual analysis of language use in social interaction' (Phillips and Jørgensen, 2002:62).

According to Fairclough (2001a:123)

semiosis also figures social practice in representations. Representations and self-representation of social practices constitute discourses. Discourses are diverse representations of social life which are inherently positioned - differently positioned social actors 'see' and represent social life in different ways, different discourses.

Fairclough (2001a) explains how discourse can be used to represent different people in a society reflecting their social status and identities. He further clarifies how discourse can also be used to reflect 'orders of social networks' and can be reflected in various discourses including 'dominance, 'marginalisation', 'oppositional' or 'alternatives' (ibid:124). For instance, he gives an example of how at global level, neo-liberalism is a dominant form of 'social order' representing a 'new capitalism' (ibid: 124).

I therefore used discourses as social practice to allow for the examination of social context of the policy thereby enabling the researcher to identify ideologies and power structures in existence. According to Van Dijk (2001:353), CDA 'focuses on the ways discourse structures enact, confirm,

legitimate, reproduce, or challenge relations of power and dominance in society’.

To understand the concept of discourse analysis as social practice, literature (academic and non-academic) was reviewed to get a sense of the social context in which DST policy on IKS exists. I examined a wide range of literature on critical discourse analysis of policy in general (Jacobs, 2004; Marston, 2002; Asthana, 2011; Nudzor, 2013; Erjavec and Erjavec, 2015) policy, discourse and IKS at local and international level (Whitt, 1998; Green, 2007, 2012; Yarrow, 2008; Hyatt, 2013; Agrawal, 2002, Van Niekerk, 2004; Hugo et al., 2009; Mogege, 2005; Rutert, et al., 2011) in order to understand aspects of IKS that the policy is confirming, legitimising, reproducing or challenging (Van Dijk:2001). This process also facilitated an examination that uncovers both the strength and shortfalls of the policy. Some of the comments made in the literature were incorporated into the results in chapter 5 discussing the discourses found in IKS policy, while some of the information forms part of chapter 2. My focus on the strengths of the IKS policy when doing CDA was based on Wodak’s (2001) recommendation that warns against misconceptions that the ‘critical’ part has to be negative.

CDA also has its shortfalls. These include the possibility of putting too much effort into analysing text at the expense of political and economic factors that might have an influence in the making of policy. This shortcoming was addressed in two steps. Firstly, semi-structured interviews were conducted for further exploration of discourses as data coming from documents. I conducted a total of ten in-depth interviews with individuals who were involved in the formulation of 2004 IKS policy Table 4.3 shows the organisation the participants were representing during the time the policy was formulated and the role they were playing. The Department of Science and Technology provided a list of all who had participated in the IKS policy formulation through email. The participants who were interviewed were those who could be reached and were willing to participate in the project. The interviewees were asked to:

- Give background of the policy

- Explain the significance of IKS policy in South Africa
- Explain international and national factors which contributed to the formulation and implementation of the policy
- Give their perceptions on the implementation process of the policy from 2004 up to the time of the interview

Participants	Their contribution in the formulation of IKS policy
DST Policy Participant 1 (DSTPP1)	Coordinated people who formed review panels on international practice and experiences in IKS IP issues, existing IKS policy. Setting up the first draft of the policy Coordinated the strategic panel.
DSTPP2	IKS specialist at DST
DSTPP3	IKS specialist at DST
NRF Policy Participant (NRFPP)	Researcher, IKS history
ARC Policy Participant (ARCPP)	Looking at IKS activities of rural people that needed to be preserved. How rural people could benefit from IKS royalties and IP
Academic Policy Participants 1 (APP1)	Brought experience in IKS environmental and legal issues
APP2	Expertise in indigenous law, customary law. Came in as academic researcher
APP3	Researcher of IKS. Looking at the philosophical underpinnings of IKS (where it is and where it is coming from). IKS legitimacy
APP4	IKS researcher in agricultural issues
Department of Agriculture and Rural Development Policy Participant (DARDPP1)	Value-addition of indigenous food
DARDPP2	Value-addition of indigenous food

Table 4.3 The organisation which the participant represented and their contribution to South African Indigenous Knowledge System policy formulation.

Secondly, as already mentioned, I employed decolonial theoretical theory to shed light on the economic and institutional conditions that impact on the policy. Use of theory enabled analysis that reveals practical worldviews of the common people and in this case ideas on indigenous people that are sometimes undermined by ideas of the dominant sector of the community.

This process served to explain why some aspects of IK take 'ascendancy and others fall by the way side' (Asthana, 2011:770), as is revealed in chapter 5.

In short, CDA was useful in both understanding the IKS policy and its implementation process as it helped in revealing what needs to be improved in the policy. It also exposed aspects of IVs not covered by the IKS policy document but which are important to the beneficiaries of the promotion of indigenous vegetables.

4.3 Case study approach

The case study approach was used to explore how the IKS policy is being implemented on the ground. Cohen et al., (2000) indicate that the strength of case study is found in representing reality. Similarly Yin, (1990:14) argues that 'the case study allows an investigation to retain the holistic and meaningful characteristics of real life events'. The choice of a case study approach fits well with this study as it draws from a food sovereignty theory in which the task of the researcher is to understand and to interpret meaning within the social and cultural context of the natural setting (Rule and Vaughn, 2011). Cohen et al., (2007:253) argue that case studies 'investigate and report the complex dynamic and unfolding interactions of events, human relationships and other factors in a unique instance'.

A case study seeks to get a deep understanding, to intensively analyse the diverse phenomena in the case for the purposes of inferring from the broader context from which the case derives (Cohen and Manion, 1980). This approach was therefore appropriate for the kind of questions the research endeavoured to answer, that is, how the policy was implemented through the promotion of IVs, why those who were involved behaved in the manner they did, what could have been the reasons for their practices, relationships and challenges they face in the implementation of the policy as illustrated in chapter 6 and 7. I also chose the ARC's project as a case because of its accessibility, which enabled the cutting of research expenses such as travel costs (Yin, 1990).

While some authors such as Stangor, (1998) and Sarantakos, (2005,) critique single case studies on the basis that they cannot be generalised because they lack representation, Yin (1990) indicates that case studies are like experiments where one can generalise theoretical ideas to make sense of similar situations. Danermark et al., (2002:76) argue that 'generalisations are usually based on empirical extrapolation' but when engaging food sovereignty theory, it is possible to find other cases of small-scale farming communities where the results are generalisable. This is because food sovereignty theory recognises that challenges faced by small-scale farmers are more or less caused by the same world farming system.

The study recognises other weaknesses of the case study approach outlined by Sarantakos (2005:216):

- Findings entail personal impressions and biases; hence no assurance of objectivity, validity and reliability
- Research cannot be replicated
- There is limited access to the field and to the personal and subjective information that constitutes the basis of the case studies

To address the above problems posed by conducting case studies Yin (1990:95-102) suggested the following steps for construct validity, objectivity and reliability that were followed in this study:

- Use of multiple sources of evidence for the purposes of triangulation (triangulation done both at data collection and interpretation)
- Maintaining a chain of evidence

In this study effort was made to closely follow Yin's (1990) suggestion indicated above through the research process explained in the following sections:

According to Yin (1990), evidence for case studies may be acquired by implementing several qualitative data collection methods. Silverman (2000) states that multiple methods for qualitative case studies allow for triangulation

of data collected from different contexts so as to understand the “true” state of affairs. In this study, I used interviews, documents, observations and focus group discussions and each one is elaborated below:

4.3.1 Interviews

Punch, (2005:168) describes an interview as ‘a very good way of accessing people’s perceptions, meanings, definitions of situations and constructions of reality’. He also identified three types of interviews, namely, ‘structured, focused or semi-structured interviews, and unstructured interviews’ (ibid:169). Semi-structured interviews were employed in this research because they allowed use of an interview guide to give direction to the interview. The questions were derived from the broader research questions which were, however, by no means restricted to those few questions. The questions asked were open-ended, which allowed for the pursuing of ideas that came up during the interviews, as recommended by Rule and Vaughn (2011:65). Open-ended questions were also employed to allow participants to have control over what they wished to say and how they wished to say it (Patton, 2002). The participants were purposively selected, as will be explained below.

- **DST participants**

Two senior officials from the DST were interviewed. The first interview was with the Director of Advocacy and Policy Development and the other was with the Director of Sustainable Livelihoods, a unit which was working directly with community projects and had funded the ARC. Questions asked pertained to government’s reasons for promoting IVs and how that was related to IKS policy in South Africa. I had also planned to probe the financial support the projects were getting but could not get the information as it was considered confidential. In this document the participants are known as DSTP1 and DSTP2.

- **The ARC Participants**

Four officials from the ARC also participated in the research. One was the manager of the project and was involved in the writing of the proposal that got

funding from the DST. The official was also involved in the collaboration process with UNIZULU. The other was the ARC technicians who had worked with small-scale farmers on the project at UNIZULU. The other two ARC technicians were working on similar projects at other universities in South Africa. Their involvement in the case was therefore just for triangulating information with the one at UNIZULU. These participants were probed on the reasons for the ARC's promotion of IVs in the KwaMkhwanazi community area; their reasons for choosing to collaborate with UNIZULU on the project; their relationship with the University and the community; their challenges and successes as well as their perceptions on the whole project. I labelled the participants as ARCP1-4.

- UNIZULU Participants

A total of nine individuals from the University of Zululand were interviewed, four lecturers, with three from the UNIZULU Department of Agriculture and one from the Department of Consumer Sciences. Lecturers from the Department of Agriculture were probed on their role in the collaboration with the ARC. They were also probed on their views on IVs promotion and its connection to the IKS policy. The lecturer from the department of consumer science was involved in the project as she was involved in the value-addition component of the project which was one of the strategies the ARC used to promote indigenous vegetables. The other participants consisted of the masters' student who was funded by the project, the agriculture farm manager, a person selling vegetables at the tuck-shop and two temporary farmers who were recruited for the three-year term of the project. The farm manager and other farm workers were the ones who gave details on how they were growing IVs, their perceptions of IVs, the project itself, and the successes and challenges they faced. The one from the tuck-shop gave details about the entrepreneurship part of the project. She was asked questions on how the University market was responding to IVs. Interviews with farm workers and the worker from the tuck-shop were conducted in IsiZulu with the help of an assistant. Participants from UNIZULU are known in the dissertation as UZP 1-9.

- KwaZulu-Natal Department of Agriculture and Rural Development

I interviewed a manager in the Department of Agriculture and Rural Development and two agriculture extension officers from Ngwelezane branch working with the KwaMkhwanazi community. These participants were not directly involved in the project but were working with most of the small-scale farmers who had participated in the project. They were asked questions pertaining to agricultural practices of the farmers, especially on agro-ecological practices, promotion of IVs by the department, their experiences in working with farmers, as well as their opinion on IVs. Two other participants were from the head office of the KwaZulu-Natal Department of Agriculture and Rural Development in Pietermaritzburg. These were specialists who were working in the section of value-addition and questions they were asked were mainly on the significance of value-addition to IVs. All the interviews described so far were conducted either in English or IsiZulu depending on the language the participants were comfortable with. The participants are referred to as GDP 1-4

- KwaMkhwanazi community

I interviewed 66 small-scale farmers who were purposively selected based on their participation in the project. Table 4.4. gives a summary of the farmers who participated in this study. It indicates that some of the farmers had other occupations other than farming. Most of the participants had an income of less than two thousand rands per month. The majority of the participants were unemployed women and pensioners. The participants were probed on: their understanding of the project; their practices; reasons for getting involved in the project; their perceptions on achievements and challenges of the project. All interviews with farmers were conducted in IsiZulu. They were tape recorded and later transcribed verbatim. IsiZulu transcripts were then translated into English. Small-scale farmers are referred in the dissertation as FP1-66.

Number of Participants	Occupation besides farming	Age range	Gender	Income range per month
2	Barmen, clerk	23-48	Male	R2000-R5000
6	Police, Teachers and Traders	28-48	Female	R5000-R13000
8	None	29-48	Male	±R1600
41	None	25-62	Female	±R600
5	Pensioners	64-85	Female	±R1350
4	Pensioners	69-79	Male	±R1350

Table 4.4 Summary of small-scale farmers' occupation, age, gender and income

4.3.2 Focus group discussions

According to Morgen, (1988:120), 'the hallmark of focus groups is the explicit use of group interaction to produce data and insights that would be less accessible without the interaction found in a group'. Focus group discussions were carried out in order to triangulate data from the interviews. They were also done as an alternative in situations where individual interviews could not be carried out. Two focus group discussions of eight to ten women were conducted. Questions asked were similar to those used for individual interviews. Because both discussions were conducted in the gardens, conversations were recorded through note taking as it was not possible to tape record because of noise.

4.3.3 Observations

The strength of using observation is that 'it deals not with what people say they do but what they actually do, to the extent their behaviour is open to observation, and insofar as observation is as objective as it seems to be' (Gillham, 2008:1). In this study, observations were made concurrently with interviews and focus group discussions (Yin, 1990). Most of the time when small-scale farmers were visited for an interview they would volunteer to take us to their garden. Or sometimes interviews were conducted in the fields, thereby presenting the researcher with an opportunity to question some of the issues they were observing. This made it easier for the farmers sometimes to explain some issues by just showing us. For instance, at some point one of the farmers explained their challenge of water by showing us from where they

were fetching it. Field notes were recorded during the observation process and were elaborated on further immediately after the meeting. Some of the issues that were observed were:

- Farmers’ practices in terms of indigenous vegetables
- Agro-ecological practices like intercropping, composting
- Challenges farmers were facing like lack of security where some gardens did not have any fencing

In most cases photographs of the gardens were taken as evidence which was used together with data from interviews and documents.

4.3.4 Documents

Documents in this section of the study were used to corroborate information from interviews, observations and focus discussions (Yin. 1990). They were also used to access information that was not possible to get from observations. This is because the study was done after the project had already completed. For instance, I had planned to observe the ARC technicians demonstrating farming practices of IVs to farmers. This did not happen as the case was studied after the project had finished. I then had to rely on photographs of the demonstration sessions that were taken by the farmers (see chapter 6, section 6.3). Table 4.5 below shows a list of documents, source and the type of information that I used in this case study.

Document and source	Information accessed
Emails from the University of Zululand	Correspondence between representatives of the ARC and the University of Zululand. The emails were mostly written at the end of 2012 when the project was ending and the two parties were trying to negotiate new terms of partnership
Archival pictures from farmers	Pictures taken during planting demonstrations of indigenous vegetables by the ARC technician to farmers, farmers preparing food and selling at farmers days organised during the three year period of the project (see chapter 6)
Reports from the Head of the KwaZulu-Natal Department of Agriculture, Forestry and Fisheries, Pietermaritzburg	Social and agronomy factors affecting changes in the use of traditional food crops Value-addition of indigenous crops in KwaZulu-Natal Province
Power point presentation from	Presentation on indigenous vegetables made at the University of Zululand entitled Science for Sustainable Rural Economies: The

the ARC representative	Importance of Human Capital Development in Indigenous Leafy Vegetables presented 13 July 2012. Presentation of the importance of indigenous vegetables, market challenges of indigenous vegetables and the role of the Department of Science and Technology in supporting institutions promoting indigenous vegetables
Newsletter from the ARC representative	An article on the orange- fleshed sweet potato, explaining its role in rural communities in providing micro-nutrients. The advantages of promoting orange-fleshed potatoes which are their adaptability to harsh environmental conditions and resistance to pests and diseases. The article also discusses the value-addition of orange-fleshed potatoes and their potential in promoting entrepreneurship among small-scale farmers
First draft of Co-operative agreement between Agriculture Research Council and the University of Zululand	Shows aims and objectives and the roles each party was to play in the implementation of the project. The document also explained on the following aspects: intellectual property rights, breach, force majeure, governing law and jurisdiction, dispute resolution, confidentiality notices and domicilium and costs as given on the context page of the document
Sales records of vegetables sold at the University of Zululand Tuck-shop from 2010-2012	These were records showing daily sales of vegetables at the tuck-shop
Co-operative Constitution from the small scale farmers	Most of the small-scale farmers who took part in the project were also members of vegetable garden co-operatives. The document showed aims and objectives of these co-operatives and how they were to be run
Programme 5: Socio-Economic Partnership Sub-programme: Science and Technology for Social Impact	Information on rural universities collaborating with the ARC on the promotion of indigenous vegetables other than the University of Zululand. Outlines of the aims and objectives of the projects as they are outlined by the Unit of Sustainable Livelihoods of the Department of Science and Technology. Document downloaded from http://www.gov.za/sites/www.gov.za/files/WEBSITE_Inputs2_-_SUSTAINABLE_LIVELIHOOD.pdf

Table 4.5 Document and information accessed for use in the case study

4.4 Data Organisation

All transcribed interviews and typed field notes were captured in Microsoft Word. Files of interviews, field notes and documents collected during data collection were created in five following folders:

- Department of Science and Technology
- Department of Agriculture in KwaZulu-Natal
- University of Zululand
- Agriculture Research Council
- Small-scale farmers

4.5 Data Analysis

Nvivo qualitative data analysis software, guided by the food sovereignty theoretical framework, was employed to sort and sift research materials for the purposes of identifying 'sequences, processes and patterns' with the intention of rebuilding the data in a complete fashion (Seidel, 1998: 34). This process was then followed by induction and deduction, abduction and retroduction as will be described below.

4.5.1 Induction and deduction

Sarantakos (2005:351) states that induction proceeds 'from the specific to the general, that is constructing abstract concepts from the study of specific data' whilst deduction 'proceeds from the general to the specific, verifying abstracts concepts by testing whether they are supported by data'. The study employed both procedures, that is, the inductive and deductive process. The inductive process involved reading data from interviews, documents and field notes several times looking for patterns, similarities and differences and sorting them into nodes. Deductive processing used food sovereignty and decolonial analytic concepts as described in chapter 3 'by contrasting them to research data 'for the purpose of verification' (Kelle, 1995 cited in Punch, 2005:196). In short, use of inductive and deductive steps, what Sarantakos, (2005) calls the analytic spiral, was employed to come up with the data presented in chapters 6 and 7.

4.5.2 Abduction and Retroduction

Meyer and Lunnay (2012:1) argue that abduction 'involves analyzing data that fall outside of an initial theoretical frame or premise'. Another advantage of using abductive inference noted by Danermark et al., (2002: 80-81), is that, it '...provides guidance for the interpretative processes by which we ascribe meaning of events in relation to a larger context'. In this research, all empirical data was analysed, including aspects that were not covered by the theoretical framework. For instance, the research was able to explore unexpected findings, like aspects of value-addition (see chapter 6, section 6.4.3), the role of government officials (see chapter 7). Theoretical sampling was conducted to select participants who would give more detail to aspects of value-addition

and the role of Department of Agriculture and Rural Development (see section 4.3.1).

In their account of retroduction inferences, Meyer and Lunney (2012:3) explain that it differs from deduction and abduction in that it does not follow logic. They argue that 'it is prior knowledge which allows the researcher to move beyond and to begin to question and clarify the basic prerequisites or 'conditions' for apriori assumptions to theoretical frameworks'. In this study I tapped into existing experience and knowledge of social reality to enable thinking about what might be. In other words, findings from other studies at times were used to compare results.

4.6 Validity and Trustworthiness

According to Kvale, (1996), validity is the justification of what is claimed as the truth. Maxwell, (2002:41) says that 'validity, pertains to the relationship between the account and something external to it-that is phenomena that the account is about'. He identifies three types of validity that can be found in qualitative research, namely descriptive, interpretative and theoretical. This research applied all three types of validity as discussed below:

Descriptive validity is when a researcher 'focuses on the factual accuracy of their account-that is they are not making up or distorting the things they saw or heard' (Maxwell, 2002:45). In this research, descriptive validity was ensured by the inclusion of quotations from interviews and documents and photographs taken during observations in the data analysis (chapters 5– 7).

Maxwell (2002) views interpretive validity as concerned with how researchers interpret the data. It emphasises the importance for the researcher to correctly represent the meanings of the findings as they were intended by the participants. To guard against misinterpretation of the data the process of data verification was done with informants.

Theoretical validity 'explicitly addresses the theoretical constructions that the researcher brings to, or develops during, the study' (Maxwell, 2002:50). This means that I had to continuously work with theoretical frameworks used in the study to develop credible explanations of data.

As a social researcher, it was important to reflect on my subjectivity and try to open up to a variety of truths that are shaped by the social, economic and historical context in which knowledge is situated (Grosfoguel 2007). Steier, (1991:7-8) explains that when doing social research it is important to take into:

...recognition that what I describe in my research is in no way existing apart from my existence in it – it is not “out there”. My claims are not ontological, in the traditional sense that they reveal an existent universe that might be known apart from my knowing activity and its entailments.

To guard against the researcher bias indicated above I had to continuously reflect on my own assumptions that I brought to the study. The assumptions included those of the theoretical frameworks that were used which were intended to give voice to those who were once oppressed. I had to make a conscious effort to allow myself to hear what participants were saying by refraining from imposing categories on their voices (Steier, 1991). However, although self-reflection is important in guarding against bias, Steier (1991), warns researchers against reducing reflexivity to 'narcissism'. He encourages researchers to also embrace community censorship. For that reason, interpretation of data was done in the broad context of literature reviewed on indigenous knowledge systems, indigenous vegetables as described in chapter 2, and the context in chapter 1. Data was also presented at a conference level, allowing the study to be critiqued by others in the same field (IKS).

4.7 Ethical Considerations

This study addressed ethical issues by taking the following considerations into account as suggested by Sarantakos, (2005), Neuman, (1997), Kvale, (1996) and Burgess, (1984).

- Seeking of informed consent
- Maintaining privacy, confidentiality and anonymity by using pseudonyms

- Avoiding deception and misleading participants
- Avoiding any form of harm to participants through the research process
- Seeking access and acceptance using appropriate channels

Access to the KwaMkhwanazi community area was gained through a community gate keeper. We were invited to a community meeting where the *Inkosi* (chief) meets with the *Indunas* (headmen) and community members to discuss community issues. During the meeting, the objective of the research and the manner in which data collection was to be conducted were explained. This resulted in a written letter of permission to conduct the study from the *Inkosi* of KwaMkhwanazi. Formal consent was also given by the UNIZULU Department of Agriculture, the ARC and the DST. Written consent was also given by all participants except for those who were telephonically interviewed who gave verbal consent. Participation in this study was on a voluntary basis. Participants were also informed that they were free to withdraw from participating in the study at any stage if they were no longer comfortable. In addition, participants were assured of confidentiality, by the use of pseudonyms throughout the study process to avoid violation of privacy. Deception of respondents through misrepresentation was avoided by doing member checking. This is a process which involves taking data back to respondents for verification. Efforts were made to be honest and keep the integrity of participants throughout the research process to avoid any form of harm.

4.8 Limitations of the study

Language was a key limitation that I faced during collection and interpretation of the data, as I am not familiar with the *isiZulu* language. *isiZulu* was used because the majority of small-scale farmers were not conversant with English. I therefore felt that the use of an interpreter made interviews too long as the translator had to translate for participants and myself. Although in my view, the interpreter was good and experienced, it is always hard to interpret for example idiomatic expressions. I therefore think that some meaning may have been lost.

The study was also constrained by lack of financial resources. This limited me to exploring only one case where the Agriculture Research Council promoted indigenous vegetables whilst the ARC project of promoting IKS was done at three locations. With enough resources, I should have studied maybe two sites where these vegetables were promoted in the provinces of South Africa. This would have allowed for comparison of same project carried on different site. I believe this would have enriched the findings of this study because I would have analysed the challenges small-scale farmers using a larger sample.

4.9 Conclusion

This chapter discussed the research design methods that were employed to gather data. It also presented validity and ethical issues of the research. The following chapter is a presentation of data focusing on the formulation of Indigenous Knowledge policy in South Africa.

CHAPTER 5: CRITICAL DISCOURSE ANALYSIS OF SOUTH AFRICA'S 2004 IKS POLICY

5.1 Introduction

This chapter summarises the historical emergence and processes leading to its formulation. Drawing on decolonial theory and critical discourse analysis method, the chapter addresses questions outlined in chapter 1, namely:

- Why was the National Policy on IK formulated?
- How was the problem formulated and what factors contributed to its emergence?

Four dominant discourses emerged as factors which led to IKS policy formulation in South Africa. These are: the African Renaissance, the commodification of IKS, scientification, and equity. In discussing these discourses, I focus on how they are used to protect, affirm, promote, develop and in some instances constrain IKS options. The chapter also shows how collaboration between people from diverse backgrounds, the involvement of indigenous knowledge holders and traditional leaders, and consultation with international fora marked the process of formulating the policy.

5.2 The formulation process of IKS policy

The Department of Arts, Culture, Science and Technology (Mosimege, 2004) initiated the formulation of IKS policy in South Africa in 1999-2000. This department was later split into two, namely the Department of Science and Technology and the Department of Arts and Culture (Higgs and van Niekerk, 2002). The formulation of the IKS policy was completed in three stages (DSTPP2, Pers. Comm., 2015). Firstly, the department commissioned a drafting team to write the first iteration. This draft was reviewed by an independent review team which had major differences with the drafting team. To deal with this problem, the two teams (drafting and review team) were merged to form a reference team. The reference team later formulated the draft policy that was adopted by DST in late 2004. The above account reflects the rigorous process of formulating the IKS policy. DSTPP2 (Pers. Comm., 2015) explained that involving many teams of experts to formulate the policy

was crucial in order to build confidence in those who had doubts and viewed indigenous knowledge 'in a negative sense'³². This was because during that period, and even today, some people could not imagine the place of IKS in science and education hence the importance of producing something convincing (DSTPP2, Pers. Comm., 2015). Indifference towards IKS in some sectors was of course not surprising, especially during that period when South Africa had just been liberated from a system (apartheid) that associated everything not western with backwardness.

Results from interviews and documents reviewed indicate that numerous workshops were organised throughout the country prior to the formulation of the IKS policy. All the people interviewed for the CDA indicated that they had attended a conference or workshop on IKS. For example, APP3 (Pers. Comm., 2015) stated that she participated in the formulation of the policy and remembers how she attended a 'workshop at the University of Venda in 1998 on IKS' which she said 'sparked the debate' on IKS. Higgs and van Niekerk (2002:38) also indicate that workshops 'were held at the University of North West to set the scene for the introduction of a programme for Indigenous Knowledge Systems (IKS) in South Africa'.

Formulation of IKS policy was a very intense process involving various stakeholders whose interests were supposed to be taken into account due to diversity of interests in this area (Mosimege, 2004). Participants in this study who also mentioned how they had worked together with experts in various fields so as 'to properly deal with the subject ...' (APP2, Pers. Comm., 2015) confirmed this intention. Here are some of the responses showing the diversity of experts who participated in the formulation process of the IKS policy:

In this panel we brought expertise from the legal side, we brought in expertise from the economic side, we brought in expertise on indigenous knowledge side, we had participants from the traditional healers... (DSTPP1, Pers. Comm., 2015).

³² Interview conducted with DSTPP2, August 2015.

I joined the team to formulate this policy as a person who was well versed in African law and that is how I came into the picture and that was in 2001 (APP2, Pers. Comm., 2015).

I was part of a team of experts that was put together to look at IKS and what I was bringing is expertise in environmental matters and also legal matters (APP2, Pers. Comm., 2015).

I was coming from the Agriculture Research Council and my role was actually to look at the activities that were done in rural communities that need to be preserved (ARCPP, Pers. Comm., 2015).

I was more interested in the philosophical underpinning of IKS and most of my publications are about that (APP3, Pers. Comm., 2015).

I have expertise in history. I studied African history I did a PhD in that. So my expertise was to look at how we can integrate South African history into the realm of science (NRFPP, Pers. Comm., 2015).

The IKS policy was not only a product of participation of intellectual experts. It also involved the contributions of indigenous knowledge holders and practitioners. This was done to redress colonial tendencies where indigenous people were not involved in decision-making processes (NRFPP, Pers. Comm., 2015). Furthermore, inclusion of indigenous knowledge holders and practitioners was a challenge to the previous regime that did not recognise that 'they were the holders of this indigenous knowledge' (Mangena, 2006³³).

Stressing diversity and inclusiveness was important in order to acknowledge the differences which exist among indigenous people themselves. Indigenous knowledge holders brought with them knowledge which helped in understanding various aspects of indigenous people in South Africa that may not necessarily be the same in different regions of the country. ARCPP (Pers. Comm., 2015) explained how different regions in South Africa deal with issues of women and ownership of land differently, hence the importance of consultation with traditional leaders, who understand such aspects. What comes to light from the above argument is that unlike the colonial past which

³³ Mangena (2006). Opening speech for the 2006 TCI Conference on Indigenous Knowledge Systems, downloaded from <http://www.gov.za/m-mangena-tci-conference-indigenous-knowledge-system> on 12 July 2015.

universalised Western knowledge, IK was not going to be another 'universal' (Mignolo, 2009).

Green (2007:131) also indicates that IKS was 'developed by a committee comprising no less than eleven ministries, including Agriculture, Arts and Culture, Education, Environment and Tourism, Health, Land Affairs, Provincial and Local Government, Science and Technology, Sports and Recreation, Trade and Industry, and Water Affairs'. DSTPP2 (Pers. Comm., 2015) confirmed this observation in an interview, They claimed that:

IKS is found on various departments because it's not only DST but also other 14 departments. This is because IKS is a cross cutter and it traverses in all the departments so therefore there was a need to create a committee which represent all the dept. The committee is still in existence and 15 departments are represented in that committee.

In support of the above, Mosimege (2004:31) explains the reasons why IKS policy had to involve so many departments both in its formulation and in implementation:

Even though the IKS Unit was located in the Science and Technology section of the Department, the Arts and Culture section also dealt with many important aspects such as indigenous languages, folklore, indigenous music and dance, heritage (in particular, living heritage), arts and crafts, and so on. The Department of Trade and Industry deals with intellectual property, takes a keen interest in aspects of trade related to or based on IKS, international developments, discussions on intellectual property and genetic resources, traditional knowledge and folklore, development of small business related to IKS, and so on.

Various departments also implemented the policy to 'avoid duplication of work pertaining to IKS' as well as 'prevent people from double-dipping funds' (DSTPP2, Pers. Comm., 2015). This action may be viewed as a way to improve efficiency and discourage corruption in South Africa.

Policy makers also consulted sources outside of South Africa to inform the formulation process of IKS policy and they learnt many lessons from Australia, Latin America, China and India (NRFPP, Pers. Comm., 2015). Some of the participants indicated that they went to India and China to learn practical lessons on how these countries had developed and protected IKS. Among the

lessons learnt was the use of codification to protect IKS from misappropriation and bio-piracy.

Contrary to Agrawal's (2002) argument that IKS cannot be integrated into conventional knowledge and retain its value, DSTPP1 (Pers. Comm., 2015) said that in India, IKS is integrated with the conventional health system without losing its core values³⁴. She gave an example of an indigenous knowledge health institution that is integrating IKS and conventional medical practices. She further said that they witnessed processing of medicinal plants into conventional tablets or liquid to allow for conventional administering of medication. However, traditional healers 'continue healing using traditional practices that are holistic involving body, mind and soul healing' (ibid).

Indigenous Knowledge System policy in South Africa is also characterised by its interrelationships with international organisations and declarations, including ILO, OAUML, CBD, WIPO, TRIPS, ARIPO, MATAUTAU. Issues addressed in these declarations which also feature in the South Africa IKS policy include codification, integrating IKS with science, the contribution of IKS holders in decision making, rights of Indigenous people to benefit sharing, informed consent, and protection of IKS through intellectual property (see chapter 2 for a detailed discussion).

The importance of consulting and learning from others indicates how the South African IKS policy is aligned with international trends. It also shows that the country is developing at the same pace as other countries, if not faster, as indicated in a statement in the policy that South Africa needs to stay 'ahead of the pack' (South Africa, 2004:4). This was supported by the DSTPP2 (Pers. Comm., 2015) who indicated that it was a symbiotic process. He said:

While it borrowed from international approaches, South African IKS policy influenced other policies at an international level. One such example is when in 2009 it was tabled as a working document at the World Intellectual Property Rights and Cultural Heritage in the Digital World Conference in Spain and a lot of countries are using the South

³⁴ Interview conducted with DSTPP1, August 2015.

African IKS policy as a framework for their policies in indigenous knowledge systems.

In a nutshell, it is clear that the formulation IKS policy involved a lot of consultation. This might be taken to mean that it is a product of communication; a process based on consensus and is likely to be accepted by many people. However, the following sections will show controversies and differences representing a diversity of views on how promotion and protection of IKS is addressed in South Africa.

5.3 Reasons behind the formulation of IKS policy

This section will present reasons for IKS policy formulation through exploring discourses considered in this research to be dominant in documents, interviews and literature reviewed. These discourses include:

- The African Renaissance
- Commodification of IKS
- Integrating IKS and Science
- Equity

I discuss discourses to get a better understanding of why the IKS policy in South Africa was formulated. An understanding of the policy will also shed light on the implementation of IKS with regards to promotion of indigenous vegetables through the case study of KwaMkhwanazi rural community in KZN discussed in chapters 6 and 7.

5.3.1 The African Renaissance

President Thabo Mbeki, the previous president of South Africa, initiated the concept of the African Renaissance (Van Niekerk, 2004). He deliberated on the idea soon after South Africa's political liberation from centuries of colonialism and apartheid and centuries of capitalist domination in Africa. The African Renaissance is a plea to the continent to be in control of its destiny as it participates in a world that is now a global village. It is to encourage Africa to recover its productive resources and cultures whilst developing science and technology to resolve African challenges (Magubane, 1999). Most of the policy experts interviewed in this study agreed that the idea of the African

Renaissance influenced IKS policy in South Africa. NRFPP (Pers. Comm., 2015) argued that promoting the discourse of African Renaissance was a 'natural progression for IKS to go'. Participants gave several reasons:

Africanness was the new beginning. They were saying we as Africans also have a role to play in building up technology, building up society, and indeed Africa (NRFPP, Pers. Comm., 2015).

It was a general move within this period after apartheid where everything had to have affirmation of African cultural values; therefore, it was influenced by the objectives of the African Renaissance Document (DSTPP2, Pers. Comm., 2015).

Well there has been rediscovery. Africa is part of the modern science, technology, industrialisation and wealth creation and moving forward and that is what African Renaissance is all about (APP2, Pers. Comm., 2015).

As participants in this study claimed that the African Renaissance was one of the driving forces of the IKS policy, speeches and documents analysed also revealed its dominance. Throughout the speeches that I analysed, there appears to be a quest towards identification of 'thoughts, technologies and activities' unique to Africans by 'unearthing, promoting and protecting of IKS' (CSIR, 1998³⁵).

There is a general move towards 'delinking' (Mignolo, 2013) where speeches by government officials show that the idea of IKS as inferior was a colonialist's invention to control Africans. This is evident in speeches that are now portraying IKS positively, as shown below:

Our parents and grandparents planted their own indigenous crops and had livestock to feed their families. Our families ate healthy organic foodstuffs that were widely available in the neighbourhood (Mabudafhasi, 2015³⁶).

Research conducted by the Food Technology division of the Council for Scientific and Industrial Research (CSIR) has shown conclusively that the nutritional and medicinal value of indigenous food and drinks surpass any other food products by far. Most of the food products can

³⁵ Document updated by Fortuin, H., CSIR, 1998, Downloaded from <http://www.polity.org.za> on 21 February 2015

³⁶ Heritage month speech by Mabudafhasi, R: Deputy Minister of Arts and Culture at the National Council of Provinces in 2015. Downloaded from <http://www.gov.za/speeches/heritage-month-speech-honorable-rejoice-mabudafhasi-deputy-minister-arts-and-culture-22> on 15 January 2016.

be found in our own gardens or can be harvested freely in our own localities. In the olden days, our mothers and grandmothers would pick a specific type of wild vegetation to cook a sumptuous meal. In those days no family would go to sleep at night without any food. In this province you will be familiar with food products like *gushe, tinjie, maraca, dinawa and thokojifa* (Botha, 2007³⁷).

What is reflected above can be viewed as 'epistemic disobedience' (Mignolo, 2011) where efforts are being made to change listeners' mindsets towards appreciating IK as 'an integral part of being an African' (ibid).

Since the African Renaissance calls for Africans to assert themselves and come up with their own solutions to their problems, IKS is presented as capable of producing products 'of an impressive and high quality and reveal the potential of our country to become a major producer in the global indigenous trade' (Pandor, 2011³⁸). It may be inferred that the Minister was impressing on her audience that South Africans are capable of using their knowledge to produce products that will not only sustain them but can also compete with other products at an international level. Use of phrases like 'impressive and high quality' may be viewed as being directed against the historical representations of IKS when it was considered to be of lesser value than other knowledge systems. In other words, it is a rejection of past perceptions that IKS is 'primitive and outdated' (Pandor, 2010³⁹). This also reflects the discourse of the African Renaissance where Africans are also beginning to realise that over and above political independence, economic independence is of equal importance if they are to become truly free. Mangena (2006)⁴⁰ likens the activities which are being conducted by IKS

³⁷ Speech by Botha, N.G.W., Deputy Minister of Arts and Culture, Mukumbani Indigenous Cultural Day in 2007. Downloaded from <http://www.gov.za/n-botha-mukumbani-indigenous-cultural-day> on 15 January 2016.

³⁸ Speech by the Minister Pandor MP, at the 2011 Indigenous Knowledge Systems Expo, Mafikeng, North West on 11 October 2011. Downloaded from <http://www.gov.za/speech-minister-naledi-pandor-mp-2011-indigenous-knowledge-systems-expo-mahikeng-north-west> on 16 August 2015.

³⁹ Address by Minister Naledi Pandor, at the 2010 Indigenous Knowledge Systems Expo. International Convention Centre on 26 July 2010. Downloaded from <http://www.gov.za/address-minister-naledi-pandor-2010-indigenous-knowledge-systems-expo-international-convention> on 16 August 2015.

⁴⁰ Opening speech by Minister Mangena, M., TCI Conference on Indigenous Knowledge Systems on 20 July 2006. Downloaded from <http://www.gov.za/m-mangena-tci-conference-indigenous-knowledge-system> on 16 August 2015.

holders and practitioners to birth, i.e. representing that something new is coming out of South Africa for the benefit of Africans, as shown by the quotation below:

I would like to call to your attention to those IK holders and practitioners who are giving birth to valuable products in the country. These include medicines and healing modalities, jewellery and different articles of adornment and decoration, art, literature, music, entrepreneurship, food security, methods of investigation, etc.

There seems to be a shift towards elevating IKS as knowledge of equal status to other knowledge systems such as science and technology, agriculture, health, art and business. Minister Pandor (2009)⁴¹ spoke of how archaeology has proved the origins of human to be African. This claim therefore rejects perceptions of Africans as barbaric and not fully developed. This also implies that if Africans are humans they are capable of taking initiatives; being creative; forming their own businesses and being original (Mbeki, 1998⁴²). This is supported by interviews and documents which show that IKS can be used to free South Africans from poverty, unemployment, backwardness, marginalisation, and malnutrition. A speech by Mangena (2006)⁴³ affirms what was said by Mbeki:

The protection and promotion of African indigenous knowledge systems will contribute to the task of charting an African development path. IKS gives us the keys to self-discovery and true emancipation which are prerequisites to human creativity and action. The potential role of indigenous knowledge in releasing the human creativity and innovation should be tapped for the realisation of Africa's reconstruction.

In order for IKS to contribute fully in the realisation of the African renaissance, evidence suggests that it has to be commercialised and be integrated with science. The following section will discuss the commodification and

⁴¹ Speech by Minister Pandor 2009 at the launch of the Indigenous Knowledge System (IKS) exposition, Bolivia lodge, Downloaded from <http://www.gov.za/speech-minister-science-and-technology-naledi-pandor-mp-launch-indigenous-knowledge-system-iks> on 17 August 2015.

⁴² South African Deputy President Thabo Mbeki speech. The African Renaissance, South Africa and the world. United Nations University. 9 April 1998 Downloaded from <http://archive.unu.edu/unupress/mbeki.html> on 20 August 2015.

⁴³ Opening speech by Minister Mangena, M., TCI Conference on Indigenous Knowledge Systems on 20 July 2006. Downloaded from <http://www.gov.za/m-mangena-tci-conference-indigenous-knowledge-system> on 16 August 2015.

scientification of IKS as a means through which this knowledge system can be promoted and protected.

5.3.2 Commodification of indigenous knowledge

A number of scholars (Green 2012; Rutert, et al., 2011; Higgs & van Niekerk, 2002) recognise the prevalence of the discourse of commodification of indigenous knowledge in the IKS policy. Literature reveals a growing realisation of the economic value of knowledge. Although some believe that knowledge should not be treated like a commodity, practical evidence, both at an international and local level reveals how, just like labour and land (Polanyi, 1944), knowledge 'has been metaphorically transformed to accommodate a market economy' (Whitt, 1998:37). The situation is not different in South Africa where we see indigenous knowledge being commodified. The policy document itself clearly states that one of its drivers is 'underpinning the contribution of indigenous knowledge to the economy – the role of indigenous knowledge in employment and wealth creation' (South Africa, 2004:10).

Green, (2012:8), posits that '...wealth creation is an important part of redressing the historical injustices that are built into the knowledge economy'. Data gathered from documents and interviews with experts who were involved in the formulation of the policy reveal that commercialisation of IKS is one of the aspects addressed by the policy. Indigenous knowledge is to be commercialised to eradicate poverty (DST, IKS Unit document), encourage benefit sharing (Pandor, 2009⁴⁴), empower rural communities, and promote sustainable development (Mangena, 2007⁴⁵). This is justified as rural communities are custodians of IKS (APP1, Pers. Comm., 2015). APP2 (Pers. Comm., 2015) further attests that IKS has always been benefiting other people besides the rightful owners when he says:

Well, when IKS was started one of the fundamental rationales behind

⁴⁴ Speech by Minister Pandor 2009 at the launch of the Indigenous Knowledge System (IKS) exposition, Bolivia lodge, Downloaded on 17 August 2015 from <http://www.gov.za/speech-minister-science-and-technology-naledi-pandor-mp-launch-indigenous-knowledge-system-iks>

⁴⁵ Keynote address to the second Southern African Development Community (SADC) workshop on indigenous knowledge systems Livingstone, Zambia. Mangena, 2007. Downloaded on 21 August 2015 from <http://www.gov.za/m-mangena-address-sadc-indigenous-knowledge-system-workshop->

the policy was that IKS is one of the technologies of the African people that can be used to eradicate poverty and ensure that there is development of the ordinary people who failed to develop over the centuries.

Another reason given for the promotion of IKS through commercialising is the availability of vast wealth of natural resources and knowledge in South Africa. However, these resources have not been fully utilised (Pandor, 2011.⁴⁶). Pyoos (Pers. Comm., 2015) felt that this should not be the case as IKS is not to be treated:

...like an artefact that has to be admired forever and ever... It should go through social and economic transition for the benefit of our people. This is a reasonable expectation because the same indigenous knowledge contributed to the health and economic systems of the old generation.

In order to commercialise IKS several strategies were to be adopted to put it on the market and reap as much profit as possible. IKS in South Africa is commercialised through 'the establishment and management of the Bio-prospecting and Product Development Platform, under the auspices of the National Indigenous Knowledge Systems Office, (which) focuses on research into the country's rich plant biodiversity to promote pharmaceutical industry' (Pandor, 2010⁴⁷). The importance of bio-prospecting and product development is evident from speeches, DST annual reports and interviews which show that implementation of IKS has achieved a lot. For example, table 5.1 below shows some of the activities which have taken place since 2006.

⁴⁶ Speech by the Minister Pandor MP, at the 2011 Indigenous Knowledge Systems Expo, Mafikeng, North West on 11 October 2011. Downloaded on 16 August 2015 from <http://www.gov.za/speech-minister-naledi-pandor-mp-2011-indigenous-knowledge-systems-expo-mahikeng-north-west>

⁴⁷ Address by Minister Pandor, at the 2010 Indigenous Knowledge Systems Expo, International Convention Centre on 26 July 2010 Downloaded from <http://www.gov.za/address-minister-naledi-pandor-2010-indigenous-knowledge-systems-expo-international-convention> on 16 August 2016.

Flagship	Products developed
African Traditional Medicines Flagship	Herbal medicine against diabetes, HIV/AIDS, tuberculosis, and; asthma
Cosmeceuticals	11 positive leads for the treatment of skin problems, mouth infections and male balding. Plant oil (<i>Agathosma betulina</i>) has proven very effective in treating hyper-pigmentation and in slowing the ageing process.
Neutraceuticals	Neutraceutical products from indigenous plants, such as cold and hot teas, canned relishes, baking mixes, nutrition shakes, pestos, soups and infusions, and dried vegetables. Examples of neutraceutical tea projects are MoritelaTshwane, Mokgola outside Zeerust and Genadendal in the Western Cape. The Moringa group has developed South African Bureau of Standards (SABS) approved supplements in capsule form and Moringa vitamin water.

Table 5.1 Products produced through bio prospecting

(Source: Compiled from Speeches by government officials and documents received from the DST)

The government has also been supporting the programme through providing funds for research. Table 5.2 below shows financial investment in the three flagships from 2007-2014 with the African Traditional Flagship getting the biggest share. This is not surprising, since with increasing interest in medicinal plants by the pharmaceutical industry the government may want to support that which will contribute more to the economy of the country.

Year	2007/8	2008/9	2009/10	2010/11	2011/12	Total
African Medicine	500 000	500 000	750 000	10 000 000	4 000 000	15 750 000
Cosmeceuticals	250 000	500 000	not recorded	7 000 000	4 000 000	12 750 000
Neutraceuticals	250 000	500 000	250 000	5 000 000	4 000 000	10 000.000
Total	1 000 000	1 500 000	1 000 000	22 000 000	12 000 000	38 500 000

Table 5.2 Bio-prospecting Financial Investments in Rands

(Source: DST, IKS Unit document entitled NIKSO storyline)

Whereas rural based farmers in Africa have always grown crops for their subsistence and only sell the surplus, now there is a general shift towards encouraging farmers to turn into entrepreneurs. Farmers are now encouraged to grow crops for markets. In terms of IKS, commercialisation seems to be

also driven by a realisation that this has a place in the export business. The Department of Agriculture and Rural Development ⁴⁸(DARD) posits that, ‘there has been a growing realisation that indigenous crops can enhance food security and South Africa’s competitiveness regarding niche products in local and export markets’. The rise of the commercial value of indigenous crops in the niche market both locally and internationally prompted the ‘directorate to develop Policy on Indigenous Crops, to outline critical interventions needed to develop this sector’ (ibid). Furthermore, the DARD developed guidelines for growing ‘amaranthus, *bambara*, groundnut, cassava, cowpeas, millet, pigeon peas, sorghum and *marula*’ (ibid). At a local level the same department in KZN compiled a report on reasons why there is a shift towards commercialisation of indigenous/traditional food plants. Three reasons were identified as shown in the table 5.3 below.

<p>Novelty/Niche Product Trend</p> <p>There is a growing market for novelty and niche food. Food companies, retail outlets and restaurant are always on the lookout for new ingredients and items to trade as speciality, fashion and fusion foods. Consumers have shown a trend towards buying these products, either in a raw form, as pre-prepared meals or from restaurants as ready-prepared dishes</p>
<p>Green Consumerism</p> <p>A relatively recent shift in market trends shows a growing demand for organically grown crops, “natural” foods, “wild” and native products. This is attributed to the growing awareness of the health impacts of inorganically grown foods, agrochemicals, and novel/genetically modified foods, and also a result of marketing campaigns that promote healthy eating</p>
<p>Growing Global Tourism</p> <p>Over the past few years there has been a marked increase in the number of people travelling to other countries to experience other cultures. This cultural experience extends to a demand to sample local foods/cuisines in restaurants and from supermarkets</p>

Table 5.3 Reasons why indigenous crops are commercialised in KwaZulu-Natal

(Source: Adapted from DARD [KZN])

The commercialisation of indigenous crops in KZN is also driven by the need for communities to form small and medium businesses. However, the KZN

⁴⁸ The Department of Agriculture and Rural Development 2004-2005 Annual Report, page 77. Downloaded from <http://www.ruraldevelopment.gov.za/component/search/?searchword=vacancies&searchphrase=all&Itemid=101> on 24 August 2015.

Department of Agriculture and Rural Development realised that most of the people who are targeted by such endeavours by the government lacked capacity 'to drive or sustain such commercial enterprises' (APP4, Pers. Comm., 2015). To address the problem, the department realised that 'the key area in which the target group can play a role is production and primary processing/value-adding'⁴⁹. This argument was supported by most of the government workers who were interviewed in this study. Participants indicated how the department was supporting several enterprises in KZN by offering training opportunities to many small enterprises and co-operatives as indicated by the excerpt below:

We train them to start on a smaller scale because we believe in the principle that you start small and then you grow. So once they get the concept of how to make jam, they can grow with time (DARDPP2, Pers. Comm., November 2014).

Several reasons were given pertaining to the benefits that arise from commercialising indigenous crops. These reasons included creating income and employment, and fighting malnutrition. This was supported by DARDPP1, (Pers. Comm., 2014), who argued that value-addition had always been part of the practice of the DARD, but after 2004 commercialisation was introduced. She said:

Initially it was for home use mainly so that they know how to cook their farm products or whatever it is. But now the government wants people to be commercial and to be self-employed so focus has now changed from home use to helping people to taking whatever they have to add-value to it so that it can be sold and generate income.

DSTPP3, (Pers. Comm., 2014) from the DST's Sustainable Development Unit also explains commercialisation of indigenous vegetables through small business enterprises when he claims:

We also supported the ARC in its project of promoting and testing new varieties in communities as we aimed to fight malnutrition as well as promote small business enterprise among the rural poor.

APP4 (Pers. Comm., 2014) adds that value addition of indigenous crops as an enterprise is also a means to fight food insecurity and poverty for the marginalised people of KZN. This is because besides growing food for

⁴⁹ Documents provided by KwaZulu-Natal Department of Agriculture and Rural Development on value addition of indigenous foods.

consumption, farmers need to be involved in income generation activities so that they will be able to purchase other necessities. She explained:

Food security is not only about producing but it's about consumption and generating income so that you can go and buy food. Now there is a limit that people associate with the concept of food security it's broader than just food production. It is also about availability and access and income.

Interviews with most of the workers from KZN DARD revealed that they were supporting small-scale farmers by training them in value-addition. The training for value-addition was not limited to indigenous crops alone as indigenous animals and conventional crops. For instance, table 5.4 shows various value added products made from indigenous crops and animals.

Indigenous crop	Products produced after value addition
Madumbe	Pizza bases
Sweet potatoes	Juice, chips
Goat meat	Polony, mince meat
Imbuya	Scones, muffins, bread
Green mealies	Steamed bread
Cowpea	Fritters, biscuits, flour
A variety of indigenous vegetables and sweet potato	Juice
Pumpkin	Fritters, soup, curry

Table 5.4 Value-addition of indigenous crops and animals for commercialisation in KwaZulu Natal

(Source: Compiled from interviews conducted in this study)

These assertions were supported by documents from KZN DARD, showing that the department was also committed to researching indigenous crops which will have high potential to be developed into products. Table 5.5 below shows some of the indigenous crops that the department listed as having potential to be commercialised through value-addition.

Scientific Name	Common Name	Part Used	Potential Products
<i>Amaranthus thubergia</i>	Wild spinach	Leaves	Salad addition, Novelty spinach
<i>Annona senegalensis</i>	Wild Custard Apple	Fruit	Fresh fruit, Dried Fruit, Jams, Juice
<i>Artemisia afra</i>	Wormwood	Leaves	Teas
<i>Athrixia phylloides</i>	Bushmans Tea	Leaves	Teas
<i>Capsicum annum</i>	African Chilli	Fruit, Leaves	Salad additions
<i>Carissa</i>	Numnum	Fruit	Jams

<i>macrocarpa</i>			
<i>Carpobrotus dimidiatus/edulis</i>	Hottentots Fig	Fruit	Jams, chutneys, achars, dried fruit
<i>Catha edulis</i>	Bushmans Tea	Leaves	Teas
<i>Cleome gynandra</i>	Spider Whisp	Leaves	Novelty lettuce
<i>Cucumis metuliferus</i>	Horned Cucumber	Fruit, Leaves	Novelty spinach, salad addition (cucumber)
<i>Dovyalis caffra</i>	Kei Apple	Fruit	Jams, chutney, achar, juice
<i>Ficus verruculosa/sur</i>	Cape Fig	Fruit	Dried fruit, jams, chutney, achar
<i>Garcinia livingstonei/gerrardii</i>	African Mangosteen	Fruit	Fresh fruit, dried fruit, jams, chutney, achar, juice
<i>Hyphaene coriacea</i>	Ilala Palm	Sap, fibre	Beer, wine
<i>Lactuca inermis</i>	Wild Lettuce	Leaves	Novelty spinach
<i>Lippia javanica</i>	Fever Tea	Leaves	Teas
<i>Mntha longifolia</i>	Wild Spearmint	Leaves	Teas
<i>Momordica balsamina</i>	African Cucumber	Leaves, fruit	Novelty spinach, Salad addition (cucumber)
<i>Ocimum gratissimum/americanum</i>	Wild Basil	Leaves	Salad additions
<i>Phoenix reclinata</i>	Wild Date Palm	Dates, palm heart, leaf bases, sap, fibers	Dried fruit, beer wine, jams, chutney, achar, oils
<i>Plectranthus esculentus/rotundifolia</i>	Wild Potato	Tuberous roots edible (like sweet potato)	Novelty potato
<i>Rubus rosifolius</i>	Wild Raspberry	Fruit	Fresh fruit, dried fruit, jams, chutneys, achar, juice
<i>Salacia krausii</i>	iBhonsi	Fruit	Fresh fruit, dried fruit, jams, chutney, achar, juice
<i>Sclerocarya birrea, caffra</i>	Marula	Fruit, kernel (oil), bark for dye	Dried fruit, jams, chutney, achar, beer, wine, juice, oils
<i>Sesamum alatum</i>	Sesame	Seeds	Seeds
<i>Siphononchilus aethiopicus</i>	Wild Ginger	Tubers	Teas, chutney, achar, jams, salad addition (food spice)
<i>Solum retroflexum</i>	Sobosobo berry	Fruit	Dried fruit, jams, chutney, achar, jam, juice
<i>Strychnos madagascariensis</i>	Black Monkey Orange	Fruit, seeds	Dried fruit, chutney, achar, jam, juice
<i>Vigna unguiculata/vexillata/subterranean</i>	Wild cow pea	Leaves, Tubers eaten	Novelty potato, novelty spinach
<i>Capsicum annuum</i>	African Chilli	Fruit, leaves	Salad addition
<i>Cucumis metuliferus</i>	Horned Cucumber	Fruit, leaves	Novelty spinach, Salad addition (cucumber)
<i>Vigna subterranean</i>	Jugo Bean	Seeds	Snacks, seeds, flour

Table 5.5 Indigenous crops with potential for commercialisation in KwaZulu Natal

(Source: KZN.DARD documents, 2004)

A critical discourse analysis of the speeches made by government officials also shows that institutionalising IKS helps to legitimise and increases its value, as shown in an example below:

We have a lot of skilled crafters, potters and sculptors within our communities. There is a big market for their products locally and internationally. To access this market, traditional crafters, weavers, potters and other artists need to be given basic marketing and financial management skills. A lot of people in villages are skilled in building roofs with straw and grass. This building method is used to construct lapas, upmarket houses and guest lodges. However, the men and women who have this valuable skill are not registered as artisans or master builders by homebuilders' associations and engineering bodies. This is an opportunity for the industry to begin a process of registering indigenous building methods as an officially recognised trade (Ramaphosa, 2015⁵⁰).

Here, it is evident that there is no doubt that indigenous people possess valuable knowledge. However, for them to be recognised as professionals and gain commercially from their knowledge and skills they have to be certified as such by some professional board. I view this as a kind of naturalisation (Fairclough, 1995) of western practice as the 'centre' (Quijano, 2000) that defines IKS. On the other hand, adoption of western practice for the benefit of IK can also be viewed as decolonisation that is revolutionary, embracing other people's memories, and moving away from viewing it as 'a relic of the past but a vital part of our present and our future' (Ramaphosa, 2015⁵¹). The importance of looking at new ways of using IKS to promote and protect this knowledge is also visible in the amendments of acts and laws after the enactment of IKS policy in 2004. Examples of such measures include the Indigenous Knowledge Systems bill of 2014 and the Intellectual Property Laws Amendment Act of 2013. For instance, van der Merwe (2014:1) shows that:

Following from the Indigenous Knowledge Systems (IKS) Policy (this policy did not prescribe the exact form of protection) accepted by

⁵⁰ Keynote address on the occasion of Heritage Day by Deputy President Cyril Ramaphosa, Downloaded from <http://www.gov.za/speeches/deputy-president-cyril-ramaphosa-2015-heritage-day-24-sep-2015-0000> on 27 January 2016

⁵¹ Ibid

Cabinet in 2005, the Department of Trade and Industry (DTI) drafted and published the Intellectual Property Laws Amendment Bill (IPLAB) in December 2007 for comment. The IPLAB adopted the general approach of creating new forms of IP (namely, indigenous or traditional IP of various kinds) by amendment of certain IP Acts – as opposed to *sui generis* legislation.

Furthermore, NEMBA's Access and Benefit-Sharing Regulations that address the acquisition and commercial application of IKS by communities on their own IK aligns with what is also happening internationally in countries like China and Brazil. Although there are numerous criticisms of the bills (Indigenous Knowledge Systems bill of 2014 and Intellectual Property Laws Amendment Act of 2013), it is clear that the government of South Africa is aware of the fact that practices used to protect this knowledge are no-longer functional and that there is a need to embrace new practices to protect the marginalised.

From the data presented above it is evident that the commodification of IKS is considered to be important in the development of South Africa. The intentions behind the policy to commercialise IKS for sustainable development, poverty alleviation, wealth, and employment creation are noble. The intention to uplift the lives of the majority of South Africans through benefiting from IKS are also valid, taking into consideration that IKS has for a long time been benefitting wrong people through misappropriation and bio-piracy.

However, evidence from the literature and interviews that were conducted in this study shows that the commodification of IKS has its own problems. Critics of the commercialisation of IKS fear that it may result in selective protection of IKS. This means that there is going to be more focus given to IKS which can be converted to monetary value. This leads Green (2012:8) to pose a question: what then should be done to IKS which 'lie outside the realm of monetarisation?' For instance, the value of indigenous crops may not necessarily be monetary but lie in their ability to provide food and nutrition to communities.

Another criticism levelled against the commodification of IKS is that 'for many indigenous peoples' knowledge of the natural world, especially medicinal and agricultural knowledge is only properly construed as a gift' (Whitt, 1998:34). The construction of IKS as a gift renders it community property and the right for controlled use remains with the giver (Whitt, 1998 and Takeshita, 2001). What this argument means is that commercialisation changes that which was for the community into individual property. The reasoning here is that the value of IKS through gift exchange benefits more people, as the poor can also have access to it. This is unlike when commercial transactions occur, where the one with purchasing power can be the only one who gets to control IKS. Saskia, (2008:224) further explains that:

In other words, the growing (commercial) interest in traditional knowledge raises the question whether it is possible for traditional knowledge to be commodified and become valuable to the larger world without posing a threat to the social structures that sustain this knowledge and the livelihoods of indigenous peoples who depend on it.

On another note APP3 (Pers. Comm., 2015) points out that IKS is sometimes commercialised and used out of context. She gave an example of how the use of hoodia by the CSIR without considering the context in which it was used by indigenous users created heart problems for users. Hoodia is a medicinal plant used by the San to suppress hunger. It is traditionally used by hunters during hunting trips.

Many of those who formulated the policy and were part of this study were concerned that commercialisation was one of the causes of bio-piracy in South Africa. Their fears are well-founded as 'bio-piracy was and still is a major concern in developing countries' (Rutert, et al., 2011:4). The increasing value of and interest in IKS is likely to cause various interest groups to try and access IKS for commercial reasons and sometimes without acknowledging or sharing the rewards with indigenous people. Below are some of the respondents' views:

Commercialisation is very important but one has to look at protection how commercialisation affects the protection of this knowledge. ...

sometimes you find that other European forces come in and they take it (IKS) and make huge monetary gains without acknowledging where the knowledge come from (NRFPP, Pers. Comm., 2015).

I think there have been too much of people's knowledge which has been taken and then packages somewhere else and they make millions out of it and their economies grow but the people themselves are left with nothing (APP1, Pers. Comm., 2015).

The disadvantage of commercialisation is that it causes bio-piracy. A lot of people particularly the whites took away a lot of knowledge; took a lot of indigenous plants; the genetic plants, they just took them away to Europe (APP2, Pers. Comm., 2015).

Shiva (2009) refuses to see bio prospecting – ‘the search for biological and genetic resources for potentially useful products and processes’ (www.atsic.gov.au) as a way of making the poor rich. To her, bio-prospecting creates poverty for marginalised groups and gives control of IKS to big corporates with the capacity to extract components of IKS and privatise them through Intellectual Property Rights. Shiva (2009:31) says:

The poverty-creating impact of bio-piracy and bio-prospecting can only be perceived if one recognizes that there is a difference between the material economy and the financial economy. On the one hand, if people have rich biodiversity and intellectual wealth, they can meet their needs for health care and nutrition through their own resources and their knowledge. If, on the other hand, the rights to both resources and knowledge have been transferred from the community to IPR holders, the members of the community end up paying high royalties for what was originally theirs and which they had for free. They therefore become materially poor.

Takeshita (2001) also agrees with the assertion that bio-prospecting does not necessarily benefit the legitimate owners of IKS but the bio-prospectors. He further argues that bio-prospectors normally defend themselves by referring to the Convention on Biological Diversity which makes it an obligation for bio-prospectors to share benefits from IKS with communities. He goes further to assert that this argument falls short as bio-prospectors rarely:

put effort to investigate the local people's perspectives on what makes an equitable compensation. Pharmaceutical companies generally prefer to defer to a third party to decide how compensations should be distributed to local communities, if at all. Often the bio-prospector's emphasis is on the legality of the bio-prospecting activity, and "equitability benefit sharing" is either left in ambiguity or largely

constructed through the rhetoric, which is built and mobilized by the more powerful stakeholders (Takeshita, 2001:259).

The discourse of commodification is often reproduced at international level in the form of creating unequal power relations between indigenous people and those who have control of resources. A good example of this is the work done by Ofstehage (2012) on quinoa, a grain-like indigenous crop grown in the Andes mountains of South America. In the study, Ofstehage demonstrates how the boom of quinoa, a previously unknown indigenous crop in San Agustín, Bolivia resulted in social structures of new actors such as middlemen who marginalized and exploited indigenous growers who did not own the means of production. Furthermore, it is also evident that indigenous products that are commercialised as niche products become too expensive for use by the communities in which they originate.

Lastly, commercialisation of IK sometimes results in exploitation of ecological resources and disturb the social integrity. This happens when people abandon their traditional way of life to experiment with commercialised crops as was witnessed in southern Altipano of Bolivia after the boom of quinoa (Kerssen, 2015). Although there are challenges which arise from commercialisation of IKS, it would appear that they are addressed by emphasising equity both in the policy and in the speeches and documents which were analysed.

5.3.3 The Discourse of Equity

Because South African IKS policy is built on the country's history of oppression, the discourse of equity becomes central to the decolonisation process. An analysis of speeches, acts, policy, documents and interviews reveals practical measures that have been taken to ensure equity for women, youth, the marginalised, and indigenous communities.

A critical discourse analysis conducted in this study revealed three reasons why equity for women was crucial in the formulation of the IKS policy:

- Aligning IKS policy with the South African constitution where women are given equal opportunities to men in research and decision making positions, as illustrated below:

Indigenous women are the most marginalised because in terms of the community recognition and in keeping with the constitution women should be given as much recognition as men (DSTPP2, Pers. Comm., 2015).

The Department of Science and Technology has taken steps to enhance the abilities and capacities of indigenous women in a number of initiatives, including equal representation of women on the Ministerial Advisory Committee, some of whom are practitioners in their communities (Pandor, 2009⁵²).

Focus on capacity building training for black and women researchers, especially those in Historical Black Universities and former technikons, with a view to situating them in the mainstream of research on IKS and IKS-related fields (NRF, 2012).

- Recognising that women are active and productive members of the community capable of contributing to the development of the country.

South African Women in Mining Association, based in Limpopo province, is today demonstrating at the exhibition the uniqueness of the graphic art inscribed on their pottery and ceramics....At this year's Woman in Science Awards ceremony, two awards were made in the category indigenous knowledge systems, and I am proud to say that the recipient of one of the awards Ms Phuti Gladys Ragophala, a school teacher, is from Polokwane (Pandor, 2009⁵³).

- Women being affirmed as custodians of indigenous knowledge, as illustrated below:

In all spheres of African society women have played a very crucial role in our society (NRFPP, Pers. Comm., 2015).

Last year, in 2008, the third national Women and Environment Conference held in Polokwane affirmed indigenous women as custodians of the world's natural resource and indigenous knowledge (Pandor, 2009⁵⁴).

Government accepting the vital role that women play in the generation, transmission, conservation and sustainable use of indigenous knowledge, and the necessity to prioritise and strengthen their development and full participation in all aspects of indigenous

⁵² Speech by Minister Pandor 2009 at the launch of the Indigenous Knowledge System (IKS) exposition, Bolivia lodge, Downloaded from <http://www.gov.za/speech-minister-science-and-technology-naledi-pandor-mp-launch-indigenous-knowledge-system-iks> on 17 August 2015.

⁵³ ibid

⁵⁴ ibid

knowledge systems at all levels in order to enable them to achieve equality and economic self-reliance (South Africa, 2014⁵⁵).

The need for recognising indigenous communities as equal partners in research and projects that involve IKS is also highlighted repeatedly. The issue of informed consent is mentioned as a way to prevent indigenous communities from participating in research without knowing its full implications. In some cases, local communities are to be partners in research, starting from the conception of the idea to the dissemination of the information. In other words, a call is being made for a shift from viewing IKS holders as research subjects to co-researchers. In both interviews and documents indigenous and local communities are being affirmed as equal partners in IKS research, as asserted below:

IKS requires the integration of the knowledge holders in the process of knowledge production and dissemination (Hanekom, 2011⁵⁶).

Without exception, projects require joint or active participation and equal ownership between scientists and IKS knowledge holders, who must be clearly designated as principal investigators or co-investigators in the application. In addition, verifiable evidence, in the form of a written and signed contract or agreement, of which such collaboration must be submitted along with the IKS application form (NRF, 2012).

IKS is also seen as a vehicle to redress inequality between the rich and the poor in South Africa. As most of the poor reside in rural areas, the need to empower them by using IKS through small and medium enterprises is emphasised in most the speeches, as illustrated by the excerpt below:

In our work, we want to ensure that projects actually benefit indigenous peoples on many fronts promoting their human rights and African cultural values, creating wealth in their communities, and strengthening their ability to get organised and advocate for change. And we also

⁵⁵ South Africa DST protection, promotion, development and management of indigenous knowledge systems Bill, 2014. Downloaded from http://www.gov.za/sites/www.gov.za/files/38574_gen243.pdf NOTICE 243 OF 2015 on 14 January 2016.

⁵⁶ Keynote address by Derek Hanekom, Deputy Minister at the 3rd International Conference on Science and Indigenous Knowledge systems at the School of Science and Mathematics, Institute of Public Administration, University of the Western Cape, 25 October 2011. Downloaded from <http://www.gov.za/keynote-address-derek-hanekom-deputy-minister-3rd-international-conference-science-and-indigenous> on 18 January 2016.

want them to get more involved in the design, implementation and evaluation of these projects (Mangena, 2007⁵⁷).

5.3.4 Integration of IKS and Science

The fact that IKS policy is housed in the Department of Science and Technology is not accidental. Data from interviews shows that deliberations were made during the formulation process to locate IKS in the aforementioned department. This section discusses the reasons for the integration of IKS and science, steps towards the integration and the problems associated with it.

From both interviews and documents it is evident that IKS is considered a science not 'something elusive or mysterious' (Minister Naledi Pandor, 2011⁵⁸). In agreement with this view, one of the interviewees qualified IKS as a science saying science 'depends on results that are proven and can be repeated' and IKS qualifies as it has been proven through practical experience over generations (APP3, Pers. Comm., 2015). APP2 (Pers. Com., 2015) concurred when he argued that 'the idea that science is not part of the indigenous people is a fallacy of the elites and intellectuals who are not properly informed'. On the same note NRFPP (Pers. Comm., 2015) gave reasons why IKS was not considered science by pointing to 'apartheid and colonisation when blacks were considered savages, ignorant and...hence their knowledge was also segregated'.

To most of the participants, IKS is as valuable today as it was in the past generations. A lot of examples were given to prove that it is a science that can be used for the development of South Africans. These example included IKS working in the field of health where many of the participants claimed that 80% of Black South Africans are users of medicinal plants, as already discussed in chapter 2. Most of the interviewees agreed that indigenous people have

⁵⁷ Keynote address to the second Southern African Development Community (SADC) workshop on indigenous knowledge systems Livingstone, Zambia. Mangena, 2007. Downloaded from <http://www.gov.za/m-mangena-address-sadc-indigenous-knowledge-system-workshop-> on 21 August 2015.

⁵⁸ Speech by the Minister Pandor MP, at the 2011 Indigenous Knowledge Systems Expo, Mafikeng, North West on 11 October 2011. Downloaded from <http://www.gov.za/speech-minister-naledi-pandor-mp-2011-indigenous-knowledge-systems-expo-mahikeng-north-west> on 16 August 2015.

scientific knowledge about technology, food, cosmetics, mining.

However, there seems to be consensus that IKS still needs to be developed to realise its full potential (APP3, Pers. Comm., 2015). It also needs to be affirmed through integration to redress the effects of the colonial past that left even the indigenous people feeling ashamed of their own knowledge to the extent that some Africans go to the western doctor during the day and visit the traditional healer at night (NRF, Pers, Comm., 2015).

Participants also said that the fact IKS in Africa is not yet part of mainstream science should not be viewed as a sign that it is an inferior science (APP2, Pers. Comm., 2015). Rather, APP3 (Pers. Comm., 2015) argues we should know that IKS:

has intrinsic value, it has value to the holder and value to the beneficiary but the value is not yet appreciated widely and globally. IKS is a science which has not yet been realised. In other words it is practiced in a way that has not been codified, proven and then accepted in conventional science.

South Africa is however in the process of changing the scenario described above. Evidence from speeches, DST annual reports and documents pertaining to IKS in South Africa show that several structures have been put in place to codify, test and develop IKS through research. Table 5.6 below gives a summary of some of the steps that have been taken to integrate IKS and science.

Initiatives	Purpose/ Objectives	Achievements
2009- Establishment of the National Recordal System.	Documents, records and stores indigenous knowledge for the benefit of our communities Place IKS in a repository with controlled access Enabling discovery, cataloguing, capturing, validation and scientific verification	IK networks The IK data on the system to date amounts to 911 registered IK holders from KwaZulu-Natal province (Umhlabuyalingana, Nkandla, Mkhwanazi) Limpopo (Vhembe); North West Province (Bakgatla-Ba-Kgafela, Bonjanala and Bophirima); Northern Cape (Siyanda and Namakwa) Eastern Cape (Tsengiwe) Free state (ThabaNchu). 9 IK Documentation Centres (IKSDC) The current allocation of R500 000.00 per IKSDC Information Communication Technology (ICT) Funded by the Emerging Research Areas Sub-Programmed budget over a period of 3

		years amounting to R26, 971,930 million rand
Establishment of Centres of Excellence (CoEs)	The CoE focuses on developing, preserving and using local knowledge for research and skills development 2008 registered an inter- and multi-disciplinary BIKS qualification	University of Limpopo University of Venda UNISA UKZN University of Western Cape
Accreditation and certification of IKS practitioners	Affirm IKS as a knowledge domain on its own merits Recognise and acknowledge the professional status of IKS holders and practitioners	Draft Accreditation and Certification Regulatory Framework developed DST EXCO approval of draft Regulatory Policy document – Pilot norms and standards for Traditional Healing & Practice developed by practitioners and leaders from North West, KwaZulu-Natal, Mpumalanga, Limpopo provinces and Northern Cape
Establishment of an IKS Research laboratory	Facilitate research, development and innovation	Established and equipped Research Council NIKSO works in partnership with CSIR Biosciences University of Pretoria, Agricultural Research Council, and Wits University to conduct IKS research
IKS research chairs	Interface IKS with other knowledge systems through research, development, innovation and knowledge interface	UKZN HIV/AIDS- 2 Post-Docs, 2 Book Chapters, Diabetes Pro Diabetes Mellitus 5 Masters 7 Conference Papers 2 HIV Prototype Cancer - Kaposi 3 BTech MRC Career Award 2 Assistantships Walter Sisulu University IKS Systematization- 4 Honors, 4 Journal Articles Vegetable & Medicinal- Plants- 4 Masters 3 Conference Papers, IKS Audit Report

Table 5.6 Initiatives taken by Department of Science and Technology to promote, protect and develop Indigenous Knowledge Systems in South Africa

(Source: Speeches on Indigenous Knowledge Systems made by government officials, Department of Science and Technology documents)

The table above shows that great strides have been made towards the scientification of IKS in South Africa. It shows that IKS is now being tested through research in institutions of high education. Scientific papers are being produced to affirm the scientific nature of IKS. It has been codified with some

degree of success and laboratories set up for development of scientific products. All these strides have been made with the purpose of affirming and protecting IKS. However, there are challenges that arise from integrating IKS and science, as explained below:

Green's critical stance on IKS policy is that it is 'heavily invested in the neo-liberal knowledge economy' (2012:8). For her, the neo-liberal knowledge economy is favourable to the rich and powerful at the expense of the poor. For instance, the codification of IKS will likely make IKS inaccessible to the less educated as the language of codification is for the professionals not the indigenous holders. This works against the IKS policy's intentions of remembering and affirming those who have 'been disdained, made invisible, or dispensable' (Vasquez, 2012:243).

Agrawal (2002:290) also notes that focusing on cataloguing of indigenous knowledge promotes protection of particular indigenous knowledges ignoring those that would not have been proven useful to the scientific and development world. He calls the process, scientisation whereby 'useful indigenous knowledge is separated from other knowledges, practices, milieu, contexts, and cultural beliefs in combination with which it exists'. Green (2012:9) also concurs:

If the usefulness of knowledge possessed by indigenous peoples is the justification for pursuing their knowledge, the strategies that demarcate useful and useless knowledge bear the unfortunate burden of condemning knowledge that is not useful. Once the knowledge systems of indigenous people are separated from them and saved, there is little to pay much attention to indigenous people themselves. The efforts to document and scientise indigenous knowledges can thus be doubly unfortunate. One, they channel resources away from the more vital political task of transforming power relations. Two, they provide a means for more powerful social actors to appropriate useful indigenous knowledges.

Another critical question one might ask is on who gets to distinguish the useful from the useless. Is this not going to create 'social power' (Van Dijk, 2001) with some IK gaining a privilege position over others?

5.5 Conclusion

This chapter has highlighted the formulation process of IKS policy in South Africa. It discussed how the formulation of the policy was a product of communication and debates among various interest groups. It also looked at how policy aligns with what is happening in the international fora. It showed how the policy drew lessons from declarations and policies on IKS and organisation.

I also discussed dominant discourses in IKS policy. The discourses revealed the reasons why the policy was formulated. Firstly, IKS policy is presented as fulfilling the ideas of an African Renaissance where Africans are beginning to take charge of their own development using their own knowledge. The discourse of commodification of IKS was also discussed. This is because it is envisioned that through commercialisation of IKS sustainable development will be achieved. IKS is presented as a resource which should be used for poverty reduction, employment and wealth creation.

The discourse of scientification of IKS was also presented as central. Scientification of IKS is discussed as an important step towards protecting IKS against future exploitation through bio-prospecting and bio-piracy- the illegal use of indigenous knowledge and related biodiversity for commercial purposes. IKS is also integrated with science for affirmation as a knowledge which had been underdeveloped owing to the South African history of apartheid and colonialism.

Equity for women, indigenous people and marginalised communities was established as important in the discussion of IKS. Aspects of informed consent, benefit sharing, and participation of communities and indigenous people in IKS research and projects were discussed.

CHAPTER 6: PROMOTION OF INDIGENOUS VEGETABLES: A CASE STUDY OF KWAMKHWANAZI COMMUNITY

6.1 Introduction

Having discussed national policies on indigenous knowledge in the previous chapter, this chapter seeks to examine how people at the community level experience national policy. This is a presentation of the case study results. I begin by identifying and explaining the role of people who participated in the promotion of IVs in KwaMkhwanazi. The chapter identifies the IVs which were promoted as well as the aims and objectives of the project. Food sovereignty is used as a theoretical framework to probe the role of IVs in the community being studied, looking at the following: access; nutritional value; cultural importance; physical and socio-economic aspects of these crops. The following section discusses the use of IVs to improve rural economies through entrepreneurial and value-addition activities. The final section explores farming methods and values attached to these practices by the farmers. Overall, the main purpose of the case study was to:

- Reveal practical examples of people and motives involved in the promotion of IVs;
- Establish the importance of promoting IVs among intended beneficiaries and other stakeholders involved in the project, and;
- Reveal alignment or disjuncture between national policy designs and the way people involved in the project look at the promotion of IVs

6.2 Background to the indigenous vegetables promotion project

The project on the promotion of IVs investigated in this study consisted of four main stakeholders, as indicated in figure 6.1 below. The Department of Science and Technology funded the project. The ARC was the principal partner and they received funding from DST. UNIZULU was identified as the rural-based university to collaborate with the ARC in the practical implementation of IV promotion in the community. The intended beneficiaries of the project were the community of KwaMkhwanazi traditional authority.

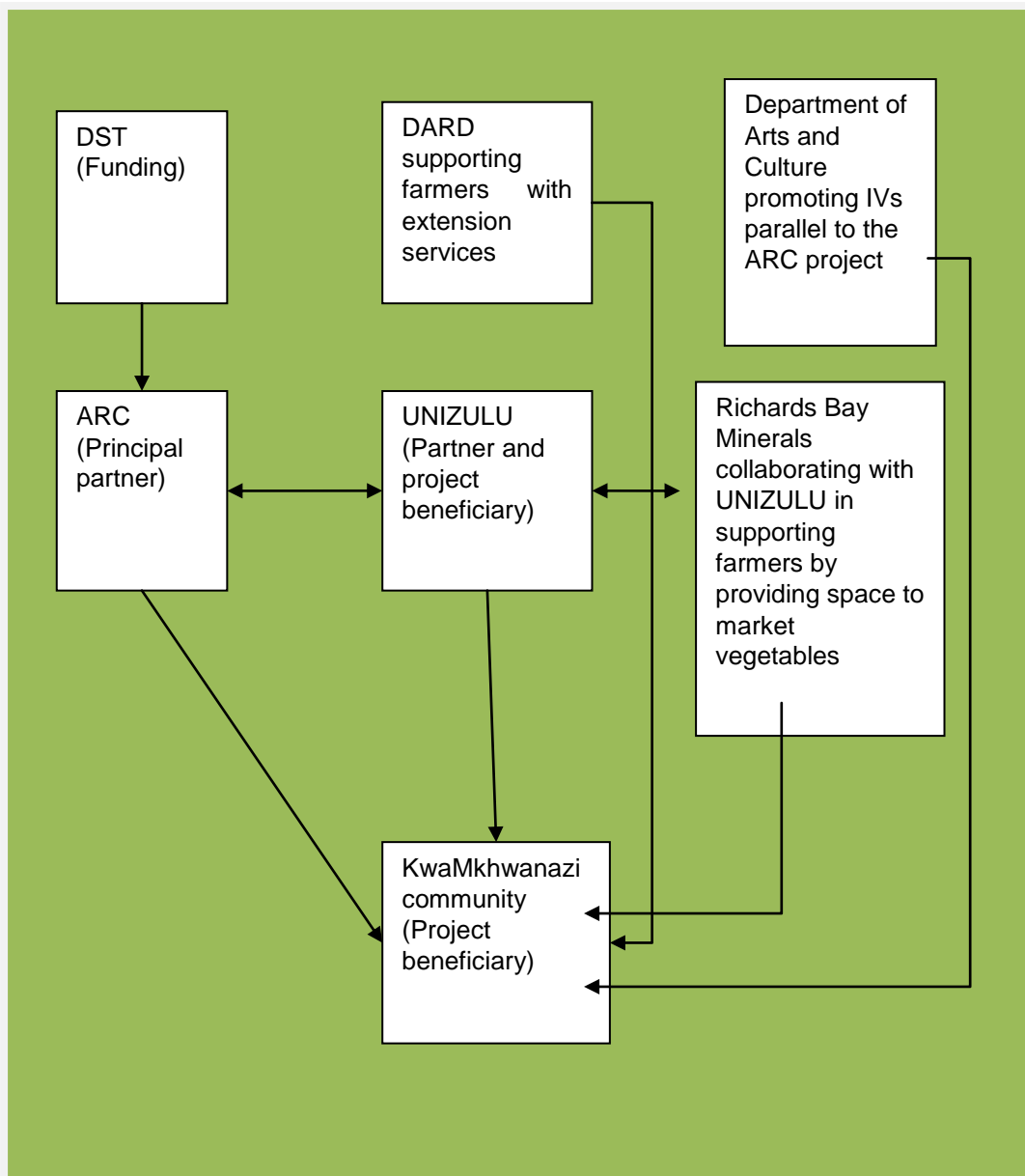


Figure 6.1 Relationships and functions of organisations that were involved in Indigenous Vegetables promotion in KwaMkhwanazi

(Source: Author's compilation from interviews and documents)

According to the co-operative agreement documents from email archives, the project was aimed at:

- Establishing a nursery for medicinal plants, indigenous vegetables and orange-fleshed sweet potatoes
- Conducting demonstration and training on handling and developing good management practice of a nursery

- Developing capacity in relevant expertise to grow good quality sweet potato cuttings and to manage such enterprises, e.g. training in nursery procedures, multiplication of cuttings, management skills and sanitation
- Promoting human capital development (Email documents provided by UZP1)
- Farmer training on enterprise development

Documents show that the project was supported under the DST programme on socio-economic partnership focusing on sustainable livelihoods. This initiative was created to support less privileged rural universities in South Africa and communities around them. According to records and interviews, the project promoted IVs at four rural universities namely Fort Hare, Limpopo, North-West and University of Zululand (UNIZULU). However, according to one of the DST participants:

North West ‘fell out of the system early-on at feasibility stage, although partnerships were pursued by the ARC, and was not eventually part of the programme (DSTP1, Pers. Comm., 2014).

The focus on supporting rural universities in the promotion of IVs may be viewed as a response to the ‘equity’ discourse in the IKS policy that emphasise the need to use IKS to benefit the previously marginalised such as rural universities in South Africa (see chapter 1). One participants explained reasons for promoting IVs. They indicated that:

The main policy guidelines were those related to Rural Development and Land Reform, which promoted crops with an ability to create employment and withstand climate change as an added priority (DSTP2, Pers. Comm., 2014)

The response given by DSTP2 above is twofold. IVs, as aspects of IKS, are seen here as a means to deal with contemporary problems facing South Africa (e.g. unemployment). The response also draws attention to one of the advantages that IVs are offering in the project, namely resilience to climate change, as will be elaborated on further below.

The ARC was the principal partner collaborating with UNIZULU. The institution applied for funding to promote IVs in rural areas. To achieve the first objective mentioned above the ARC built a nursery for IVs at the Ongoye

campus of UNIZULU in 2011. The IVs that were promoted were: imbuya (*Amaranth*), spider plant (*Cleome gynandra*), igushe (*Corchorus spp.*), kale (*Brasica carinata*), and orange-fleshed sweet potato.

The ARC technician trained small-scale farmers on how to run a nursery and grow these vegetables (see Figure 6.2). This was done to build community awareness on the value IVs, hence reaffirming indigenous knowledge that had been subjugated. Farmers were also encouraged to grow IVs for selling purposes. The ARC also trained farmers on value-addition of IVs for entrepreneurship, showing how the project reiterate in practice the discourse of the commodification of IKS (chapter 5).



(Picture taken by Farmer Participant 1, 2011)

Figure 6.2 Farmers attending the Agriculture Research Council demonstration session for Indigenous Vegetables cultivation

The project chose the University of Zululand because it is located within the KwaMkhwanazi community. UNIZULU provided land and offices for the ARC. This played a significant role as the community could access the University to

receive training in growing, value-addition and marketing of indigenous vegetables; the University as a partner that offered facilities both to the community and to the ARC. The project also involved an unspecified number of undergraduate students who did projects on sweet potatoes and other indigenous vegetables. The Agriculture Research Council expected the University of Zululand to recruit three students at master's level to study various aspects of IVs, thereby offering intellectual capital to the project (UNIZULU email documents). Both the University of Zululand and the ARC were to supervise students jointly. However, the training of students did not materialise as per the original plan as the ARC ended up only supporting one instead of three. Furthermore, the student worked on the domestication of a medicinal plant called uhlabo. Asked about the reasons for studying the plant, the student (UZP10) indicated that the plant is known for its medicinal properties that cure 'tuberculosis, gonorrhoea and fevers' (ibid) and was on the verge of extinction. She graduated with a masters' degree in 2012. This meant that in terms of IVs there was less 'human capital development' than was originally intended at the level of the research as intended by IKS policy (see chapter 5). When asked the reasons why there turned out to be only one post-graduate instead of three, conflicting responses were given by both sides. In a follow-up interview with one of the ARC participants ARCP1 (Pers, Comm., 2016) indicated that they abandoned the original plan to train students because:

...there were some problems as well with the contractual agreement you know. The contractual agreement came a bit late and the lecturer had to get the students you know that would do the postgraduate study on this type of crops, I think they were willing two students and then they got job offers and they left and so it's more of willingness from the students' side and not from the University... we enrolled the undergraduate students and these were the ones we involved when we did farmers day we invited them to the agriculture day.

While ARCP1 laid blame on delays in starting the project, the University's lack of facilities and unwillingness on the part of students to continue with the projects, one of the participants from the University, UZP1, argued that the ARC:

changed focus, instead of research they wanted community development...and did not want to provide scholarship and bursary to

students that were supervised by the University whilst they take a secondary role.

The blame shifting between the ARC and UNIZULU on the failure to completely fulfil this objective of the project may be viewed as a lack of consultation on the implementation process of IKS.

UNIZULU also recruited and supervised three farm workers who were given R3500 per month and their salaries were paid by the ARC through a University account. The collaboration of UNIZULU and the ARC may be viewed as a reflection of IKS policy that encourages co-operation of experts when working with aspects pertaining to IKS.

KwaMkhwanazi community represents a rural community where indigenous vegetables were promoted to alleviate malnutrition, poverty and unemployment. Evidence from observations and interviews indicated that most of the farmers who ended up in the project were mainly members of garden co-operatives. The formation of co-operatives was a result of provincial government initiatives to encourage people to take up farming as a business enterprise (GDP3, Pers. Comm., 2014). According to the government officials interviewed, the government put co-operatives in place to encourage the 'One Home One Garden' (OHOG) initiative to combat malnutrition in rural and urban communities. Working with communities so that they benefit from IKS is a shift from a situation where researchers, institutions like the ARC, and institutions of high education were known to appropriate IK from communities without acknowledging or benefiting IK holders. Here we see the ARC and UNIZULU using IK to benefit the community.

Besides UNIZULU and the ARC, there were other organisations, though not directly involved with the project, whose influence had an impact on the way farmers adopted IVs (Figure 6.1). The Department of Agriculture and Rural Development both at local and provincial level directly influenced promotion of IVs in KwaMkhwanazi. At the local level, the department provided extension

services to farmers in KwaMkhwanazi. Results indicate that these extension workers were promoting IVs, indigenous farming and value-addition – issues the ARC project dealt with. At the provincial level, DARD put a lot of emphasis on commercialisation of IVs and other traditional foods through their value-addition and agro-processing programmes (GDP4, Pers, Comm., 2014). Farmers indicated that they benefit from programmes organised by KZN DARD that were training them to add value to their farm products and indigenous vegetables.

The Department of Arts and Culture (DAC) also emerged as another entity that influences farmers on indigenous food in general. This was evident from interviews conducted with farmers and workers from the DARD who indicated that the DAC holds annual cultural days. According to GDP3 (Pers, Comm., 2014) the cultural day is celebrated among other things by eating indigenous food prepared using traditional methods. The department also has information days where they invite guest speakers to address people and farmers on ‘the importance of traditional and indigenous food, how to grow them, and value-adding as well as cooking methods that are more appealing’ (GDP3, Pers, Comm., 2014). Evident from the role played by the DARD and the DAC above is the overlap of activities concerning promotion of indigenous vegetables as they are both promoting IVs and indigenous food value-addition and recipes to the same community.

Through its social responsibility programme, Richards Bay Minerals collaborates with UNIZULU in assisting farmers by organising market days. Farmers are able to introduce and promote IVs to the market after learning how to grow them from the ARC.

6.3 Participants’ understanding and adoption of promoted Indigenous Vegetables and implications for food sovereignty

This section is a presentation of data analysed using the food sovereignty framework. Participants’ perceptions of IVs, their relationships and practices

in the promotion of IVs are explained in relation to food sovereignty and summarised in table 6.1 below

Food sovereignty principles based on the Nyéléni 2007 Declaration	Values and meanings enacted by participants in the promotion and production of IVs
Right to food, which promotes local food production for access to food in right quality and quantities, culturally acceptable and affordable	<ul style="list-style-type: none"> • ARC promoted 5 IVs viewed as nutritious. • IVs were assumed as easy to grow requiring less external outputs which make them accessible to everyone • IVs were perceived as possessing healing properties signifying their quality • Only IVs that are familiar in the community were accepted whilst others were rejected, pointing to importance of culture in food provision
Emphasise the principle of equity of land, water, food and other resources needed for farming for women and indigenous people to food.	<ul style="list-style-type: none"> • Women constituted the majority of those who participated in the ARC project • Women viewed IVs as having improved their food basket • Selling IVs enabled women to access other food necessities, services and goods needed to sustain their livelihoods • Although women earned from IVs the enterprises were not yet able to help women realise their full potential • Older women from ages 40 and above constituted the majority of farmers, signifying IVs cultivation and enterprises as something that can benefit the marginalized • The burden of farming weighed heavy on the shoulders of aging women as youths showed no interest in farming
Access to productive resources which include water, land, seeds and other natural resources	<ul style="list-style-type: none"> • The project provided the initial seeds indicating that it prioritised the need for farmers to have seeds • Farmers lacked land because of overpopulation resulting from apartheid legacy • There was an indication of lack of water for irrigation due to drought and commercial farming activities • Lack of access to financial resources resulted in many farmers failing to get access to farm implements and seeds • Access to resources in KwaMkhwanazi can therefore be considered a threat to food sovereignty
Access to markets. Farmers should be able to sell their agricultural commodities so that they will be able to provide food for their families.	<ul style="list-style-type: none"> • Efforts were made to create local markets for IVs and other farm produce for the KwaMkhwanazi community • Co-operatives helped farmers in forming networks that facilitated marketing of their IVs • Some IVs marketed appealed to the cultural values of the local market • Farmers selling IVs were not satisfied with the profits, which were too small to secure food security for IV cultivators, signifying challenges that still face IV growers in KwaMkhwanazi
It works with nature, focusing on ecosystems to improve resilience in the face of climate change. It encourages bio-diverse	<ul style="list-style-type: none"> • Farmer practices incorporate both conventional and agro-ecological farming methods • Agro-ecological farming was practised because it was perceived to be cheaper and resulted in quality food • It was practised by some because they did not have

farming, less reliance on external inputs, and farming practices that preserve soil and water	<p>resources to buy external input so in this case it was not by choice</p> <ul style="list-style-type: none"> • Others used conventional farming for economic reasons. They argued that applying fertilisers enabled them to realise harvests within short periods of time and application of pesticides resulted in producing vegetables with good appearance for the market • In sum, farmers indicated their support for agro-ecological agriculture in principle but some were forced to practise otherwise due to economic and market forces in-order to gain food security • Practices of saving soil and water using natural methods were recorded
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Table.6.1 Perceptions and Practices being enacted in KwaMkhwanazi and how they relate to food sovereignty

(Author's compilation from Nyéléni 2007 declaration and Case study data)

6.3.1 Indigenous vegetables as nutritionally high quality food

According to all the ARC interviewees, malnutrition is a problem in South Africa especially amongst the poor, pregnant women and children. Participants believe that the reasons for malnutrition are poverty and a poor diet. In their view, the promotion of IVs is therefore a cheaper and sustainable way to provide high nutritional foods for communities. One of the participants from the ARC explained the reasons for the promotion of selected IVs in the excerpt below:

We are trying to promote a new cultivar of sweet potatoes called orange- fleshed sweet potatoes to combat malnutrition... We also selected indigenous vegetables like amaranths, cleome gynandra and igushe...we actually selected them in terms of which ones have higher nutritional value (ARCP 1,Pers. Comm., 2014).

The promotion of IVs for their nutritional value is not unique. For example, an international research institute, as the International Potato Centre is also promoting this potato variety for its high nutritive value (Keatenge, et al., 2010).

The majority of the participants from the University of Zululand Supported the view promoted in this project that IVs are high in nutritive value. For instance, one of the participants said:

In certain poor communities they [indigenous vegetables] provide quite a lot of nutrition in terms of minerals and vitamins. Although they are mostly regarded as poor man's food they actually play a very important role in nutrition and health of the people (UZP1, Pers. Comm., 2014).

From the above responses one aspect that is recurring from both groups i.e. UNIZULU and the ARC, is the need to promote indigenous vegetables to address malnutrition in poor communities. One might argue that such a response is appropriate in relation to the economic background of KwaMkhwanazi community given in chapter 1. This result resonates with the food sovereignty principle that favours promotion and access of healthy indigenous food to everyone.

Besides promoting indigenous vegetables for their nutritional value to poor communities, the Agriculture Research Council introduced indigenous vegetables in KwaMkhwanazi community to correct people's unhealthy eating habits, as illustrated by the excerpts below:

Basically it was the cry of the government that there are a lot of people that are sick now because of vitamin A deficiency so sweet potatoes is one of those indigenous crops that supply vitamin A. So the government has put money so that the community benefits from these sweet potatoes and combat the problem of lack of vitamin A. This sweet potato was to replace the other potatoes which people eat too much which is just full of starch and it is contributing a lot of obesity that is around (ARCP4, Pers. Comm., 2014)

You see according to the United Nations a person must eat 400g of vegetables and fruit per day but in South Africa people do not eat enough vegetables.... First of all we are not good vegetable eaters in South Africa. Second we are more of cabbage eaters and so we are trying to promote indigenous vegetables so that they are complimentary to the commercial vegetables. You see spinach has got good nutritional value in some of them like vitamin A and C but the indigenous ones have got more, in terms of nutrients which are critical in South Africa. And they can be used as compliments of nutrients like vitamin A as well. They have got zinc and some of the good beta carotene is important in rural areas especially for pregnant women and children (ARCP2, Pers. Comm., 2014).

Listed above are problems that are facing South Africa which the participants presume may be solved by promoting IVs in rural communities. First is the issue of under-nutrition due to lack of food with sufficient micronutrients that

one gets from eating vegetables and fruits. This might be the case if one compares ARC2's citing of the United Nations recommendation of 400g of fruit and vegetables a day to figures recorded in previous studies done in South Africa. For instance, Ronquest-Ross, et al., (2015:4) cite SANHANES-1 study as having revealed 'a low intake of fruits and vegetables (two or fewer portions per day) for 25.6% of South Africans and that people in formal urban areas appeared to consume the most fruit and vegetables', which means that rural intake was probably lower. Statistics South Africa, (2012) which shows that 58% of South Africans live in rural areas and are often faced with limited access to nutritious food supports this

The second issue that emerges from the above excerpts is that there seems to be a realisation that even when people have resources they may still suffer from nutrition- associated problems due to poor food choices. It is from this perspective that the ARC promoted orange-fleshed sweet potato, which in addition to being an energy- giving food has more nutritious than conventional potatoes. This implies that the choice of IVs that were promoted in the community were also intended to provide alternatives that meet both quantity and quality food requirements, reflecting the food sovereignty principles of the right to food.

6.3.2 Indigenous vegetables as curative

The findings in this research revealed that the ARC promoted IVs for reasons beyond their nutritive value. One participant from the DST pointed out that one of the main reasons for IV promotion was awareness of the fact that they are:

functional foods or 'neutraceuticals'⁵⁹ with a high nutritional content that were funded specifically because they were not yet available in main stream markets (DSTP2, Pers, Comm., 2015).

⁵⁹ Sharma and Kumar (2013:1) define neutraceuticals or functional foods as 'natural bioactive, chemical compounds that have health promoting, disease preventing and curative properties. The secondary metabolites give them a specific medical benefit other than a purely nutritional one. Neutraceuticals have thus a dual role to play: as food and as a therapeutic agent, i.e. aiding in prevention and/or treatment of diseases and/or disorders. The other benefit is that being natural they have no side effects, unlike other therapeutic agents. Neutraceuticals may range from single isolated nutrient dietary supplements or secondary metabolites to genetically engineered designer foods'.

The explanations given by the farmers concerning IVs were consistent with the ones given by the ARC and UNIZULU. Whereas the ARC and UNIZULU groups explained the importance of IVs in terms of their nutritional components, farmers' explanations were more aligned to life experiences gained through use of these vegetables, associating them with curing of diseases. Participants mentioned various diseases they believed can be prevented by use of IVs. The diseases listed included: high blood pressure, poor eyesight, tuberculosis and diabetes, as shown by small-scale farmers' responses to the significance of promoting IVs:

At times we have diseases such as BP and diabetes; these crops help a lot (FP9, Pers. Comm., 2014).

Even when one is sick the vegetables revive one because it is healthy to eat home grown food, it gives you strength and energy (FP4, Pers. Comm., 2014).

The government officials from the DARD also support the above arguments. They indicated that as a department they were promoting One Home One Garden for the purposes of combating malnutrition as well as diseases in poor communities:

We want them to use indigenous vegetables because we want them to prevent malnutrition and some of the diseases...One Home One Garden was introduced to deal with malnutrition so that each household should have a garden to prevent people from starvation (GDP2, Pers. Comm., 2014).

This finding is not unique to this study as 'indigenous people around the world value food as a source of medicine for numerous health benefits' (Kuhnlein et al., 2013). As indicated in chapter two, there are several laboratory studies globally that prove nutraceutical importance of IVs. Another important aspect mentioned by DSTP2 cited above is that IVs are 'not yet in the commercial mainstream'. This is a critical finding in the context of South Africa where previously these plants were considered inferior and were not promoted by either research or agricultural extension officers. Given the qualities of IVs discussed above, IVs represent hope for food sovereignty in local communities.

6.3.3 Indigenous vegetables and their role in improving the food basket

A recurrent theme in the interviews was that IVs were essential in providing food for their families. It was evident from ARC interviews that the project was conceived to improve the 'food basket' of South Africa (ARCP2, Pers. Comm., 2014). The majority of participants from the ARC, UNIZULU and the DARD believed that promoting IVs was necessary for 'food security' (GDP3 and GDP6, Pers. Comm., 2014); 'diversification of the food basket' (ARCP2 and ARCP3, Pers. Comm., 2014); and to increase the base and keep options open (UZP1, Pers. Comm., 2014). All these terms used by participants in relation to the reason for promoting IVs suggest that variety is an important aspect in the provision of food.

Indeed, results from the DARD, the ARC and UNIZULU were reflected in the analysis of interviews conducted with small-scale farmers. The majority of the farmers mentioned how farming enabled them to save money and also produce their own food. Farmers welcomed IVs as an addition to other crops they were growing:

Facilitators: What do you benefit from growing indigenous vegetables and sweet potatoes?

F4: This helps us to put food on the table for our children...

F5: For me it is so much fun to farm because most of the stuff people get from the shops I just farm. Whilst they buy from the shops, I just go in my garden and get fresh vegetables. This programme by ARC has changed me a lot, because I always have food in the house. I do not have to constantly go to the shops.

F3: If you farm you don't starve and your children don't starve you just cook the sweet potatoes and the vegetables, you don't have to go and buy from the shops.

F2: Starvation is no longer there, we only have to buy maize meal, otherwise everything else is farmed... we don't lack, even on that side it is green, it is full of vegetables, we now buy just those few things (FGDP 1, 2014).

The aspect of diversification offered by IVs as a necessary component to food security is also evident even at international level. Adekunle, et al., (2012), indicate that South Asians who have migrated to Canada are diversifying their diets by resorting to IVs that appeal to their appetite. Similar results have been reported in East and West Africa which have noted an increase in the

cultivation and consumption of IVs as people begin to realise the value of these vegetables (Cernansky, 2015).

6.3.4 Indigenous vegetables promoted for their favourable traits

Adaptability of local crops to climatic conditions and resistance to pests and diseases are two of the reasons food sovereignty proponents advance for farmers to grow seeds that are local to the area (Kloppenburger, 2014). This is because IVs as 'traditional crops are native to specific localities, are therefore better adapted to the environmental conditions and can be cultivated without the need for expensive inputs such as irrigation water and agro-chemicals' (Backeberg and Water, 2010:291). Most of the participants pointed to four desirable traits of IVs, namely, resistance to pests and diseases, a short maturation period, resistance to drought, and availability throughout the whole year.

Many of the participants from the ARC, UNIZULU and the DARD indicated that IVs are resistant to pests and diseases.

You will find that some of the plants and animals resist diseases (GDP4, Pers. Comm., 2014).

They are resistant to disease and they are not affected by many insects (GDP6, Pers. Comm., 2014).

There are very few pests and diseases which can attack it so it is better than other vegetables (ARCP1, Pers. Comm., 2014).

Farmers also shared similar sentiments to those expressed above. A small number of small-scale farmers indicated how they learnt through experience that IVs resist diseases and pests better than conventional vegetables. As one farmer commented:

They are not affected by many diseases and sure there are some diseases but they are not very troublesome (FP3, Pers. Comm., 2014).

What the above views indicate is that the promotion of IVs is therefore important if one considers the poor background of the community under study. This is because IV resistance to diseases and pests allows the poor to grow their own food with minimum use of external inputs. This result is echoed by Van Rensburg, et al., (2004) who demonstrate that purchasing pesticides and

fertilisers is a prohibitive cost for many small-scale farmers in rural South Africa. To support this assertion, one of the participants added that the importance of IVs is that they enable farmers to have 'green vegetables when other vegetables are difficult to plant' (GDP2, Pers. Comm., 2014). What is apparent from the above finding is that IVs resonate with food sovereignty's tenet that it supports the cultivation of indigenous crops that require fewer external inputs as a crucial factor in achieving food security.

Many interviewees also expressed that, as a source of food, indigenous vegetables can address food security as they can be grown throughout the year. This therefore means that farmers view indigenous vegetables as able to ensure a constant supply of vegetables at all times, thereby ensuring food sovereignty in the KwaMkhwanazi community:

Ehh summer months, say December to February, you cannot grow these conventional vegetables so as I have just said we have planted about 10000 seedlings of amaranths so instead of planting these conventional vegetables in December and January we will just plant amaranths (UZP3, Pers. Comm., 2014).

We grow amaranths throughout the year... (FP9, Pers. Comm., 2014).

According to Slabbert et al., (2004) crops' capacity to adapt to changing climates should govern farmers' selection of crops for attainment of high food production. This assertion was true in the case of the IVs promoted in the KwaMkhwanazi rural area by the ARC. The study found out that both promoters (the ARC and UNIZULU groups) and the farmers (beneficiaries of the project) were of the common view that IVs are more resistant to drought and adverse climatic conditions. Participants viewed the ability of indigenous vegetables to withstand harsh climatic conditions as an advantage over other plants. This is a very important finding in this case study as the majority of small-scale farmers mentioned lack of water as an impediment to their capacity to grow their own food:

Imbuya can survive in both winter and summer; it can survive in times of drought (FP10, Pers. Comm., 2014).

... also even the weather and climate allows the growing of these crops in the areas where they are... especially the rural areas you find that water is a very scarce resource so these indigenous vegetables survive

even in an environment where you know it is not conducive to grow these western kinds of crops... that is why we are encouraging them for the sake of food security (GDP3, Pers. Comm., 2014).

In accordance with the above finding, Van Rensburg, et al., (2007), report how the amaranth species, cleome gynandra and corchorus tolerate high temperatures. This is unlike non-indigenous vegetables like cabbage that require lots of water to do well, as indicated by one of the government official from DARD. Similarly, Motsa, et al., (2015), posit that once established, sweet potatoes are more tolerant to drought compared to maize. They also note that sweet potato's ability to tolerate drought implies that it produces more yield compared to maize when there is drought. This characteristic of orange sweet potatoes as drought-tolerant suggest that they are important IVs in ensuring food security in communities like KwaMkhwanazi that are experiencing droughts, as will be discussed in chapter 7.

The majority of farmers were pleased that IVs mature within a short period hence contributing to diversification of the food basket in South Africa. In other words, farmers are able to grow both short- and long- maturing vegetables to ensure a reliable supply of food. This is important for most of the participants who depend on their farm produce for food. For instance, one farmer commented on how both sweet potatoes and imbuya from the ARC mature fast, securing food for his family:

Amaranthus grows fast and we constantly harvest and eat it, even sweet potatoes don't take that long to grow they only take three months we love it a lot, we make sure we cook the vegetables and use some for baking so that our children eat them without noticing it is vegetables that they are eating (FP7, Pers. Comm., 2014).

Overall, the above results indicate that promotion of IVs in KwaMkhwanazi affirms the food sovereignty assumption that local foods is important for attainment of food security (Altieri 2010).

6.3.5 Extra advantages of indigenous vegetables

IVs production in KwaMkhwanazi represents more than sustenance. Fifty percent of the farmers revealed that IVs play a crucial role as a community safety net. Small-scale farmers shared IVs with the needy such as orphans,

the elderly and poor families in the community, as indicated by the participants below:

We are able to assist the community as the co-operative. We have been supplying the school with vegetables and green mealies. We were also thinking that maybe the school can also have its own garden and we will train them on how to do it. (FP14, Pers. Comm., 2014).

We even help people when we plant. We give the small we have to the orphans (FP30, Pers. Comm., 2014).

Although it was not clear why farmers viewed IVs as important community safety net, I observed that it was only those co-operatives that were doing well and had adopted the growing of IVs who claimed to have been giving out vegetables. I therefore inferred that growing IVs might have resulted in an increase of available vegetables; hence, they were able to give to others. What this reveals is that cultivation of food at local level is not only benefitting farmers but also vulnerable groups that can neither grow nor buy food. This practice of IVs growers can also be understood as a shift from the food security tenet where food is understood as a consumable commodity to the food sovereignty principle where it can also be valued for its cultural meaning (Kamal, et al., 2015), in this case sharing with the needy.

While South Africa witnesses an increase in people depending on bought foods and a decrease in physical activity, evidence from KwaMkhwanazi shows that cultivation of IVs and farming in general is giving some participants an opportunity to exercise. Older participants showed that:

Farming helps in life and also with the body, I am old but I am so fit that I can even jog (FP7, Pers. Comm., 2014).

Farming is important than just sitting and doing nothing, people that sit and lazy around get sick (FP23, Pers. Comm., 2014).

You see me, right? I don't look my age. This is because I am always exercising in my garden (FP24, Pers. Comm., 2014).

Associating reclamation of indigenous food to a holistic well-being is reported by farmers in this case study and at international level as well. Damman, et al., (2008) report how consumption of indigenous Inuit country food required that consumers be involved in activities that enhance their fitness and health.

6.3.6 *The cultures of indigenous vegetables*

Of the five IVs that the ARC introduced in KwaMkhwanazi, imbuya and orange-fleshed sweet potatoes were accepted by the majority whilst spider plant, igushe and kale were rejected and only accepted by a few people, as will be explained later. Taste, appearance, familiarity and knowledge of cooking are aspects of food which are shaped by culture and these aspects seem to have influenced farmers' decisions to either adopt or reject ARC-promoted IVs.

Familiarity with imbuya could have been a possible reason why the majority of the farmers embraced it whilst unfamiliarity with IVs like spider plants and igushe might have contributed to their rejection. This is because imbuya is a popular indigenous vegetable in many places in KwaZulu-Natal where the KwaMkhwanazi rural community is located (Jansen van Rensburg et al., 2004). The use and acceptance of imbuya is also widespread in Africa (Cernansky, 2015). A conversation with an ARC technician working in a similar project in Eastern Cape where the ARC was collaborating with Fort Hare University to promote IVs also confirmed familiarity as a condition for IVs acceptance or denial. He indicated that people in Eastern Cape also rejected IVs they did not know. Foreign farmers in Eastern Cape who accepted IVs they knew from their places of origin further affirmed his claim on the importance of familiarity. To this he said:

The reaction from people was very tough...when we started the people who were interested in these vegetables were actually people from outside South Africa and few people from Limpopo because they were already consuming these vegetables. But when it comes to people here in Eastern Cape well it was very tough because Xhosas are those people who do not easily try something which is new (ARCP4, Pers. Comm., 2015).

Taste was also a decisive factor in the adopting of IVs. Almost all farmers who had access to seeds of orange-fleshed sweet potatoes accepted them and are producing them in their gardens. Seventy percent of farmers used descriptive words such as 'sweet', and 50% 'very nice' to express their liking. This was despite the fact that the orange-fleshed sweet potato was a new variety introduced in KwaMkhwanazi. It was therefore inferred from this

finding that its taste (that of sweetness) and the fact that many people are familiar with it might have played an important role in its acceptance in this case study. This was even more so because women who were the majority of the participants in this study found it easier to feed their children orange-fleshed sweet potatoes.

Again, taste preference was still a factor that farmers had to grapple with in the case of imbuya. Whilst imbuya was the most popular among indigenous vegetables introduced by the ARC, further analysis of data also shows that farmers embraced the original imbuya species more compared to the one the ARC introduced, as differentiated by the participant below:

The hybrid grows faster than ours, but then ours is slow but very nice to taste' (FP3, Pers. Comm., 2014).

Although the ARC imbuya variety was problematic, farmers still adopted it, especially for commercial purposes. The marketing creativity of some farmers enables them to create a niche for imbuya. For example, one participant from a co-operative explained that they grow both varieties and then mix them during packaging to confuse customers into thinking they were buying original imbuya, which is why they were cultivating both varieties, as indicated in the Figure 6.3 below:



Figure 6.3 Cultivation of both the Agriculture Research Council and KwaMkhwanazi imbuya

Of importance to this finding is that farmers were aware of the advantages offered by these different varieties. While the KwaMkhwanazi variety appeals to the taste of the people (satisfying the cultural component of food as already mentioned), what the ARC variety was offering was equally important. The fast maturation of the ARC variety means that they are a promising option in times of drought and hence useful in addressing food security through both subsistence consumption and income generation (Cernansky, 2015).

Knowledge of food preparation was also an important factor contributing to the acceptance of imbuya in the KwaMkhwanazi community area. Respondents who gave examples of how the vegetable can be prepared and served in various ways indicated this:

It is important because it is always edible, one can eat it in many different ways; you can eat it with beans, KFC, with anything (UZP7, Pers. Comm., 2014).

There are two ways of preparing imbuya, you either boil on its own or you cook it as curry, that is why people love it so much, some even use it in ceremonies... it surpasses spinach because of the way it gets soft when one cooks it...(UZP9, Pers. Comm., 2014).

This was unlike igushe, which they said cannot be mixed with anything and was cooked using one recipe, as indicated by the participant from UNIZULU below:

Igushe on the other side hmmm you just boil it and when it in the pot it does not go along with anything (UZP4, Pers. Comm., 2014).

The presentation of igushe above further shows that knowledge of preparation is important in the way people accept IVs. The participant perceived that igushe can only be boiled and cannot be mixed with other foods.

Furthermore, knowledge of IV preparation was a decisive factor between those who were growing kale and the ones who had decided not to. It was clear from the study that 30% of the farmers who had adopted kale knew how to prepare the vegetable and were prepared to teach their customers. For instance, in one of the co-operatives that was growing kale, shown in Figure 6.4 below, one farmer explained how they were planning to start by giving a

bunch of kale and a recipe as gifts every time a customer bought vegetables from them.

Orchard and Ngwerume (2009) recorded similar findings in Zimbabwe. They argue that lack of consumer knowledge on how to prepare indigenous vegetables is a hindrance to market expansion for indigenous vegetable growers in urban and peri-urban areas.



(Picture taken during fieldwork, 2015)

Kale

Figure 6.4. Kale cultivation by small-scale farmers.

The mucilaginous nature of igushe is a characteristic that different communities either love or hate (Maundu, et al., 2009). Rejection of IVs not known in the KwaMkhwanazi community was also based on how they appear after cooking. Talking about the appearance of igushe after it is cooked, one participant commented:

I did not taste it because the appearance was not appetising for me ... I feel nausea when I see it (GDP2, Pers. Comm., 2015)

...some people do not know igushe and even myself I don't eat igushe. I have tried it once and I did not like its texture at all (FP9, Pers. Comm., 2014).

And yet the same indigenous vegetable was said to be a favourite amongst the Venda people in Limpopo Province, as indicated by another participant in a citation given below:

Iigushe a slimy kind of veggie when you cook it... if you go to Limpopo especially in Venda everyone likes it. So it varies with the locality (ARCP2, Pers. Comm., 2014).

In conclusion, these results show that food is embedded in the culture of people. People's choice is guided by what they are used to, meaning that food sovereignty scholars are correct to emphasise the cultural values of people (Chaifetz and Jagger, 2014; Kamal et al., 2015). Indeed, as it turned out in this study, despite the training that farmers had got on the nutritional value of all the IVs that were promoted, the cultural aspect still played a central role in the choice of the vegetables they were producing in their gardens.

6.4 Promotion of indigenous vegetables to improve rural income

An analysis of interviews indicated that the promotion of IVs also contributed to income generation in providing direct employment of some community members in the project, income generation from selling indigenous crops by farmers and UNIZULU as well as income generation through value-addition

6.4.1 Direct employment of some community members

The first way in which the promotion of IVs enhanced livelihoods of participants was that the project created decent employment for a period of three years for two young women and one man, as revealed by the responses below.

I learnt about the ARC via applying for a job at the University, they gave us a contract of three years (UZP8, Pers. Comm., 2014).

It changed my life a lot, my mom recently passed on so we have no elder anymore, I was able to extended our home, buy new furniture, put tiles, fix the veranda and put new cupboards, but soon after I got disappointed when the contract expired, we were hoping to be re-hired for at least one more year...but it was better than staying at home doing nothing (UZP9, Pers. Comm., 2014).

We were working very well, the only issue was that the salary was very poor plus there was no overtime, overtime would have helped us cover the gap of the small salary, but the job was good and we were provided with the necessary tools that we needed (UZP7, Pers. Comm., 2014).

Although all three wished the project had continued they all indicated that their lives had changed as a result of the project. Again, from a food sovereignty perspective, the project enabled youths to earn a living and hence provide for themselves and their families.

6.4.2 Income generated through selling indigenous vegetables

Comments from the ARC, DST and UNIZULU participants reveal that IVs were promoted for commercialisation purposes, as indicated below:

There is need for income which will allow access to other food which you don't plant (UZP9, Pers. Comm., 2014).

The idea is to create more opportunity for small holder farmers and sell these vegetables to markets. Supermarket chains are now invading rural areas and if farmers can sell their products to Pick and Pay for instance it means Pick and Pay can sell them to wider community (ARCP2, Pers. Comm., 2014).

We were hoping that after this project some of the farmers would grow these vegetables for profit (ARCP1, Pers. Comm., 2014).

We also supported the ARC in its project...to promote small business enterprises among the rural poor (DSTP1, Pers. Comm., 2014).

Concerns raised by the participants above have food sovereignty implications. For instance, food sovereignty proposes that if people cannot produce their food it should be considered as their right to have access to resources that would enable them to do so. Claims of the ARC, DST and UNIZULU participants were supported by the majority of farmers who were producing imbuya. Eighty percent of farmers indicated that they had established a niche market in the neighbouring towns like Eskhawini, Richards Bay and Empangeni. Most of them had joined the business after learning from other farmers that imbuya sells very well. Their customers were shoppers at big supermarket chains such as Pick 'n Pay and Shoprite. One of the farmers indicated that business in imbuya was good because they were not competing with commercial farmers. This was because commercial farmers were not interested in growing and selling indigenous vegetables. Farmers indicated that they were selling imbuya for R6 - R10 a packet. For example, figure 6.5 shows imbuya packed and ready for marketing.



Figure 6.5 Pictures showing harvested imbuya packed and ready for market

The University of Zululand was also growing indigenous vegetables in the nursery built by the ARC and selling to the community. Records show that indigenous vegetables were sold at the University tuckshop between 2012 and 2014 and contributed 13% to 18% (see table 6.6) of the total sale of all vegetables, signifying the role these vegetables can play in generating income.

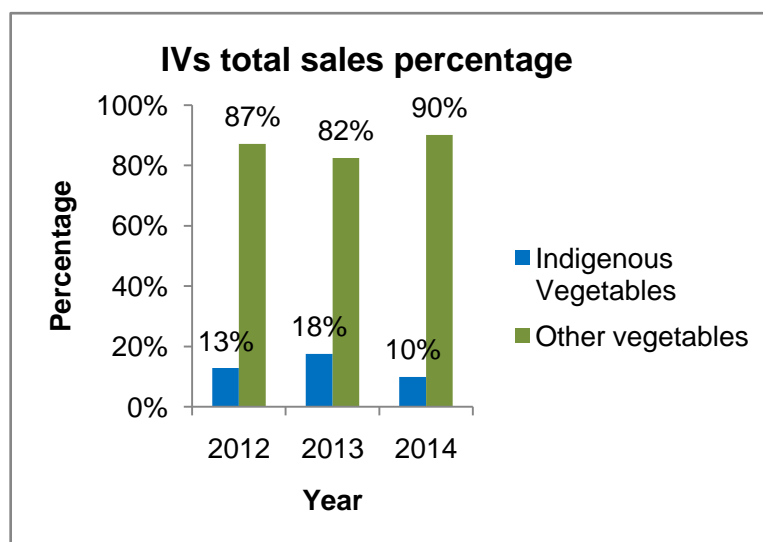


Figure 6.6 Total sales contribution of Indigenous Vegetables sold at the University of Zululand tuckshop

However, not all vegetables promoted by the ARC were received well by the market. For instance, data from records show that the University tuckshop was able to sell four out of the five of the indigenous vegetables promoted by

the ARC. Of the four (imbuya, sweet potatoes, igushe and kale) imbuya and sweet potatoes were shown to be popular, as they were making the most sales, as indicated in Figure 6.7 below. The records further indicate that imbuya and sweet potatoes were sold throughout the period of the project whilst kale and igushe were phased out in 2014, probably due to the fact that they were not popular, as already indicated in section 6.3.6.

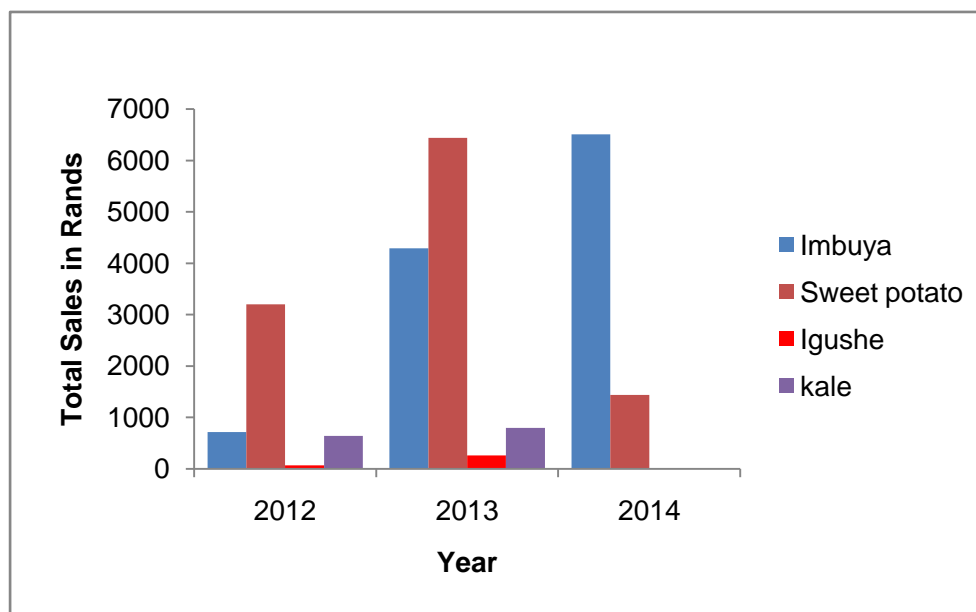


Figure 6.7 Indigenous Vegetables sold at University of Zululand tuck-shop and total sales per year

Farmers were also selling indigenous crops in order to secure for themselves other food necessities such as meat and cooking oil. This is an important finding in this study where poverty and employment are rife (see chapter 1 and 3).

Yes we are able to survive through these plants, we plant the seeds, it grows, we put it into sacks, we go and wash it by the river, then at two o'clock we take the bus to the community and sell, and we sell at Mkhomose (FP12, Pers. Comm., 2014).

...We then are able to use the money we get to buy meat and seeds for planting (FP4, Pers. Comm., 2014)

Being a farmer helps with regards to getting some money and you then save it so that you will not complain about poverty (FP10, Pers. Comm., 2014).

I would go around selling house to house... I then buy some house necessities for my children (FP16, Pers. Comm., 2014).

The contribution of IVs to the food security of the KwaMkhwanazi community is consistent with previous research done in other parts of South Africa. In South Africa, studies by Jansen van Rensburg et al., (2007) done in Limpopo, and Modi (2015) in KwaZulu-Natal concluded that IVs were playing an important role in improving the incomes of the respective communities.

Besides contributing direct production of food income to buy other food stuffs, IVs were presented as contributing to other socio-economic needs that are essential to achieving food security. Farmers explained that they were able to get money for seeds and to pay school fees for their children among other things. Furthermore, IVs were presented as directly providing employment to people who would have otherwise had no source of income, as remarked by the participants who were focussing on growing imbuya for marketing:

The last time I was employed was in 1995, I then went back to farming I think it brings me more money. I can make a living through farming (FP13, Pers. Comm., 2014).

Long ago we did not think of selling the vegetables, but now our minds are open to seeing the bigger picture, we decided to start selling... (FP4, Pers. Comm., 2014).

I was not able to pay for my children's transport, but through farming I am able to, because they need to go to school (FP14, Pers. Comm., 2014).

This is consistent with Mafukata's (2015) study in Vembe District in Limpopo where sales from IVs were helping in paying school fees and other necessities.

Cited by Louis (2015:588), Bhattarai (2013) calls for an 'expanded version of food sovereignty that does not base its solution only in agriculture'. This observation is true in KwaMkhwanazi. Although IVs were promoted to enable farmers to be self-sustaining, there were some farmers, although willing to live by farming, did not have livelihood security, which is crucial to attaining food security. It is therefore not surprising that there was a sense of dissatisfaction, despair and loss of hope. This made some farmers regard themselves as survivalist, hence they complained:

I had big dreams for my life but now, I am like a prisoner. I feel like I cannot do as I wish because of poverty (FP30, Pers. Comm., 2014).

It is not too much money but we do cope (FP13, Pers. Comm., 2014).

There is no profit, but we just do it so that I can take care of my grandchildren, we don't have anything (FP8, Pers. Comm., 2014).

We do make a living out of it, even though it is not too clear, if we were normal farmers we would be able to calculate our earnings and see if the time spent farming was beneficial but with us it is about surviving with our children (FP11, Pers. Comm., 2014).

What is clear in the above excerpts is that farming and selling of IVs alone is failing to get people out of poverty. A possible reason could be the one given by Bvenura and Afoloyan (2015) who pointed out that the economic value of IVs is not yet fully realised as their consumption is still on the decline. Furthermore, this may mean that the notion that entrepreneurship through promotion of IVs in the rural areas may not be the way to eradicate poverty.

6.4.3 Value-addition of indigenous vegetables

Training people on the value-addition of IVs was reported to improve food sovereignty of the KwaMkhwanazi community. Value-addition in this study was done to preserve IVs, create job opportunities, generate income and improve food security by promoting new recipes appealing to young people.

Preservation is a challenge that is faced by many growers of IVs as they are very perishable (Jansen van Rensburg, et al., 2004). Farmers' lack of access to refrigerators to prolong the shelf life of indigenous vegetables worsens the problem further. (ibid), as was the case in the KwaMkhwanazi community. Farmers were losing their vegetables, hence, the DARD, through its Value-Addition department, decided to intervene, as explained by one of the government officials below:

What the department found was that farmers didn't know how to use excess crops. So DARD then sat down and... say we need someone who will help farmers to further use their crops. So that is when we came in with expertise as the Value-Addition of the Department of Agriculture so that we can assist the farmers to add value to their crops (GDP5 Pers. Comm., 2014).

Adding value through the process of making achar⁶⁰, for example, was seen as a way of preserving IVs and other vegetables. A participant from DARD argues that value addition increase indigenous vegetables shelf life as indicated below:

It is also used to preserve...We encourage people to preserve everything they would have planted not to leave them to rot in the fields for example if you have cabbage, carrot, onions and you are fed up of eating them. To preserve them you can make an achar by just chopping it, boil it for a few minutes according to the recipe that I am going to give to you and you just change the value of the cabbage just like that. So this is like a stew but the stew that you can eat with other stews (GDP2, Pers. Comm., 2014).

The implication of making achar was that farmers were now able to sell both fresh produce and achar as a value added product for the market. It can therefore be inferred that farmers were able to improve their income through selling vegetables they probably would have lost, as indicated by the farmers below:

If there were plants that were left from the market we bring it home and we make achar with them instead of letting them rot (FP7, Pers. Comm., 2014).

We even take cabbage and make achar with it, there is no use of wasting, and we make sure that we don't waste anything; every plant has use (FP4, Pers. Comm., 2014).

Preservation of indigenous vegetables in this study was also achieved through drying. The DARD participants explained that they were training farmers to dry IVs so that they would be able to access them when they are out of season, as reported below:

Because it is not always there we encourage people to grow it and as value-addition practitioners we also encourage people to dry these vegetables so that they will be available during seasons when they will not be able to grow well (GDP2, Pers. Comm., 2014).

Whether its beetroot whether its cabbage we encourage farmers to dry them. There is a course offered on vegetable and fruits drying because in these areas you find that in most of rural areas is extremely hot so

⁶⁰ Achar is defined by Arora, et al., (2013:5) as 'pickled vegetables made from vegetables (or sometimes from fruits), spices and oils. Downloaded on 17 September 2016 from https://scholar.google.co.za/scholar?q=Arora%2C+Cheng+and+Johnson+%282013%3A%29+%27+achar%27&btnG=&hl=en&as_sdt=0%2C5

they have more than enough sun to dry their vegetables. So we also teach them how to dry so that they may have the food all year around (GDP3, Pers. Comm., 2014).

The importance of preserving indigenous vegetables when they are out of season was also reported in Zimbabwe where people eat dried indigenous vegetables when they are out of season (Orchard and Ngwerume, 2009).

In his critique of decolonial theory, Hall (1994) cited by Vambe and Khan, (2013) suggests that some people may want to express their freedom by combining indigenous and western knowledge to achieve their goals. This assertion is true in the present study where the promotion of indigenous vegetables involves reaffirming them through using western-oriented recipes to appeal to the younger generation. The merit of value-addition in this study is that participants were able to make food that was appealing to the taste, culturally appropriate and of high nutritional value, thereby affirming food sovereignty principles.

The case study showed farmers using orange-fleshed sweet potato as the main ingredient in well-known western dishes. For example, farmers used sweet potatoes as pizza bases and scones for both household consumption and income generation.

What we are trying with our recipes is to get the traditional crops interesting to the young people. For instance we have been using traditional products to make pizza bases because the young people love pizza. So instead of using the normal products we use traditional products like sweet potatoes and madumbe [taro]. We also make juice from orange-fleshed sweet potatoes. We are really trying to make the young ones interested in these foods (GDP4, Pers. Comm.,2014).

Indigenous Vegetables that are normally unpopular among children and youths were also popularised by incorporating them into western dishes. This way, farmers made nutritious foods into tasty dishes as highlighted by participants below:

Imbuya muffins are not that complicated. Let's say you have got your recipe for muffins, use imbuya as an indigenous green leafy vegetable. You incorporate that in your muffins especially for home consumption. That would interest children at home especially the under five to eat those vegetables and carrots because South Africa has got a problem

of micro-nutrients deficiencies and the vegetables are rich in the micro-nutrients (UZP9, Pers, Comm., 2014).

So we tell women to prepare imbuya in a way that is attractive and they like it very much when it is done like that. For example, we tell them that when you bake cakes you can incorporate the traditional ingredients. You know you can add a little bit of sweet potato to your recipe of cakes (GDP4, Pers. Comm., 2014).

We make sure we cook the vegetables and use some for baking so that our children eat them without noticing it is vegetables that they are eating (FP7, Pers. Comm., 2014).

This finding might be viewed as progress in the affirmation and valuing of IVs. Previous studies in South Africa (Voster, et al., 2007) and Senegal (Diouf, 2007) point out that IVs were usually prepared without considering variety in cooking methods, such that they were shunned especially by the youths. Furthermore, they made recommendations regarding the formulation of creative recipes that would lure youth to eating these vegetables. Here it is evident that participants are making efforts to come up with innovative ways of preparing IVs.

Results also showed that value-addition was crucial for income generation. Participants also believed that increasing the economic value of these plants would also rejuvenate the use of these plants, as indicated by the participants below:

Initially value-addition was for home use mainly so that they know how to cook their farm produce or whatever it is. But now the government wants people to be commercial and to be self-employed. So the focus has now changed from home use to helping people to taking whatever they have, add value and generate income (GDP5, Pers. Comm., 2014).

However, value-addition for commercialisation that was promoted by participants from the ARC and DARD appears not to have been realised in practice as many farmers did not have the finance to run such enterprises. For instance, only one co-operative indicated that they once produced sweet potato juice for commercial purposes but they also stopped because of lack of finance

We used to make juice called Dakis. We stopped because we did not have lids for the bottles. It was very popular and some people would just not believe that it was juice made from sweet potatoes. I believe we would have made a lot of money if we had continued (FP34, Pers. Comm., 2014).

This finding is consistent with the findings of Orinda (2013) who found that, in Kenya, only farmers who can access credit to purchase implements are able to produce sweet potato juice.

In a nutshell, it is evident that value-addition of IVs resulted in their acceptance by youth and children who would have otherwise shunned them. It also shows that value-addition is used to preserve IVs and create the possibility of increasing economic value of IVs, except that many farmers in this study were financially limited to put it into practice. The next section is a discussion of the farming practices of KwaMkhwanazi farmers from a food sovereignty perspective.

6.5 Agro-ecological farming practices and their implications for food sovereignty

Food sovereignty also emphasises agro-ecological principles that support the use of local knowledge and respect for nature (Holt-Giménez 2009; Altieri, 2011; Martínez-Torres and Rosset, 2014). As this study was informed by food sovereignty this section interrogated the perceptions and practices of participants in the production of IVs and farming in general.

6.5.1 Agro-ecological farming practiced for its affordability

All extension work from the DARD revealed that they were encouraging rural farmers to improve soil fertility by practising inter-cropping, the use of manure, and the use of ashes and compost. These extension workers felt that agro-ecological farming was appropriate for the farmers of KwaMkhwanazi given their socio-economic circumstances (see chapter 1). As one participant puts it:

The farmers are poor so I encourage them to use natural fertiliser. For instance, when some of their vegetables are decomposing I say do not throw it away; do not burn it in the field just make it into a heap and

make your own compost so that you can reinvest in the soil to improve its fertility (GDP2, Pers. Comm., 2015).

The majority of small-scale farmers supported the suggestion by the government official who found the use of manure and compost a cheaper way to improve their yields, as illustrated by the excerpts below:

It is easy for us to use manure and compost than commercial fertilisers. We do not have money to buy these expensive fertilisers. We just put manure or sometimes we make our own compost and plant with it and then you can get as much (FP3, Pers. comm., 2014).

Where I was showing you that we had planted, we did not plant anything then we just cut the stems and then they regenerated and then we just put manure on top and its finished and then it grows up. It's very cheap to grow these vegetables (FP27, Pers. Comm., 2014).

They teach us about the things we need to use when planting, there is a technique of burning remains in the garden then take the ashes to make compost; the advisors come to guide us with regards to this technique of farming (FP35, Pers. Comm., 2014)

Emphasis on autonomy where farmers use natural means to improve soil fertility echoes the principles of food sovereignty that encourage self-sufficiency and minimum use of external outputs (Martínez-Torres and Rosset, 2014). Enhancement of soils using natural resources is also recorded in the North West province of South Africa where vegetable growers found the use of organic fertilisers to be a cheaper alternative (Matenge, et al., 2011).

6.5.2 Agro-ecological farming as re-affirmation of indigenous knowledge

There was also a sense among all the participants from the DARD that there was cultural merit in agro-ecological farming as something indigenous to farmers. The interviewees felt that by promoting agro-ecological farming practices they were re-affirming their ancestral farming practices previously abandoned by taking 'people back to their origins and farming they were practising (GDP1, Pers. Comm., 2014) what Shi (2002) refers to as traditional agriculture is further confirmed by the participant below:

As a department, we have been promoting indigenous knowledge and we have been encouraging people and saying that we may still use our grandparents' way of doing things. For instance, there are cases you may not be able to solve using modern knowledge and we have been

referring to people saying look at what was happening before (DGP3, Pers. Comm., 2014).

What is apparent from the above citation is that the government, through the Department of Agriculture and Rural Development is revisiting indigenous knowledge as modern knowledge fails to address challenges currently facing rural farmers. Governments' efforts to take people back to their traditional ways of farming is not unique to this case study. In Zimbabwe, Mapfumo et al., (2005) explain how the government encouraged poor small-scale farmers in Chikwaka, Chinyika and Zimuto to experiment with previously relegated indigenous legumes to address challenges of soil fertility.

6.5.3 Agro-ecological farming associated with quality food

Another view which was dominant among the participants from the DARD was that agro-ecological farming practices resulted in the production of food of better quality. Participants argued that crops grown using natural resources were of better quality because they were free from toxins. For instance, participants from the DARD expressed concern over farmers' lack of knowledge about how much fertiliser they should apply to their crops. They also indicated that plants which have been treated with insecticides and pesticides are not healthy and they cause diseases, as expressed

by the excerpts below:

You know that there are a number of diseases that are attacking people these days and some of them are caused by all these insecticides and chemical we apply to our food. This is why we teach them to practise intercropping. Intercropping protects the plants from insects you see (GDP3, Pers. Comm., 2014).

We have been told that fertiliser has got side effects because not all farmers know what fertilisers to use and how much fertiliser to apply on a particular soil. Because of that we promote use of indigenous knowledge such as how to apply like organic farming.... I even have testimony from some of my clients who use these organic methods who tell me that their products are of good quality and they are earning more money as well (GDP2, Pers. Comm., 2014)

Farmers' practices also resonate with what the department of agriculture and rural development was teaching them.

We plant with compost, because fertilisers make people sick, imbuya doesn't need fertilisers you plant it with compost (FP24, Pers. Comm., 2014).

You know I do not use insecticides for my vegetables. What I do is I just grow garlic around my garden. You see insects do not like the smell of garlic. That's how I protect my vegetables (FP37, Pers. Comm., 2014).

We just use aloe vera, we make sure that the aloe vera is dry then spread it around the mealies; pesticides hate bitter things (FP5, Pers. Comm., 2014)

It appears from above assertions that both farmers and extension workers believe that the application of chemicals to vegetables renders them unsafe for human consumption, hence the effort to use natural ways to eliminate pests and diseases as well as using organic manure to improve soil fertility, as already indicated in section 6.5.1. This finding has direct implications for the food sovereignty tenet that considers the right to safe food as a prerequisite to food security. The belief that food grown using chemicals is less safe due to 'pesticide residue' than food grown using organic fertiliser is similar to studies done elsewhere. For example, Rainey et al., (2011) assessed consumers' knowledge of locally grown organic foods in three Metropolitan Arkansas Farmers' markets and found that most of the respondents believed that organically produced foods were safer than conventional foods.

6.5.4 Socio-economic pressure determining farmers' agro-ecological practices

In this study, 30% of the farmers and one of the UNIZULU participants indicated that the decision on whether to use conventional or agro-ecological farming depended on the use of the vegetables. It was clear that some participants refrained from using external inputs when growing vegetables for their own consumption whilst applying chemicals and fertilisers to vegetables meant for market, as illustrated in the excerpts below:

With regards to farming I like separating the methods according to the use of the vegetables, if it is for selling I use fertiliser because the plants grow faster, but if it is for my own consumption I use compost for healthier vegetables. I usually advise anyone who cares to listen that if

they want to have bones as strong as mine they should use manure in their gardens (UZP6, Pers. Comm., 2014).

I also use chemicals that prevent insects from biting the plants. My customers are not interested in vegetables that have holes all over... so you see I do what they want to get business (FP16, Pers. Comm., 2014).

What is apparent from the above is that participants use convention methods if they perceive that it will be profitable to do so. In this case, farmers seem to have concluded that agro-ecological methods were only useful for subsistence yet inadequate for commercial purposes where more yield takes precedence (Bebbington, 1990). Similar instances were recorded elsewhere. Shivakoti et al., (2005) studied Nepalese hill farming systems and found that although farmers are heavily reliant on local resources desire to make profit sometimes force them to use external inputs to increase crop production. This result therefore suggests that economic issues may impede farmers from practising agro- ecological farming, challenging the assumption which views food sovereignty as the precondition for food security. I argue thus because here farmers are finding it difficult to put some of the principles of food sovereignty into practice because they do not have secure livelihoods.

In summary, the results show how the government is encouraging small-scale farmers to use agro-ecological ways of farming for affordability and health reasons. Farmers' results, on the other hand, produced mixed results where the first group agreed with the DARD group. The second group were making their decisions on whether to use agro-ecological or conventional farming methods depending on the use for the vegetables-that is conventional methods used for vegetables meant for the market whilst agro-ecological methods applied for vegetables meant for the farmer's consumption.

6.5.5 Agro-ecological farming for water conservation

As already discussed in chapter 1, small-scale farmers in KwaMkhwanazi rely on rainwater for their agriculture activities. It is therefore not surprising that saving water is one of farmers agro-ecological practices.

Results from the farmers and the DARD participants indicated that some farmers in KwaMkhwanazi were planting without ploughing as a method to prolong the duration of soil moisture availability in the soil.

It is part of my job that when you do the planting we compare the conventional way of doing things with the indigenous way for example there is what is called planting without ploughing where you simply apply herbicides and there after you just plough. (GDP1, Pers. Comm., 2014).

We were taught another way of planting where you just dig a hole and put your seed there. You then put grass in it and leaves, then the plants grow very well (FP12, Pers. Comm., 2014).

Farmers were trained in the use of raised beds as indicated below:

You see if you look in our field it's not even. We were taught to make these raised beds and leave furrows in between them so that when it is raining we do not loss all the water to the river. It remains here in our field and our vegetables grow well (FP13, Pers. Comm., 2014).

Further examination of the farmer interviewees indicated that raised beds are not only used to 'increase the efficiency of in situ water utilisation' (Gebreeziabher, 2009:257) but to prevent soil erosion, as is revealed in the citations below:

Our garden is sloping and we went to the department and ask for someone to come and help us because all the soil was being eroded. So eh when they come, these people from the department they say we should create these big beds (FP28. Pers. Comm., 2014).

We now grow our vegetables on these ridges. It's something we were taught by our agricultural officer. He said it will serve fertile soil and it will make our vegetables to grow well (F14P. Pers. Comm., 2014).

Farmers in KwaMkhwanazi also indicated that they were conserving water through harvesting it. Two methods were dominant as water harvesting strategies. Firstly, it was observed during fieldwork that 35% of farmers had micro dams and farm ponds like the one shown in Figure 6.8 below.



(Picture taken during fieldwork, 2014)

Figure 6.8 Micro-ponds used by KwaMkhwanazi farmers to harvest rain water

This study also observed that farmers dug the ponds and micro-dams close to gardens for easy access to water. However, Kahinda, et al., (2010), pointed out that although micro-dams and ponds may reduce labour, the initial process of putting the system together is labour intensive, which probably explains why some participants did not have them.

Use of ponds and micro-dams is also reported in other African locations. For instance, Rockström (2010) records that in Machakos district in Kenya, farmers manually dig ponds and micro-dams close to their gardens to irrigate their small gardens and for other, domestic, uses at the household level. Similar practices were also reported in 'the Thaba Nchu area (Free State), Kayaletu and Guquka (Eastern Cape) and KwaMncane and Entembeni (KwaZulu-Natal)' (Kahinda and Taigbenu, 2011:970). Very few farmers were harvesting water using water tanks also known as Jojo tanks-big plastic made tanks used to store water for use when there is shortage. For example, figure 6.9 shows one of the participants showing the author his tank that he uses to water his garden during the dry season.



(Picture taken by during fieldwork, 2014)

Figure 6.9 JoJo tanks used to harvest and store water for use during the dry season.

The reason why there were very few people with tanks was because the majority could not afford them (see chapter 7 for further elaboration). Among farmers who had water tanks there were some who indicated they had acquired the tanks through financial assistance provided by the Department of Water Affairs and Forestry (DWAF) as revealed by the excerpt below:

I was helped by the department of water in Richards Bay to get these tanks. Since then my life changed. I can have a garden anytime now. I also use the water for all things that my family do here at home like washing cooking. It really helped (FP11, Pers. Comm., 2014).

The limited use of water tanks in KwaMkhwanazi is consistent with the situation in the whole of South Africa. Mwenge, et al., (2010) argue that less than 1% of rural South Africans make use of rainwater harvesting tanks, because they cannot afford them.

6.6 Marketing practices and their influence on indigenous vegetables promotion

One of the key aspects that separates food sovereignty from other food regimes is the promotion of local markets, which allows small-scale farmers to sell food of high quality value which is also socially and culturally relevant (Pimbert, 2009). This section discusses opportunities experienced by KwaMkhwanazi small-scale farmers in marketing IVs.

Ninety percent of the interviewees associated the improvement in their lives with the recent availability of markets created because of the ARC collaborating with UNIZULU. Farmers indicated that they were selling both exotic vegetables and IVs. The introduction of IVs at the tuck-shop indicates the effort that the University of Zululand and the ARC had put into creating a market for IVs as vegetables that are still new on the market, as pointed out by one of the farmers:

The ARC helped us now to be known at the University by the students. In other words, it helped us by opening more networks. More people now know us as to where we are what are we doing (FP1, Pers. Comm., 2014).

The UNIZULU Student Representative Council (SRC) also boosted marketing of IVs by organising cultural days. At these functions, farmers were able to sell farm produce and traditionally cooked foods, hence introducing them to the market. The farmers' day involved preparation, testing and providing nutritional information on indigenous foods. The University and the ARC did this to introduce and train farmers to farm and use indigenous vegetables, as was said by one of the participants from the ARC below:

We did farmers days and on these farmers' days we try to involve locals so that we reached as many people as possible so that people use these vegetables (ARCP2, Pers. Comm., 2014).

It also emerged from interviews that farmers' knowledge on indigenous vegetables was also enhanced by the cultural and farmers' days which were held by the DARD and the Department of Arts and Culture:

Well, as a department [DARD] we have got a target of eight farmers' day per year that will be at least two per quarter but we do exceed sometimes because of demand. So every quarter we are bound to make two farmers days and demonstrations. Demonstrations are a lot and we also use indigenous knowledge in those demonstrations (DGP1, Pers. Comm., 2014).

The Department of Arts and Culture also holds farmers' days where it presents cooked food such as dumplings and ox strips. The department has information days where people are encouraged to prepare their own dishes and it comes with judges to make decisions on the best dish. It is to encourage and make our youth knowledgeable about these foods. It has got some groups of youth who are beginning to participate and a cook book written on traditional foods. Some youths are interested to do training on how to prepare traditional food (GDP5, Pers. Comm., 2014).

Evidence from the study also indicated that businesses were also playing a role in the marketing of IVs. For instance, Richards Bay Minerals (RBM) was cited by the majority of the participants as having helped to create a market for them. The mining company pitched a tent at UNIZULU every 16th of the month to enable locals to sell their farm produce, as Farmer Participants 2 indicated below:

We do have a tent that comes with RBM so once a month at the main gate at the university we sell. This has been help to us to market especially our IVs as people are still getting used to the idea of buying these vegetables the ARC brought to us. (FP2, Pers. Comm., 2014).

Famers also viewed co-operative structures as enabling them to market their produce. For instance, some of the farmers indicated that they relied on their own networks for marketing their vegetable produce. One farmer, a member of a co-operative that was cultivating IVs, indicated how their co-operative was benefiting from selling its produce to another co-operative that was specialising in selling IVs. He said:

We are linked now with Usukudla marketing, a marketing co-operative from Pietermaritzburg. We started working with them when they were farming here then when they moved to Howick we were in contact and when they started this marketing programme they say look, we have got marketing here. Can we work together and we say come and let's work together. We started with them this year and every Wednesday they are here to collect. They come here with a big truck to collect vegetables from our garden and currently they introduced these indigenous plants and every Wednesday they come to buy these IVs and they have been putting pressure on us to produce more of it (FP1, Pers. Comm., 2014).

Another co-operative had also established a relationship with a hospital where they were providing orange-fleshed sweet potatoes to the hospital. One of the participants explains how they established the market:

There is a certain customer that bought the sweet potatoes for a patient in hospital, then theyn all tasted the sweet potatoes until the hospital asked for some more to be delivered because it was of good quality (FP23. Pers. Comm., 2014).

What is apparent here is that various institutions (RBM, the Department of Agriculture and Rural Development, the ARC, University of Zululand, and the Department of Arts and Culture) made concerted effort to promote and market

IVs. This study view efforts of the above-mentioned organisations as a positive change, where previously disregarded or underrated vegetables are getting recognition as valuable foods.

6.7 Conclusion

This chapter has presented the practices and perceptions of various people who were involved in the promotion of indigenous vegetables by the ARC. Using the food sovereignty theoretical framework, the chapter has been able to elaborate on aspects of indigenous vegetables which justify their promotion as food. The chapter also explained issues which led either to acceptance or rejection of the crops that were introduced by the ARC in the KwaMkhwanazi community. It outlined the entrepreneurial aspects of indigenous vegetables as another avenue used by participants to realise food sovereignty. The chapter ended by outlining differences that were revealed by participants in agro-ecological farming practices advocated by the food sovereignty theory. In the next chapter I discuss external and internal factors which had an impact on the promotion of indigenous vegetables in this project.

CHAPTER 7: FACTORS AFFECTING THE PROMOTION OF INDIGENOUS VEGETABLES IN THE KWAMKHWANAZI COMMUNITY

7.1 Introduction

The results presented in this chapter are an exploration of factors that impact on the project. It explores the relationships between the DST-funded research station (ARC), small-scale farmers, and the University of Zululand, limitations faced by the project, and farmers' reception of the project. Themes which emerge from the exploration include aspects of resources (water, land, soils, farm implement and seeds), upstream and downstream challenges and opportunities, adaptation to new information by farmers, time frames of the project, communication among stakeholders, conflicting interests among stakeholders of the project and funding. Unsurprisingly, the question of land was at the forefront.

7.2 Shortage of land

According to the majority of the farmers, land scarcity had a negative impact on their agricultural activities in general and the promotion of indigenous vegetables in particular. The finding is not very surprising as the majority of the farmers (70%) reported having land use rights of 1-3 hectares. The traditional authorities (*inkosi*) allocate this land to them. Farmers felt that their land was not enough to produce crops for subsistence as well as for income generation:

We just take whatever the *Inkosi* gives us you see and even if it is small and we are grateful that at least there is something (FP20, Pers. Comm., 2014).

Our land is small in this area because most of it is owned by those who are growing sugarcane and tree plantations (FP31, Pers. Comm., 2014).

There are too many people in this place...it is difficult to get something bigger if you do not have money and the land we get from *Inkosi* is not that big you see. Land is too small for us to grow everything we want and most of the land is owned by the government (F42, Pers. Comm., 2014).

What can be gleaned from the above comments is a sense that farmers do not have a say on the amount of the land that one gets as that is left to the discretion of the *Inkosi*, as indicated by FP20 who 'takes whatever the *Inkosi* gives'. Farmers who participated in the project also emphasised that the shortage of land was due to overcrowding of the area as, already discussed in chapter 1. Other rural areas in KZN also recorded shortage of land as a constraint on farmers. For instance, a study conducted by Everson, et al., (2011) indicated that farmers (KwaMncane 92% and Ntembeni 90%) were allocated less than a hectare of land by the traditional leaders and hence could not sustain livelihoods in agriculture alone, as was also highlighted by farmers in this study.

Further analysis of the data also shows that besides overcrowding as the major cause of land shortages farmers felt that they did not have enough land to grow vegetables, as sugarcane and eucalyptus tree plantations were taking most of the land. This was not surprising as the KwaZulu-Natal province comes second only to Mpumalanga in terms of total land occupied by tree plantations, as already discussed in chapter 1. The government of South Africa consider tree plantations as important to the economy of the province. As a result, small-scale farmers are encouraged to grow tree plantations as out-growers to generate income (Karumbidza & Mene, 2009). This puts even more pressure on land for crop production and grazing, hence some of the farmers said:

A lot of area here is owned by few individuals who like growing sugarcane and trees (FP46. Pers. Comm., 2014).

The KwaMkhwanazi community area is occupied more by sugarcane and tree plantations (FP37. Pers. Comm., 2014).

Most people grow sugarcane on their farms and generally all the space is taken we do not even have grazing area (FP4. Pers. Comm., 2014).

There are few people who own big farms and most of us we just have something small (FP19. Pers. Comm., 2014).

Studies from other countries support this finding. Rural communities in Africa have been alienated from their land to make way for tree plantations (Karumbidza and Mene, 2009). Concerns being raised here have implications

for the food sovereignty of the KwaMkhwanazi rural community as commodification of land has deprived small-scale farmers of a resource that enables them to be self-sustaining. Furthermore, Vaughan (1995) points out that although others view sugarcane production due to increased income generation in some communities, income generated at household level is only supplementary. And that does not justify the diversion of land that could have been used for other purposes like grazing and crop cultivation.

One of the extension officers added yet another perspective on how land [its shortage and distribution] influences farmers' practices in KwaMkhwanazi. He explained that youth in KwaMkhwanazi had no direct access to land and could only get land through kinship. Everson et al., (2011), also discuss similar arrangements of land distribution and access through kinship. There are a number of problems associated with allocation of land through kinship. Firstly, it is likely to promote unequal distribution of land. For instance, if one does not have kinship interest they may not have access to land. (This explains the existence of nine participants who claimed that they were renting land, as I will be explaining later). The second disadvantage of distributing land through kinship lines is that sometimes sons have to wait for their parents to retire or die before they can have full control of the land, hence making them dependent on their parents for land (GDP3, Pers.Comm., 2014). And thirdly, in a patriarchal community, men tend to be the ones who inherit assets like land, thereby alienating women's access to land.

The study also revealed a problem of land in KwaMkhwanazi in that some farmers rent land for their agricultural activities. Of the seventeen (26%) of 66 who had access to land below a hectare, nine were renting either from other subsistence farmers or from nearby commercial farms. The situation was even worse for those who were renting on commercial farms. This is because at the time of the interview they indicated that the farm owner was going to evict them by the end of the year.⁶¹ They said:

⁶¹ The farmers were to be evicted at the end of 2014 when interviews were conducted with them.

Our first problem is that we do not have space to farm, but we love farming, we also don't have a proper place to hold meetings, these lands we plant on belong to white people that may come any day to re-claim them. That is a huge problem because you are not at ease (FP11, Pers. Comm., 2014).

Also a place to plant because as we speak the owner of this plot of land is evicting us this year maybe at the end of it , so it would be more beneficial if we could get our own legit land to farm (FP16, Pers. Comm., 2014).

The commercial farmer takes whatever he wants from our garden whenever it is ready, that abusing us because he doesn't ask for our permission (FP13, Pers. Comm., 2014).

The government should help us...just look at me for instance I don't have my own place where I can farm (F7, Pers. Comm., 2014).

This land is not ours therefore we cannot do as we please to it (FP12, Pers. Comm., 2014).

What can be gleaned from the above comments is that these farmers need their own land. Landlessness is creating a sense of hopelessness and uncertainty. This is because farmers are never sure of when the owner will evict them. They are unable to make future plans for their farming activities. These concerns of the farmers are echoed by Moyo (2013:5153) who points out that 'access to productive resources is a critical medium to development'. This is true of the Mkhwanazi people who believe that with access to land their lives would improve. Some felt that with a piece of land they would be able to access other resources like water which they needed for crop production. Farmers felt that they were not recognised by the government as farmers because they did not own land, hence it was difficult to get assistance. Some also indicated that they could not implement any developments on land which was not theirs.

Additional analysis of what farmers were saying also indicates a lack of respect from the landlord who felt he could do as he pleased with tenants' farm produce. To this end, one of the women (FP27) expressed her discontent with the farm owner whom she felt was taking advantage of their situation by harvesting their crops without asking for permission. What this

finding shows is that lack of resources can make people vulnerable to exploitation and abuse.

Shortage of land also emerged as creating social problems in the community as people holding positions of power were accused of grabbing land from the less privileged. During one focus group discussion, the participants indicated that the chief had taken land from them and that had interfered with their IV production. Because of that they were going to buy land from neighbouring farmers, as shown in the discussion below:

Facilitator: What challenges did you face in the project?

Participant 1: Right now we are facing the challenge of limited space.

Facilitator: Why is that so?

Participants 2: The co-operative started in 2007. When it was registered we had 9.2 hectares but the chief of the place started allocating people our land and we are now left with 6.5 hectares.

Participants 3: The demand of Amaranthus and other vegetables is high and we need to produce more and our place is small and that's why we are negotiating with other members on the other fence that we buy their land so that we could increase our land to enable us to produce more of these vegetables (FGD 3, 2014).

What is being said in the above focus group discussion shows that lack of land is forcing the *Inkosi* to decide between the competing interest of providing people with land for housing and farming, leaving others feeling abused. The *Inkosi* exercises his right to allocate land to community members at the expense of this co-operative. This is not because the co-operative had excess land as the group consists of ten members and that means on average each member had less than one hectare. In addition, this finding shows farmers' lack of power and rights over communal land given to them by *Inkosi*, as shown in the case when part of the land was taken away from them even when they needed it.

The issue of traditional authorities exercising too much power in land allocation in rural communities as indicated above is also noted in other provinces of South Africa. Bank and Mabhena (2011) reported that although rural people were not opposed to traditional authority's role of allocating land there was a general feeling that;

...there needed to be mechanisms where chiefs and headmen could be made to account for the decisions they made in relation to land allocation. They saw the idea of functional land committees with a combination of elected and appointed representatives as one way to control the abuse of chiefly power.

It was also evident that KwaMkhwanazi experience unequal distribution of land, with people with more income occupying larger pieces of land as indicated in Tables 7.1 below. What is really peculiar about farmers who owned bigger pieces of land than others in KwaMkhwanazi is that they were educated and employed as teachers, police or office workers in the neighbouring town.

Occupation	Income per month	Land size in hectares
Unemployed, Traders and Pensioners	±R1500	±3
Barmen	R2000	2.5
Trades	R5000	±4.5
Police	±R10000	2.5
Teachers	±R15 000	±20

Table 7.1 Small-scale farmer participant income in relation to land size

However, not all farmers were bothered by the size of their land, although a minority, about 6%, of the farmers whose land was below three hectares felt that their problem was of infertile soils. The participants from the DST also pointed to the unsuitability of soils as one of the reasons why some farmers were not growing IVs, as reflected in the citations below:

I had visited some of the small-scale farmers and I have noted that one of their challenges were lack of soils type suitable for growing some of the plants which were being promoted but not lack of enthusiasm (DSTP1, Pers. Comm., 2014).

Places differ, their soil accepts the Amaranthus during this season, this side it doesn't (FP6, Pers. Comm., 2014).

One of the ARC officials stated that one of the challenges faced by the project was that UNIZULU did not have enough land to fulfil the expectations of the ARC as described in chapter 1 and 6. The participant expressed his concern about the differences that exist in terms of resources at UNIZULU when compared to other institutions of higher education in the country. He argued

that the disparities were a legacy of apartheid. He wondered why these differences persisted even after years of freedom from apartheid:

So if you have to do agriculture you have to be serious. So I think their land is also not big it is small maybe their mandate is not for agricultural plant production maybe they are focusing on something else... To be honest these universities are far. They are isolated because of the history so they need some kind of support you know ...When we went to the University of Zululand we realised we are in different worlds. Well when you go to the University of Pretoria it's another world. So over 20 years we expect to see a change. The change should be infrastructure (ARPC P2, Pers. Comm., 2014).

These concerns by the ARC participant pertaining to shortage of land were also expressed by the farm manager from the Department of Agriculture at the UNIZULU who indicated how they could not meet the demand of IVs because they did not have enough space to grow more:

We needed bigger land to grow these vegetables and we did not have such land so we could not meet the demand for these vegetables. There was a lot of demand from our local community to the university community (UZP2, Pers. Comm., 2014).

This was not surprising as land is generally scarce in KwaMkhwanazi where the University is located. The problem of shortage of land and the numerous challenges associated with it were not very surprising. Literature shows that the issue of land redistribution in South Africa is still far from being satisfactory, as captured by O'Laughlin et al., (2013:8)

In relation to land distribution, the initial target was to distribute 24.6 million hectares (i.e. 30 per cent) of white owned agricultural land by 1999, through both grants-based redistribution and the rights-based restitution programme. By the end of 1999, less than a million hectares had been transferred (around 1.2 per cent of white owned farm land), and the target date was subsequently revised to 2014 (Jacobs et al. 2003, 5). By March 2011, however, only 7.2 per cent (6.3 million hectares) had been transferred and the official date for achieving the 30 per cent has now been set at 2025.

The scenario being described above is probably the reason why farmers in KwaMkhwanazi are still struggling to have access to land as more effort is being placed on emerging black commercial farmers. This is because LRAD is viewed by many as 'committed to deracialising ownership but retaining the structure of the commercial farming sector rather than restructuring the agrarian reform' (Hall, 2004 :213). The agrarian structure that was historically

dualistic, favouring the commercial farmers at the expense of small-scale farmers is still being felt by farmers in former homelands like KwaMkhwanazi. Land struggles can therefore be viewed as an impediment that is likely to prevent those in KwaMkhwanazi from exercising principles of food sovereignty even if they may desire to do so.

7.3 Water access and its implication to food sovereignty

The problem of water in KwaMkhwanazi is as crucial as the access to land itself. According 43.7% farmers who participated in this study shortage of water was one of the major issues that affected their cultivation of IVs. A recurring concern among these farmers was the persistence of drought which they say was negatively affecting crop production and hence threatening their livelihoods:

We do face some challenges, challenges such as drought, when there is drought we can't farm properly (FP6, Pers. Comm., 2014).

The drought was too much this year, as you see for yourself cabbage was damaged because of too much sun (FP5, Pers. Comm., 2014).

We love farming but we don't have the proper means, and we face huge challenges, like water, the plants need water; you see seeds are like babies they need nurturing (FP7, Pers. Comm., 2014).

We do make a living out of farming, but for now we have not done anything because it's dry. The drought just disturbs farming (FP30, Pers. Comm., 2014).

I should have done a lot in my farm by now, but the drought has delayed the whole process. We are supposed to be farming but we are late (FP17, Pers. Comm., 2014).

The above comments show the importance of summer rains for crop production in the KwaMkhwanazi community. In addition, farmers also indicated that they were helpless to do anything about their predicament. Nearly half of the participants complained of carrying water using buckets in order to water their plants. This prevented farmers from growing as many vegetables as they wished as it would have been laborious to do so. Besides, women are already burdened with responsibilities of carrying for the family. Hence most of the participants who had problems accessing water expressed

their wish for the government to build dams or provide water tanks for them. One of the farmers explained that she found it very difficult to carry water from far because of her advanced age. A few of the participants who had water close by their gardens felt that their activities would improve if they had access to irrigation equipment, as mentioned below:

The government should provide with irrigation equipment as they would be very helpful (FP4. Pers. Comm., 2014).

Indigenous vegetables that we planted did not do well because of drought. We need water if we are to survive and the government should drill boreholes for us so we can water our plants (FP5. Pers. Comm., 2014).

We do not have water maybe the government can provide us with tanks that we can fill with water during rainy season for us to have easy access to water during periods when it is scarce (FP11. Pers. Comm., 2014).

Data from interviews was also supported by observations made during fieldwork. Farmers complained that streams were drying up due to persistent drought. For example, there were evident differences between garden A, who claimed to have problems with water, and garden B who had access to a dam (Figure 7.1).



A



B

(Pictures taken during fieldwork, 2014)

Figure 7.1 Water access affecting farmers differently in KwaMkhwanazi

It is apparent from the above data that farmers are aware that the rainfall patterns are becoming unpredictable, creating uncertainties in the production of food by farmers. For that reason, Rockström, et al., (2010:543) believe that

there is need for investment in 'water harvesting systems for supplementary irrigation'. The same view was shared by the KwaMkhwanazi community as they expressed their wish for the government to sink boreholes or provide water tanks for irrigation.

Besides drought, blame for the farmers' present predicament was also laid on the commercial tree plantation industry in KZN (see chapter 1). Nearly half of the farmers who participated in this study believed that eucalyptus tree plantations were causing rivers and dams to dry up:

Water problems are being caused by people who are planting a lot of gumtrees. Gumtrees in this period of global warming cause shortages of water but in the past people were not relying on government for water they would just collect it from the streams (GDP2. Pers. Comm., 2014).

Farmers' comments were also supported by data from observations when one of the elderly men took it upon himself to show us an area where he said there used to be a big dam which had since dried up because of eucalyptus trees.

The issue of tree plantations drying up rivers is also reported in other KZN rural areas like KwaMkhwanazi. For instance, Karumbidza (2005) reports that Sabokwe community also felt that they compete for water with tree plantations. Outside South Africa, similar problems are also recorded in Kenya where the Yiaku community experienced the drying up of rivers due to tree plantations (Karumbidza and Menne, 2009).

Further analysis of this data also showed that 17 out of 66 (27%) farmers felt strongly about the negative impact of tree plantations and believed the only solution would be to remove the trees. They complained:

These trees disturb our way of life. We produce less now because of them as our crops cannot grow as these trees absorb all the water. I think the only solution is to cut them down. They do not help us at all (FP21, Pers. Comm., 2014).

The problem we have in this area is the problem of water. We do not have enough water for our plants. The problem is complicated by these

eucalyptus trees. You see they absorb all the water. We will rest if they are removed from our area (FP16, Pers. Comm., 2014).

What is apparent in this finding is that commercial planting of eucalyptus is viewed by farmers in KwaMkhwanazi as a source of deprivation of their right to food and water. Similarly, in Sabokwe which is also located in KZN, small-scale farmers were adamant that the only way they could ever live a normal life was to 'roll back the plantations so that ...the water situation would improve' (Karumbidza, 2005:55).

7.4 Access to seeds and its impact on food sovereignty

One of the pillars of food sovereignty is that farmers should have control of their own seeds, thus preventing dependency on big corporations (Bello & Baviera, 2010). According to Kloppenburg (2014), farmers can only reach a state of self-sustenance if they are allowed to save and replant seeds from previous harvests. This vision of food sovereignty matches what the ARC intended to do in the KwaMkhwanazi community. Evidence from the study indicated that the project provided seeds for indigenous vegetables and cuttings of sweet potatoes with the hope that farmers would save their own seeds. To encourage a sense of ownership the ARC sold the seeds and sweet potato cuttings as pointed out by participants below:

They actually built a big nursery down there so they could grow sweet potato cuttings, indigenous vegetables seedlings and then plant them in the fields. I am sure they also distributed some to the community. They later on started selling them for ten cents a cutting to encourage farmers to look after them (UZP1. Pers. Comm., 2014).

Initially when we started they received the seeds from me so what they were supposed to do from their harvest they were supposed to leave those plants until they were mature enough to have seeds and grow from their own seeds. Maybe some did not grow up to a point where they could harvest seeds. So my assumption is that either plants died along the way or whatever or they could not get seeds anymore. So I believe that could have been a challenge for them and then unfortunately I left so when they were supposed to get seed for this planting year I was not there, yebo (ARCP3. Pers. Comm., 2014).

However, despite the intention of the ARC to empower the community with seeds of indigenous vegetables and sweet potatoes, many farmers still

pointed to the unavailability of seeds and cuttings as one of the main reasons why they were not growing crops introduced by the ARC. To explain their lack of seeds and cuttings participants reported a number of reasons, including drought, lack of initial interest and financial problems.

A few of the farmers cited drought as having caused the loss of their seeds and cuttings received from the ARC. As these interviewees put it:

ARC gave us three sweet potato cuttings each but they all burned (FP32. Pers. Comm., 2014).

Sometimes we would put the root but it failed to sprout due to drought (FP30. Pers. Comm., 2014).

Another group was not interested in IVs at first so they did not buy seedlings from the ARC. They however became interested in growing sweet potatoes and imbuya after learning that they could make a profit out of them, but the problem was that they had no idea where to get the seed, as was indicated by one participant who said:

I did not buy the seeds from ARC from the beginning, now I hear that people are making a lot of money selling amaranths at the University and I do not have seeds and do not even know where to get it (FP27. Pers. Comm., 2014).

Whilst some individual respondents indicated that they did not know where to access seeds participants from one of the focus group discussions indicated that there were nurseries where they could go and buy sweet potato cuttings. They however did not have money for transport to go and buy the seeds as the nurseries were located far away. They further said that the money they made from selling their products was not enough to support their families and also buy seeds, as indicated during the focus group discussion reported below:

Facilitator: What challenges are you faced with when growing indigenous vegetables and orange fleshed sweet potatoes?

FP1: Some of us did not get an education, the government could assist us with seeds... we do not have enough money to eat and also buy seed... we cannot afford.

FP2: I was thinking of calling Mtubatuba, for seeds and sweet potatoes cuttings but to do that one needs money which I do not have.

FP4: I agree that the problem with us as you can see we are old and do not have any source of income so it's hard to buy seeds

Facilitator: But what happened to the seeds you got from ARC?

FP1: There was drought last year we lost everything even the cabbage we harvested nothing except for mealies.

(FGD2, 2014)

It also appeared from the data that the ARC's early departure was not anticipated by many farmers who participated in the project and they were left ill- prepared and without seeds of their own. This was evident during interviews when some farmers expressed their wish to have the ARC solve their seed dilemma, as shown by the examples below:

I wish ARC had continued sharing the knowledge, so that we can continue with planting and selling Amaranthus at the fresh produce market. Amaranthus is number one in terms of sales I tell you (FP5, Pers. Comm., 2014).

Yes, they taught us about farming, the problem is that since they went away they have never returned and now we do not have seed for the vegetables and sweet potatoes (FP18, Pers. Comm., 2014).

It would be very lovely if they would bring back the ARC, not only do I need them to come back but all of us need them to, even the community needs them. People used to turn to us for seeds and cuttings when they found it hard to store some seedlings. They would come back to us and we would sell the seeds and cuttings to them (UZP7, Pers. Comm., 2014).

Yes it was very successful, we just got disappointed when we realised that it was over, because we had thought that it would continue (UZP5, Pers. Comm., 2014).

It appears as if the participants above are saying that there was lack of communication, as they were taken by surprise by the ARC departure. However, this notion was refuted by one of the participants from UNIZULU who felt that the problem was not lack of communication by the ARC and other stakeholders in the project. He felt that there was a dependency syndrome among community members who expected constant support from government. To him, projects such as this one were meant to make people independent and support themselves. He commented:

Some people think if someone comes with a programme they should continue to support them through and through. I think that is wrong as these programmes are to empower communities and not create dependency (UZP1, Pers. Comm., 2014).

In addition, there was a general feeling among many farmers that in the absence of the ARC, the government should have taken over and provided seeds for them, as indicated below:

The government should also get us seeds and cuttings so that we can find a way forward (FP18, Pers. Comm., 2014).

We want cutting and seeds, if only the government could assist us with imbuya and orange fleshed sweet potatoes we could plant it all over this place it would assist a lot, and igushe it would assist us a lot (FP12, Pers. Comm., 2014).

It's the season for sweet potatoes and we have to buy our own cuttings, no one provides the seeds for us (FP2, Pers. Comm., 2014).

The DARD officials shared the same sentiment as the farmers that the government did not support the growing of indigenous vegetables. Three of the government officials explained how the government makes provision for conventional vegetables and not indigenous vegetables. Some officials commented on the government's promotion of conventional vegetables as being uninformed. To them, the government's decision was failing to take people's cultural values into consideration. An example was given by one participant of how government is always providing farmers with seeds for green peppers, as illustrated by comments below:

I blame lack of focus on the part of government for concentrating on exotic vegetables which are not really part of people's culture. For instance, green pepper if they can't sell they don't really need it and what else are they going to use it for except maybe in stews but in terms of application they have limited use of these vegetables (GDP4, Pers. Comm., 2014).

Part of the challenges as I have mentioned earlier is that the department... does not cater for people who are only producing traditional crops because they do not give them for example pumpkin seeds or traditional seeds or such other plants. For example, they have got this promotion which is one home one garden -an awareness campaign which is part of the food security programme you know ... That section buys uhm bags and bags of seeds to give to people... they have onions, cabbage and beetroot and in those seeds you can see that there is nothing on traditional plants and yet we are promoting it. What we are telling people we must actually provide the resources (GDP5, Pers. Comm., 2014).

The above comments seem to suggest that the Department of Agriculture promotes indigenous vegetables only through policy but not in practice. This

is revealed by the fact that the Department is providing all other seeds except indigenous vegetable seeds. If that is the case, the government's efforts in promoting indigenous vegetables will fail. This is because lack of resources is the biggest challenge to those who want to adopt indigenous vegetables.

There also seems to be blame shifting to the person responsible for providing seeds for indigenous vegetables. Farmers are convinced that the ARC should have continued to provide seeds for them. The ARC and other participants from UNIZULU felt that farmers did not do their part in saving the initial seeds. Furthermore, farmers had several excuses (such as drought) as reasons for failing to save seeds. Nevertheless, what is relevant in this case is that unavailability and lack of seeds is playing an important role in the adoption of indigenous vegetables by small-scale farmers. Unlike previous research, where people were not interested in production (see chapter 2), this study is showing that interest in IVs seem to have been rekindled, yet production seems to be restricted by the unavailability of seeds. Similar, situations were also recorded by Orchard and Ngwerume (2009), where farmers were interested in IV production struggle in the urban and peri-urban areas of Zimbabwe. In Senegal, Diouf et al., (2007) also recorded a similar problem. Again, in this case, the ARC as an agricultural research institute providing seeds for indigenous vegetables. But there was no system that was put in place to ensure that farmers would continue to get seeds. This is to the opposite of a similar project which promoted IVs in Kenya and Tanzania by Farm Concern International in partnership with AVRDC-Regional Centre for Africa (AVRDC-RCA). The project managed to sustainably provide seeds to rural farmers by ensuring that there were seeds from existing supply systems (Muhanji, et al., 2011).

7.5 Lack of interest in farming by the youth

Lack of interest in agriculture among the youth was a matter of concern to many individuals who participated in this study. This problem was not just peculiar to this project but it appears that the whole farming community was facing the same challenge. This came to light after one of the DARD

participants indicated that '95% of people that we work with are older people as the younger generation does not want to be associated with farming' (GDP2. Pers. Comm., 2014). This was considered a problem since farming is a physical job that requires young and healthy people (GDP1.Pers. Comm., 2014). Furthermore, GDP4 complained that he often cancel meetings because farmers would have gone to collect their pensions. Lastly, the indifference of young people to farming was viewed as a threat to farming knowledge that was not being passed on to the next generation, as shown below:

Our department is trying to introduce a programme to empower and encourage youth to farm because they realise that it might happen that by the year 2020 we might not have farmers because older people would have died or too old to farm (GDP3, Pers. Comm., 2014).

Well, it happens that you plan you draw the programme and you go to do a certain demonstration and you find that the farmers have gone to collect their pension payment that day it means you have got nothing to do because there are no young people (GDP4, Pers. Comm., 2014).

It is very difficult because nowadays old people are sick and even if you go to the gardens you can see that they are not done properly.... Even going to the garden is such a struggle. This really affects our work (GDP1, Pers. Comm., 2014).

There is a problem because of lack of youth. The knowledge that we are passing on is benefiting only the older people they won't disseminate to other people. If I know something I pass it on to you and so forth but if that does not happen it means that knowledge will disappear with you if there is no somebody else who is informed about it (GDP2, Pers. Comm., 2014).

Farmers also felt the effects of not having youth interested in farming. Most of the participants said they were too old to carry out some of the activities in the gardens like fetching water from streams to water plants, especially if the source of water was far away. They pointed out their need for assistance from young people but the youth did not want to work without being compensated. As one old lady commented:

Another thing that causes us to not be so productive is that most of us comprise of old people, young people don't want to farm, if they do they want to be paid with soap where are we going to get money for soap? if we have means to get the soap ,we do give them, (FP6, Pers. Comm., 2014).

The education system of South Africa was blamed by most government officials interviewed as one of the reasons youths were not interested in farming. They felt that farming should be introduced to children at an early age to cultivate interest and teach them to take up agriculture as a profession.

One of the participants explained:

We have had a meeting discussing the issue. I think one of the reasons is the background. The type of education that we have because really we need to introduce this thing when people are still young at primary level and say you can live on farming you cannot just plan to look for work when you are finished with school. Now I think that is where the problem is. Eh previously there were gardens in schools and it was nice to do them even though sometimes they were taken like a kind of punishment but we enjoyed working in a garden. It was a joy to see the plants growing knowing that I have just planted this cabbage. Today that is lacking in our schools instead kids now only think of maths, science and commercial subjects you know. They do not think that agriculture is the key (GDP2, Pers. Comm., 2014).

A few of the participants indicated that farming was very risky and many youths were not prepared to take that risk. Youths would therefore consider farming as the last option and leave it as soon as they get something else. Some participants also explained that this mindset was the reason why most government agriculture initiatives to help communities were failing. This was because youths were dropping out of these projects as soon other opportunities presented themselves, as explained by one of the young people who participated in this research:

In farming there is something called risk taking, they are scared of that risk taking, when they see a cabbage they see R5 they do not even have an idea how they will fix it if it were to get ruined. In farming you are not always sure about your gain so youths do not like that and they normally leave farming when they get something else to do. Let's say for instance 6 of them are registered for farming co-operative, only four will pitch up and this then slows down the whole process. I can say over time; the whole project becomes a project where there are no people. The government would give orders to include these people and their names will sit on the register but there is no work that proves their existence. This is what makes agricultural projects sponsored by the government fail (UZP3, Pers. Comm., 2014).

Uncertainty in farming was also explained by Hall (2004) as a reason why people who were allocated land through land reform projects are rarely full-time farmers. They engage in other activities as a strategy to protect

themselves from the risks involved in farming. The same fear is expressed by youth; hence they are always on the lookout for other opportunities.

Some of the farmers also attributed the lack of interest of youth in farming to urbanisation. This was revealed when they pointed out how youths 'did not want to dirty their manicured hands', as shown in the example below:

They want money. The problem is that they want money they do not want to do anything in which they will use their hands and make their fingernails dirty. They can't farm anymore they know that farming is for the people who are not educated (FP16, Pers. Comm., 2014).

Some interviewees argued that farming was something one became interested in only if they grew up farming, as shown in the interview excerpt below:

It is the upbringing of each individual, others grow in families where farming is a norm, and some grow in families where there is no farming therefore projects like farming become a source of attaining things and they will not do it properly... (UZP2, Pers. Comm., 2014).

Perhaps history has something to do with this. O'Laughlin et al., (2013:2) explain that the continuing prevalence of poverty in rural areas, especially former Bantustans like KwaMkhwanazi, lead young people to 'drop from farming projects' (UZP3, Pers. Comm., 2014) searching for a better life in urban areas. This continued disparity between the urban and rural areas makes the latter less attractive to young people (ibid). Resistance to a rural way of life, which is associated with lower living standards, does not start with the youths from KwaMkhwanazi. Historical evidence suggests that people have always migrated from places with less to those they perceive as having more. For instance, O'Laughlin et al., (2013:6) cite feminist Belinda Bozzoli (1983) who recorded how women in Southern Africa resisted the inequalities between the rural and the urban by fleeing 'to the urban areas, and working as domestic servants or as *shebeen* (drinking house) owners and workers'. Again, the situation in KwaMkhwanazi is also recorded in other rural areas of South Africa. For example, Karumbidza (2005:58) records a case of one participant who expressed support for youths' action by saying:

Young people cannot be blamed for these choices, which are at least practical. There is no clear plan of action, nor any sign from the

government at any level that they can make rural life better and more attractive to the youngsters.

In sum, young people are presented here as shunning the food sovereignty tenet of being autonomous by growing one's own food. This is because in KwaMkhwanazi these principles are failing to convince them that they will fulfil their food security, hence their desire to leave (Martínez-Torres and Rosset, 2014).

7.6 Lack of farm implements

Almost half of the farmers revealed that lack of implements was hindering their farming activities. Participants indicated that they needed garden tools to be able to perform their duties properly. They also indicated that they were not able to purchase the implements themselves as the money they got from their farm produce was only enough to buy food and some necessities for their families.

Our only wish is getting farming tools sponsored to us, these are things such as watering cans, things that are very expensive (FP49, Pers. Comm., 2015).

The government should assist us, especially us because we are very old, some of us did not get an education. The government could assist us with seeds, pipes and fertilisers. We do not have enough money to eat and also buy pipes and things for watering our plants we cannot afford them (FP55, Pers. Comm., 2015).

The situation described above is consistent with Baiphethi and Jacobs' (2009) observations who noted that most of the poor households in some parts of sub-Saharan Africa use 60-80% of their income to purchase food.

Farmers also complained that the government had abdicated its role in providing services to the farming community such as ploughing their fields and buying farming implements. Participant gave several reasons as to why the government had ceased to support farmers. One of the key ones is bureaucratic red tape when farmers try to get assistance from the government.

We have been fighting for things for a while now. They said that there are tractors from the state but they say we must bring forms in order to

apply for them this time they said they are there but they have no diesel, when we say we will put our own diesel they say it is not permitted to do so, there are tractors but no one is using them, we don't even bother asking them for the tractors anymore, we don't have any assistance (FP52, Pers. Comm., 2015).

What is evident from the claims this farmer is making is the complex processes that one has to follow before they can get assistance. The question that remains unanswered is whether farmers are capable of following such processes. As this farmer clearly says, they 'no longer bother asking'.

Government officials explained that the reason why the government could not help farmers was a reflection of the general current bad economic situation of the country.

At the present moment the problem lies with the political atmosphere because at the office the government has subsidised a lot of things but now due to the socio-economic situation in South Africa people do not have money to buy seeds but previously the government when introducing agriculture to the people they would bring something which would motivate them like watering cans, wheelbarrows but now what I give these farmers are theoretical things and if I have something on my mind I have to take my own money and buy it so that the farmers could benefit (GDP2, Pers. Comm., 2014).

The response of the government extension officer was not surprising since he constituted people farmers were blaming for lack of service delivery.

Another important reason cited by the participants pertains to empty political promises. According to one interviewee, politicians make promises that they never fulfil:

The government encourages farming but it does not help us that much...promises were made of providing us with water but nothing came out of it and they became empty promises (UZP4, Pers. Comm., 2014).

Related to this, is the problem of corruption, where only the politically connected benefit from government services:

There is a plot of land in the north where the owners get the services from the tractors they come in and farm for them, they give those seedlings and everything they need, but with us we don't have any help

because we do not know anyone from the government (FP60, Pers. Comm., 2015).

The challenges faced by KwaMkhwanazi community may be explained by 'the removal of support that farmers in former homelands used to receive from the pre-1994 government (Baiphethi & Jacobs, 2009:20).

7.7 Threats from thieves and animals

During fieldwork, we observed that very few gardens were fenced. This was a problem as many participants complained of losing their crops to thieves and animals. Theft was mostly affecting gardens located close to urban areas. Farmers mentioned that they sometimes lose tools donated to them, leaving them with a sense of hopelessness at being overwhelmed with problems. They felt that they would always lose whatever they got to criminals as long there was no solution to protect them:

Mondi sponsored tools for gardening; tools such as spades, ploughs, axes, wheel barrows and seedlings, but it was all stolen by thieves who broke in the back storeroom where we kept the things (FP7, Pers. Comm., 2014).

The problems that we face is theft, we can't do anything about it though, even those people who hunt bushbucks act as if they are removing bushbucks from the gardens and yet they are stealing from my garden, they take it and go, it is because we didn't fence the place (FP23, Pers. Comm., 2015)

RBM will help us with regards to getting water, I went to their offices to put a quotation for water, Thabethe is the one in charge of Aqua, they did measurements on the land, they said that they would put a pipe that side where there is a stream. If they were to put pipes they would steal them, better they put tanks of water with underground pipes, but they can also steal the tanks or put a hole in them, it would be better if everything is put underneath. I don't know how we could then take the water then (FP18, Pers. Comm., 2015).

Another common concern among interviewees was loss of crops to animals. This led to the loss of food as well as a source of income, threatening food sovereignty and security, as shown in the excerpt below:

There are cattle walking about and they destroy our vegetables and we lose money because we will be left with nothing to sell to the market (FP1, Pers. Comm., 2014).

The problem of theft as reflected in this finding is probably due to the socio-economic background of KwaMkhwanazi that is characterised by high unemployment and a high crime rate, as already described in chapter 1. Again, the situation in KwaMkhwanazi resonates with what other farmers in the same province (KZN) are facing. For example, Everson et al., (2011) report that people in Ntembeni and KwaMncane lose their plants to animals and thieves. Farmers who have no fence around their gardens were the most affected.

7.8 Lack of Funds

Participants mentioned lack of funding as one of the issues that undermined the objectives of the project. According to interviewees from the DST, the ARC and UNIZULU, the project failed to implement some of its objectives because it was underfunded. For instance, the initial aim of the project was for UNIZULU to carry on with the project after the ARC's exit, as indicated by the ARC technician and one of the UNIZULU workers who was involved in the project:

I wish someone had maybe taken it further when we left because that was the main idea that when ARC exit maybe UNIZULU will continue with the project. But when we came in we had to get workers who were going to work specifically on this project and when the contract ended their jobs also ended. So the challenge for UNIZULU was to take the very same workers that were working on the project to keep them and pay them. I think they did not have the funds for that and the irrigation and doing the daily activities for the project so they just quit (ARCP2, Pers. Comm., 2014).

The structures are there but we still need money to continue with the project. Labour is one of the most important things for any project to succeed. In fact, I think that what made it to collapse was because we did not have the human resources and finance (UZP1, Pers. Comm., 2014).

Government officials also indicated that there were several challenges that farmers have to face before they can receive funding to start small enterprises, as expressed below:

When one wants to get funds from the government, there is a long process to apply for funds either for irrigation or for fencing. You are supposed to write a business plan for that financial year which will take

a long time sometimes it will not be easy... For instance, if you apply today your proposal will pass in 2017 (GDP2, Pers. Comm., 2014).

Sometimes it will depend on their budget and their list of priorities like whom they have on that year to fund. So when people get trained you find that they are trained this year and then they get the funds in their third year so by that time you find that maybe others are not even in the project especially the young people they have moved on they got married or get other jobs (GDP4, Pers. Comm., 2014).

Reflected here is a disconnection between theory and practice. The government [DST] is providing funds through the ARC to train farmers to start their own enterprises and yet it did not provide necessary resources to farmers. Again, the funding system of the government tends to alienate the marginalised, like the uneducated who cannot use the system. This was evident when I compared two co-operatives that had adopted the growing of IVs and seemed to be doing well while the rest seemed to be struggling for resources. What sets those who were doing well apart was that their leaders were retired workers from the DARD [who] probably because they were educated were able to take initiatives to turn cultivation of indigenous vegetables as business enterprises. For instance, one leader who was a retired extension officer related how he was able to secure financial assistance from the government because when they started he wrote a business proposal and they registered as a co-operative. He said:

I worked for the agriculture department for some time and I retired in 2006. I said to myself, now that I have closed this door I must open another door. I approached some of the unemployed women in this community and said let us register a co-operative and that allowed us to work on a sort of commercial level. As a co-operation that is registered we are also able to get financial assistance for example last year I approached the Department of Agriculture and Rural Development with a proposal and we were able to get seedlings and tunnels that we use for nursery (FP1, Pers. Comm., 2014).

Another example was evidence given by another retired DARD official who indicated that Richards Bay Minerals supported them after they approached them with their business proposal, a skill he claimed to have acquired from community training offered at UNIZULU. He commented:

During the 60's and the 70's I used to work at Tongaat Hulett's where they used to make cages for the chickens, after that there was a company from Maritzburg that they used to call Hlangabeza. It is from

this experience that I learnt all my business skills. Again there were people from agriculture from UMgungundlovu they gave us these books for farming that are written in isiZulu, students from the University also taught us how to write up a business plan and this constitution, we sent all of those documents to Social development and got some money to start our co-operative as a business (FP61, Pers. Comm., 2014).

Whilst the above co-operatives were celebrating, their success in acquiring funding other groups lamented their lack of financial resources, partly because they felt they could not write, which is an important skill in applying for funding, as illustrated by a farmer and one of the government officials interviewed:

Another problem is that some of these co-operative members did not go to school so I end up writing for them (GDP2, Pers. Comm., 2014).

Our agriculture extension officer told us that we can get assistance from the government. But you need to come up with a proposal to get the money. That is difficult for us. As you can see for yourself most of us are old and did not go to school. They say they would help us (extension officer) to do that, but it's has been a long time now since we saw them. (FP34, Pers. Comm., 2014).

The longer waiting period after applying for funds also marginalises the poor; hence, they abandon the projects as they search for other means of surviving. It therefore means that farming enterprises are only possible when the government first puts in place systems that are accessible to the vulnerable and marginalised of society. It also means a waste of skills they may not be able to put in practice because of their circumstances. Again, this has negative implications for food sovereignty as the precondition of food security; here it would appear that food security is possible only when one achieved the security of a livelihood (Martínez-Torres and Rosset, 2014).

7.9 Idleness among farmers and agriculture extension workers

Half of the participants from UNIZULU and the DARD attributed failure among farmers to idleness. Although some government workers affirmed that farmers did not have the necessary resources for farming, as already shown above, others pointed out that the problem also lay with farmers who were not willing to work hard. One of the extension workers revealed that sometimes farmers

complained of lack of seeds when they would have not utilised the seeds given to them:

Hard work also explains why some are successful and some are not. Some gardens people do not want to work. They complain that they do not have money and yet some of them will not have even used some of the seeds I would have given them. You then realise that they have not planted and some are even eaten by the chickens at home (GDP2, Pers. Comm., 2014).

Idleness was explained as being caused by social grants:

Another problem is this thing of grants. Most of the time when I am working in the field I realise that most of young people spend time in queues waiting for grants The problem is our government is preaching two things, they say people must fend for themselves and yet at the same time they are giving them grants (GDP1, Pers. Comm., 2014).

It is evident from the above that some government workers believe that farmers are not interested in working and hence they fail. However, this may be viewed as short-sightedness in the context of this study as there are a number of ways one can use to make sense of what is happening in KwaMkhwanazi which make some farmers fail. Firstly, one of the possible reasons is lack of resources, as already revealed in sections above. Secondly, this case study might be confirming what is already known about the situation in South Africa, namely, that the country is going through a process of 'de-peasantisation'- when subsistence farmers replace it with other activities other than farming to support themselves because of shortage of land, a situation facing KwaMkhwanazi as well (Baiphethi & Jacobs 2009). Thirdly, it may simply be that some people are not interested in farming, as suggested by Neves and Du Toit, (2013). Lastly, in opposition to the views of GDP1 above, many scholars are of the view that social grants are increasingly becoming more important in an economy where the gap between the rich and poor is widening (O'Laughlin, et al., 2013).

A few farmers also pointed a finger at extension workers, saying that laziness on the part of these government workers was leaving them without any assistance. Below is an example of a farmer's complaint directed at extension workers:

Our extension workers do not train us. All they do is just come and see the place and offer no training. We went to the department to ask for advisers to stay, because one needs an adviser when planting, and currently there are those who are beginners at farming so they need advisers (FP10, Pers. Comm., 2014).

However, one retired extension worker differed with this argument, suggesting that there was a lack of confidence on the part of younger extension workers whose training was theoretical and did not prepare them for working in the field.

Personally what I would be happy with is students from that university of ours to be relating with the community while they are still learning so that when they complete they have a better understanding of what is happening on the ground rather than completing your degree and then come start coming down and say ehe here is what I have. No. Come before, then do practical with us and learn how we are doing things and so forth and in that way you can stand better chance of assisting people. With us during our time this is how we were doing it we reached down to people and learn how they do things (F1, Pers. Comm., 2014).

The arguments of both views of farmers and retired extension worker may be regarded as unfortunate because if extension officers were to perform their duties faithfully and efficiently, it would in all likelihood lead to improved crop production, as evidenced in other counties. An example is the study by Rukuni and Eicher, (1994) which showed that in Zimbabwe small-scale maize farmers were reported as having increased their output due to services provided by extension workers. This might mean that the same could happen in KwaMkhwanazi if farmers got support in the production on IVs.

7.10 Poor Consultation

Interviews with the University of Zululand and farmers indicated that one of the reasons the project did not continue after the departure of the ARC was failure to integrate the participation of those who were responsible for its implementation at the planning phase of the project, as indicated below:

I think what ARC should have done was sit down with indigenous people, talk to them and find out what they are doing and why they are doing that. They would eventually produce a document that is made up information from the academic and indigenous. They were supposed to go to indigenous people on the ground and say what are you producing what are you eating and then learning from them. The initiative must be

with indigenous people. As developing agency, they must say this is your thing this is how you can make use of it to get money. I think the government came up with a good idea and they failed to implement it. It is the implementation of the policy which is the problem (FP1, Pers. Comm., 2014).

The other problem was also that the programme did not come from the community. These projects that do not come from within the community are bound to fail because we are sort of imposing on them. For example, we came with vegetable *Nyevi* which they didn't know. Even this imbuya they did not even know it. They have their own *Amaranthus* here. To them the foreign *Amaranthus* may not appeal to them you see. For example, there is a group of farmers that want us to help them to grow vegetables for marketing purposes. It is a demand that is coming from them. They said we have got land we are just looking for ABC. I am sure that is a project that can go ahead and succeed rather than coming with something foreign and give it or impose on someone else it may not work and I think that what killed this project (UZP1, Pers. Comm., 2014).

What is evident from the citations above is an agreement that the idea of promoting IVs is a good one. However, the problem was in the process, especially at the beginning where the contributions of the beneficiaries were not solicited. This led to assumptions being made about what people want and, hence, the rejection of some IVs, as already indicated in chapter 6.

However, other participants from UNIZULU and farmers seem to think that the project failed because they were not consulted; views from the DST and the ARC are contradictory. They argue that the project should be viewed as an awareness campaign and hence there was no need to consult with farmers on the IVs they would prefer, as indicated below:

We try to promote all of them we show them and to pick is the choice of farmers and the community (ARCP2. Pers. Comm., 2014).

The views of the ARC and the DST participants indicated above resonate with Gladwell's (2002) ideas, as reflected in his book 'The Tipping Point'. He asserts that when new practices are introduced there are always a few who adopt it faster than the rest. He explains that when a new innovation or practice is introduced there are very few people who will adopt it early. These are followed by the majority, after they have learnt from the experiences of the early adopters. Similarly, in this case study, whilst other farmers were still

grappling with the idea of cultivating IVs others confirmed that they were doing well. Hence, one of the DST participants felt that it was too early to think that people were not going to adopt some of the IVs they were not yet cultivating. He explained that the knowledge was new to people and it takes time for some people to accept new knowledge. He argued:

The ARC wanted people to be aware of these vegetables and introduced even some new ones. I think that is part of the promotion process. I believe that if the ARC was to go back to these areas probably people will now be more responsive to these vegetables. So in other words the fact these people did not readily accept these vegetables does not make the project a failure what is important is that people become aware of these vegetables and it was up to them to take them up or not. All in all I believe given the circumstance and the constraints in which these guys were working under they did a great job. (DSTP1, Pers. Comm., 2014).

7.11 Challenges of marketing indigenous vegetables

The ARC, UNIZULU and the farmer participants all lamented that IVs had not reached a level where they could compete with conventional vegetables. They mentioned that big supermarkets that could help in the marketing of these vegetables were not yet keen to put them on their shelves in bulk, as illustrated by the excerpt below:

There was no market for indigenous vegetables. It's not like cabbage and carrots where people know that if they want it they go to the supermarket. So for them finding the market to buy their product was a problem (ARCP3, Pers. Comm., 2014).

The concerns expressed in this study were also shared by people selling indigenous vegetables in Limpopo in the Vembe and Capricorn districts by Mafukata (2015) and Mahlangu (2014) respectively. These studies found that supermarket chains and community retailers were still unwilling to stock indigenous vegetables. The implication of this finding is that indigenous vegetable sellers have to rely on informal markets that may not be consistent or reliable and which compromise the sustainability of their enterprises.

However, one of the ARC participants was hopeful of the potential of IVs and cautioned against dismissing them, because it was still early days. He believed that given time and effort the situation might change for the better. He said:

We may not be there now but we are looking at providing for the supermarkets like Pick 'n Pay to put these vegetables on their shelves. In places like Limpopo the market is promising. There is a lot of potential for these plants some of the information is still confidential... Some of our partners are working on trying to develop enterprises from these types of crops. They are investing lot of money and infrastructure so I am sure in the near future we will see some changes (ARCP2. Pers. Comm., 2014).

There might be some merit in the analysis of the ARC2 above if one considers what is happening in other situations where IVs have been promoted over a period of years. Take for instance in Kenya, where Shiundu & Oniang'o (2007) argue that IVs have been promoted for a long time now and they have noted increasing consumption and marketing of these vegetables such that they are now being sold in big supermarket chains and hotels.

A few of the farmers also expressed concern over the transport costs incurred when going to sell their products to neighbouring towns, forcing them to sell their vegetables at a higher price. One participant explained how most of their customers complained about the high cost of imbuya:

Other challenge currently is that we have to take our products to Richards Bay and that requires transportation. Since transport cost is very high we also then charge higher prices for our vegetables. This creates problems as customers will begin to complain *ahh baba ahh kuyabiza baba* [it is expensive] but eventually when you explain to them they will understand. Those are our problems and that has prevented us to take our products to far distances. We are just operating within our reach (FP62. Pers. Comm., 2014).

This finding shows that downstream challenges to farmers impede their market access. This confirms findings by Ngcoya and Kumarakulasingam (2016). In their research on indigenous vegetables in Mtubatuba, also located in KwaZulu-Natal province, co-operative farmers stated that although they had an agreement to supply Pick 'n Pay with vegetables weekly, they had to relinquish that market as they had extreme transport problems.

Farmers also indicated that one of their challenges was not having a proper market structure. The problem associated with this lack is that they are exposed to adverse climatic conditions. For example, 9 (14%) of 66 of the farmers indicated that they sometimes endure very high temperatures

because they do not have shelter. They also pointed out that business is sometimes disrupted when it rains, as they leave their stalls to go and find shelter.

7.12 Conclusion

Drawing on the food sovereignty concept, this chapter established that the promotion of indigenous vegetables in the KwaMkhwanazi area was influenced by many factors. The results show the outcome of the project was viewed differently by different stakeholders. Whilst some believe that the project was a success others felt that it was a failure. This could be explained by the different expectations people had of the project. The difference in expectations can be traced to the fact that the planning of the project did not involve everyone who ended up implementing it. This could be the negative part of the project, as shown by the fact that the project was abandoned on the exit of the ARC. The results in this chapter also showed that there were other factors that the project had no control over but which still had an impact on the outcomes of the project. Food sovereignty theory recognises that for farmers to attain food security they need to have access to water, land, markets and financial resources. This has been proven true by the results where it was evident that the implementation process by farmers was governed by access to resources. From the empirical evidence, this chapter has proved that it is not always easy for farmers to put the principles of food sovereignty into practice. The chapter has also highlighted challenges that were associated with the Department of Agriculture and Rural Development that either hindered or promoted the implementation of the project. People's attitudes and the way they accept change had a lot to do with the implementation process, with some doing well and willing to put in effort, whilst others just focussed on the problems. The next chapter provides a summary of the findings, reflections on the theories, implications, and a conclusion.

CHAPTER 8: CONCLUSION

8.1 Overview

The purpose of this study was to examine the alignment of the Department of Science and Technology (DST) Indigenous Knowledge Systems (IKS) policy and practices on the ground. The ultimate aim was to identify the steps and activities that need to be taken to improve the understanding and execution of policies and activities that seek to promote indigenous vegetables (IVs). The research adopted two approaches. The first approach was a critical discourse analysis of documents and interviews. The aim of this approach was to explore the reasons why South Africa adopted an IKS policy in 2004; these are presented in chapter 5. The second strategy was to do a case study of a project that was supported by the Department of Science and Technology in its promotion of IKS in South Africa. The ARC project promoting IVs in KwaMkhwanazi was selected and the results are presented in chapters 6 and 7.

The study drew on decolonial theory to explain the formulation process of IKS policy in South Africa. It also employed food sovereignty theory to explain the implementation process of indigenous vegetable promotion in KwaMkhwanazi.

8.2 Summary of the findings

This section summarises the findings of the study. It provides a bird's-eye view of key results in relation to the research questions and the overall objective.

8.2.1 Contextualising the promotion of indigenous knowledge

The key questions that I have been probing concerning promotion of indigenous knowledge in South Africa are:

- 1) Why was the National Policy on indigenous knowledge formulated?
- 2) How was the DST, IKS policy formulated and what factors contributed to its emergence?

Wilson (2004:359) argues that any study of indigenous knowledge should be viewed as an 'anti-colonial project...that gains its momentum from the anguish of the loss of what was and the determined hope of what will be'. The study pursued the reasons for the national policy on indigenous knowledge by giving a historical background of indigenous knowledge in South Africa, the reason being that it is difficult to understand the present situation of South Africa without invoking the colonial and apartheid history as the present is so intertwined with the past. To this, Said (1994:4) posits that:

...even as we fully comprehend the pastness of the past, there is no just way in which the past can be quarantined from the present. Past and present inform each other; each implies the other... each co-exists with the other.

In this study we see evidence that it is difficult to articulate the formulation of indigenous knowledge policy without making reference to the past. This is revealed in chapter 2 where the study context shows that the promotion of IKS in South Africa is driven by the need to recognise and protect IKS. This is because historically IKS was subjugated and suppressed. The context also shows that South Africa's interest in promoting IKS is aligned with what is happening in international fora with various organisations and legal entities pushing for the recognition and protection of IKS.

It is therefore from this context that the study shows that promotion of indigenous knowledge was initially driven by the discourse of the African Renaissance, a discourse that has at its centre the rediscovering of African values and culture as a response to western ideals that have been imposed on the continent since colonial times (Vale and Maseko (1998). An example is contained in chapter 5 where indigenous knowledge is recognised alongside modern science for the building of society through technological development and industrialisation. Thoughts coming out of the analysis of chapter 5 relates to Mignolo's (2005) understanding of decolonial theory as something that seeks 'an-other thought' and 'an-other logic'. Inclusion of IKS in policy is a decolonial act aimed at correcting the misconception that western knowledge is the only way wealth can be created. Yet this is a complex project, as my findings in chapters 6 and 7 demonstrate. While national policy can be

interpreted as a decolonial move, in practice it is a cumbersome project that is limited by lack of resources (such as land, water, finances and expertise).

8.2.2 Resurgence of indigenous vegetables at all levels

Corntassel, (2012:89) makes the point that:

If colonisation is a disconnecting force, then resurgence is about reconnecting with homelands, cultures, and communities. Both decolonisation and resurgence facilitate a renewal of our roles and responsibilities as indigenous peoples to the sustainable praxis of indigenous livelihoods, food security, community governance, and relationships to the natural world and ceremonial life that enables the transmission of these cultural practices to future generations.

One of the major findings of this study that also separates it from previous work is its affirmation of the renewal of interest in indigenous vegetables by research institutes and the general public. There is evidence from the study that there is a resurgence of interest in indigenous vegetables both at policy and practical level. An example is the interest shown by the Department of Science and Technology in funding the ARC to work with a rural-based university in the promotion of production and marketing of indigenous vegetables.

Resurgence at the local level is evident in the results presented in chapter 6. It is clear that small-scale farmers in KwaMkhwanazi are well informed about the nutritional, cultural, safety and economic aspects of indigenous vegetables. Unlike previous studies done in South Africa, there is no evidence associating indigenous vegetables with shame or poverty.

A key thread running through the body of this study is how malnutrition is deeply connected with poverty and changing lifestyles among South Africans (chapters 1 and 2). There is evidence that the resurgence of indigenous vegetables is resulting from the need to address malnutrition among rural communities, especially among vulnerable groups such as women and children (see chapter 6). This concurs with Damman et al., (2007:136) who argue that:

Changes in diets, patterns of work and leisure have occurred with industrialization, urbanization, economic development, and the

globalization of markets. These changes, often referred to as the 'nutrition transition', are contributing factors in the causality of non-communicable diseases, even in poorer countries. Especially in low and middle-income countries, the pace of these changes appears to be accelerating, leading to a situation where communicable diseases and under nutrition exist in parallel with chronic diseases, thus creating a 'double burden of disease'.... Poor and market dependent individuals tend to purchase cheap and filling foods. These cheap foods tend to have a low mineral and vitamin content and be high in saturated fat and refined carbohydrates. The resulting diets hold a low nutritional quality, and are associated with high prevalence of obesity and diabetes.

The above citation seems to endorse the beliefs of indigenous knowledge scholars who argue that the resurgence of indigenous knowledge is a response to what seems to be a realisation of the failure of modernity to offer solutions. Chapter 2 discusses modernity as a cause of problems as presented by Damman, et al., (2007). This is why there seems also to be a general agreement among the participants that indigenous vegetables may be the solution to malnutrition and prevention of diseases (see chapters 2 and 6). The resurgence of indigenous vegetables resonates with the decolonial argument presented in chapter 3 that suggests for recognition of the pluriversality of knowledge, which acknowledges that other knowledge systems like IKS can solve contemporary issues. The potential of indigenous vegetables in addressing the nutritional needs of KwaMkhwanazi is crucial in the context of South Africa's household food insecurity (Greenbeurg, 2010). This aspect relates to food sovereignty's conceptual premise discussed in chapter 3 that supports production of food at a local level to fulfil the nutritional needs of the poor.

The study also shows that indigenous vegetables are being promoted because of their contribution to income generation among the rural poor. The effort of promoting indigenous vegetables for income generation is believed to be working in other provinces of South Africa (chapter 6) and Limpopo is given as such an example. It is evident that, to some extent, the possibility of earning an income from producing and selling indigenous vegetables may be a possible reason for the resurgence. This aligns with the discourse of commodification of indigenous knowledge that is very evident in chapter 5.

Indigenous vegetables in this case are presented as, at least to some extent, addressing poverty and unemployment. However, commodification of indigenous vegetables in this case is a very small component compared to the commodification described in chapter 5. Commodification as it is presented at policy level involves issues of bio-prospecting and production for export. This does not however mean that what is happening locally is not important. As 'Simpson would say, 'everyday acts of resurgence aren't glamorous or expedient' (Corntassel, 2012:98). What is happening here is simple acts that have enabled small-scale farmers to earn income, and hence persuade them to embrace the production of indigenous vegetables.

The resurgence of indigenous vegetables is also in line with the views of Mabhaudhi (2015: 451) who sees the resurgence of once-neglected plants as something related to the unique characteristics that make them adaptable to harsh ecological conditions. He claims that:

People are looking at other sources of food responding to climatic change, population increase, drought in South Africa, increase in food prices caused by multinational companies that have monopoly to food industry.... The challenge has sparked recent interest in the possible use and re-introduction of neglected and underutilised species.

The argument being made by Mabhaudhi is evident in this study, with farmers finding it easier to grow indigenous vegetables because they are drought- and pest- resistant, as discussed in chapter 6.

Another reason for the resurgence of indigenous vegetables evident in this study is their role in 'reinforcing cultural identity' (Damman, et al, 2008:141). The 'non-nutrient based value' (ibid: 141) of indigenous vegetables is expressed in chapters 2 and 6. Chapter 6 reveals that the adoption of indigenous vegetables that were introduced by the ARC was based on cultural acceptability. Furthermore, results also show that indigenous vegetables are prepared as food during provincial cultural celebrations, signifying the place of food in identifying cultures (see chapter 7). Such an understanding of reinforcing people's cultures through the promotion of food is consistent with the food sovereignty principle that places cultural acceptability at the centre of peoples' right to food (see chapter 3). This may also prove

that promotion of indigenous vegetables is another way towards achieving food sovereignty at local level. Such an understanding can be explained using Shava's (2008:9) interpretation of indigenous knowledge systems in which indigenous vegetables are one of the components. He asserts that:

Because indigenous knowledge systems derive from different **locales/places** and different communities, they cannot be grouped as a collective single entity under the commonly used unifying term 'indigenous knowledge'. Rather, **plurally definable heterogeneous bodies of knowledge** or "indigenous knowledges" arising from various spatially differentiated and distributed knowledge-generating nodes instead of a singular homogenous body of knowledge. This deliberate emphasis underlines a shift from the plural unity that drowns these knowledges into a collective anonymity to a focus on plural diversity of identifiable singular knowledges.

8.2.3 Conflict of interest caused by lack of stakeholder participation in the initial stages of the project.

Results presented in chapter 5 show that IKS policy formulation was a product of the participation of people from diverse backgrounds, including indigenous knowledge holders, lawyers to academics. Diversity was also seen in the participation of 11 government departments. This diversity was encouraged in order to accommodate a diverse range of subjects that constitute IKS. The way IKS policy was formulated, especially the inclusion of indigenous knowledge holders such as traditional healers, supports the views of Briggs and Sharp (2004) presented in chapter 2. They argue that IK as a discipline supports the participation of indigenous people and the poor in decision-making, unlike modernity theories that favour top-down strategies. The inclusion of indigenous knowledge holders might also be construed as a decolonial act as it is an acknowledgement of people that have previously been silenced and subjugated (see chapters 2 and 3).

However, the discourse of participation at the policy level does not align with participation at the implementation level, as I showed in chapter 6. The ARC, as an implementing agent, emerges in the study as having made all the decisions on the promotion of indigenous vegetables. UNIZULU, which partnered with the ARC in the promotion of indigenous vegetables in KwaMkhwanazi, indicated that the project was imposed on them (see chapter

7). The community of KwaMkhwanazi, who were the beneficiaries of the project, indicated that they were also not consulted. The effects are there to see, as the project was not sustained as per the initial objectives of the project (see chapter 6). Effects of not involving all stakeholders in the planning process is also evident among the farmers who refused to adopt the unfamiliar IVs (see chapter 6). This is consistent with Finisterbusch and Van Wicklin (1987:1) arguments that participation is vital to the sustainability of projects, because 'development imposed from the outside of the local setting, no-matter how benevolent and well-intentioned, is ultimately counterproductive. It is not effectively integrated into the world it purports to develop'.

To apply, Finisterbusch and Van Wicklin argument above, counter-productivity is observed in the case of the nursery that was built at the university but is not serving the purpose of producing IV seedling for which it was built. The ARC's failure to consult may be explained using Cochran et al., (2008:26) arguments which advise that:

Academic researchers, and the institutions that sustain them, may have to relinquish their hold on the role of "principal investigator" to facilitate truly collaborative research, seeing themselves primarily in a service role, accepting community direction regarding priorities for research...

What we see in this research is that the ARC as a service provider failed to 'truly' collaborate with the UNIZULU in that the University did not take part in the planning phase of the project. The ARC also seems to have failed to 'relinquish their hold on the role of "principal investigator"' (ibid). This resulted in the closing down of activities the moment the ARC exited, probably because the UNIZULU felt that the project was 'imposed' on them and they never owned it. As a result, the study laments that the ARC failed to honour some of the co-operative agreements with the UNIZULU. An example is the development of human capital. The results from the UNIZULU and the ARC were contradictory. Results from the UNIZULU indicated that the ARC was not willing to fund students' research on indigenous vegetables whereas the ARC argues that the University could not find students who were willing to study at master's level. The blame-shifting just points to a lack of consultation

and participation. Relating this finding to the policy analysis in chapter 5, which supports 'capacity building for black and women researchers, especially those in Historical Black Universities and former technikons' (National Research Foundation, 2012:4), the study therefore concludes that despite awareness of the importance of capacity building as reflected in the objectives of the project, the practices failed to align with the policy.

Secondly, the ARC is revealed as having failed to take the role of service provider to the KwaMkhwanazi community. Had they taken the service provider position, as suggested by Cochran et al., (2008), they would have allowed that community to direct them in terms of the indigenous vegetables that are preferred in the community. To Finisterbusch and van Wicklin (1987) what happened in this instance might be viewed as suggestive of a weak project design.

However, contrary to the widely-held view (Khwaja, 2004), that participation in community development projects is essential for sustainability of the project, responding to the needs of the poor and ensuring better project design Finisterbusch and Van Wicklin (1987:4) argue that participation may not be easy to implement. They claim that:

The main obstacle to participation, however, is the difficulty of implementing it in practice. It takes additional time and resources to mobilize less developed communities. One has to continuously consult with far more people than if the project were executed without their involvement.

Finisterbusch and Van Wicklin (1987) arguments can be related to the actions of the ARC and the DST as both groups confirmed that the project was underfunded.

8.2.4 More gender equity at national than at local level

At the heart of both food sovereignty and decolonial theory is the issue of gender awareness as an important aspect to be considered when addressing the challenges of countries that were once colonised. In my attempt to address questions on 1) How was the problem formulated and what factors contributed to its emergence? and 2) Who are the stakeholders involved in

the implementation of the policy at project level?, the discourse of gender equity was evidently very prominent. In chapter 5, it is clear that recognition of women was important in addressing the 'how' and 'who' aspect of IKS policy formulation. From the decolonial perspective discussed in chapter 3, the study reveals an effort to correct past injustices of the colonial and apartheid past that side-lined people according to their gender and race (Mignolo, 2009). Indigenous knowledge seems to be addressed as a decolonial option which is addressing aspects of equity in various ways. As already discussed in chapter 5 these ways are:

- Recognising women indigenous knowledge holders as co-researchers not just informants
- Recognising that women are productive members of society.
- Having women in leadership position
- Redressing inequality by reducing the gap between the poor and the rich through supporting women and other vulnerable groups like youth in starting medium and small enterprises

The discourses analysed also provide examples of situations where equity through indigenous knowledge has been realised. The discourse of equity is also evident in the case study. At a case study level it is evident that women are being supported to start small enterprises of selling indigenous vegetables. The majority of the people who benefited from the ARC promotion of indigenous vegetables were women, as indicated in chapter 4. This result affirms the food sovereignty's

...commitment to gender equality was asserted by La Vía Campesina (LVC) at its fifth international conference in 2008, and reconfirmed at the sixth conference in Jakarta in 2013. Women within LVC have actively advocated gender equality in programmes, manifestos and within the organisation itself (Park, et al., 2015:585).

However, we have to acknowledge that this is not unique to the cultivation of indigenous vegetables. According to Altman, Hart and Jacobs (2009), women make up to 60% of small-scale farmers in South Africa. I would also argue that, in this case study, attempting to 'redress inequality by promoting entrepreneurship in rural areas' is not necessarily reducing the gap between

the poor and the rich. This was because most of them indicated that selling indigenous vegetables was just allowing them to 'survive' (chapter 6).

Another observation made is that although there was a glimpse of practice of equity, it is very small compared to expectations revealed in national policy equity discourse, as revealed in chapter 5. Firstly, there is no evidence of women in leadership positions in KwaMkhwanazi. The relations of power expressed through patriarchal systems that prevent women from accessing land in this case study is almost totally in agreement with Vambe and Khan (2013) who critique Quijano's colonial's matrix of power on the grounds that it is not the only problem facing Africa today. To them, power struggles should also be understood patriarchally, with men oppressing women, as discussed in detail in chapter 3. Echoing the same in her critique of food sovereignty, Agarwal (2014:1255) emphasises that 'a nod to gender equality is not enough'. The problems women face as farmers are structural and deep-rooted, and need to be addressed specifically. These assertions made by Agrawal hold true for this study. Throughout chapter 7 it is very clear that there are a numerous challenges currently facing people in the KwaMkhwanazi community.

8.2.5 Persistent colonial economic and social structural power negatively influencing the production of indigenous vegetables

One of the major questions that I asked in this study was how the policy on IKS is implemented on the ground. To address this question challenges that farmers face were also explored, as it was felt that these would have a direct impact on the implementation process. A diverse range of challenges is revealed by participants. Whilst some of the challenges are specific to the production of indigenous vegetables, some are general to the rural community.

Land inequalities that were created during the apartheid system 'where former reserves used to occupy just 13 percent of the country's land as recorded in the land Act of 1936' (O'Laughlin et al., 2013:5) seem to persist. Similarly, my findings show that land shortage is still prevalent in KwaMkhwanazi (see

chapter 1). Overcrowding is revealed as having an impact on the production of farmers who either have arable land that is too small or do not have it at all. From this perspective, one might argue that government's efforts to promote indigenous vegetables is therefore not sufficient without access to land. The farmers' concerns about the land issue are best reflected by a statement made recently by food sovereignty advocates in South Africa (South African Food Sovereignty Campaign, 2014:1). Proponents posit that:

We are not simply calling for technical solutions for households to access food as encapsulated in the government's recently proposed *Food Security and Nutrition Policy and Implementation Plan*. We reject the latter and instead are calling for the deep transformation of our food system...

The above protesters are rejecting what they believe is the dominant food security narrative in the Food Security and Nutrition Policy and Implementation Plan that 'does not necessarily link food security to self-sufficiency'. Akram-Lodhi (2007:554) states that self-sufficiency for rural communities is closely linked to 'access to land as the most critical means through which subsistence is sought and income generated'. Neves and Andries (2013) also add to Akram-Lodhi's argument by pointing out that despite evidence of a decrease in the number of South Africans who rely on land for self-sustenance, it still remains the most crucial resource for the 1.25 to 3 million who are still practicing subsistence farming. An example of such people are the KwaMkhwanazi rural community people who lament that lack of access to land is directly affecting their livelihoods and practice of producing indigenous vegetables. For instance, the ARC's promotion of indigenous vegetables to address nutritional problems in the community becomes simply a 'technical solution' without land to produce the vegetables.

In accordance with the tenets of food sovereignty, industrial agriculture is detrimental to local communities' livelihoods. This view is supported by this study's findings where farmers' right to water is violated by the commercial farming of eucalyptus trees, depriving the community of water and land, which are critical resources for their food sovereignty, as illustrated in chapter 7. Ironically, despite the negative implications of commercial tree plantations for

communities, tree plantation farming is highly regarded for its contribution to the economy of KZN province (see chapter 1). This seems to support Mamdhani's (as cited in O'Laughlin, et al., 2013) that 'inherited structures of economic and social power are still intact'. This is the essence of Maldonado Torres' (2007) definition of 'coloniality' as standing powers that survive colonialism and are manifested in everyday life. My findings therefore suggest that the dominant commercial farming system limits the ability of small-scale farmers to exercise food sovereignty by continuing to deprive them of an important aspect of their survival as farmers (Altieri and Toledo, 2011).

It is clear in this study that government has not been consistent in supporting small-scale farmers in KwaMkhwanazi with the resources needed for farming, as outlined in chapter 7. Some scholars explain the neglect of small-scale farmers as caused by policies of land reform that are more likely to sustain large farms because they are believed to be more productive (O'Laughlin, et al., 2013). An example in this study is the need of farmers to have seeds, tractors, finance and small farming implements that they say the government used to supply and now have stopped. Supporting commercial farmers and not small-scale farmers is contrary to the food sovereignty tenet that supports family farming (Jarosz, 2014). This is even more important in the context of South Africa where commercial farming is failing to provide household food security, as already revealed in chapter 2.

8.2.6 The relationship between differential classes and the adoption of indigenous vegetables

Differences in education levels and class are revealed in this study as playing an important part in the way farmers view farming in general and the adoption of indigenous vegetables in particular. Evaluation of the case study does not reach any neat conclusions, because of the mixed signals that were coming from the farmers (both individuals and co-operatives).

Cousins (2013) discusses the differences that exist among small-scale farmers and how these differences are important in understanding agrarian questions in Africa, and South Africa in particular. He argues that small-scale

farmers are not homogenous and therefore we need to focus on understanding the variations that exists among them. Because his class-analytic approach is anchored in the idea of petty commodity production, it helps uncover the dynamics of rural class differentiation in South African agriculture and the concomitant diverse trajectories of small-scale farmers (Ibid: 118). Therefore, what we consider to be small-scale farmers is a diverse group of fragmented classes of labour who pursue their reproduction using multiple combinations of precarious farming, wage employment, remittances, social grants, and the informal sector. Predictably, according to Cousins, class tensions can be expected in this group because tensions are inherent in petty commodity production, small-scale farming included. Neves and Du Toit (2012) also note that households with someone in formal employment tend to produce more than those without non-farm income. In concert with this body of work, class differences are also evident in this study. An example is chapter 7 which reveals formally employed farmers possessing several times bigger plots than others.

Another differentiation that was evident in the study and which impacted on the adoption of indigenous vegetables was the level of education. The study indicates level of education has an impact on farmers' chances of accessing support from the government. An instance in this study is found in chapter 7 when two co-operatives managed to access funds because of their educated leaders. As these particular co-operatives seemed to be doing well in accessing funding other co-operatives were lamenting that they could not access funds because they were not educated and did not know how to go about the process. Furthermore, lack of education as an impediment to accessing financial assistance was reiterated by one of the extension workers working with KwaMkhwanazi farmers who perceived applying for funds as a complicated process that alienated the uneducated.

According to Cousins (2013:122) 'extra-economic factors, such as a political connection, facilitated preferential access to resources by village-based elites, often connected to the ruling party...'. Parallels can be drawn in this study. An example is found in chapter 6 where it is evident that being known by the

department of agriculture facilitated some farmers getting access to a tractor, a resource many of the participants were failing to access. Another example is the case of some farmers complaining of having lost their land to people known by the chief (Bernstein, 2014).

This finding has implications for both decolonial and food sovereignty theories. The study shows the ARC promoting indigenous vegetables to KwaMkhwanazi rural community to address malnutrition and poverty. However, this effort did not have the same impact on the farmers, reflecting an important critique levelled against food sovereignty that 'it does not capture the socially differentiated nature of rural communities, such as class identities' (Martiniello, 2015:510). It also supports Vambe and Khan's (2013:305) 'indigenous coloniality of power' described in chapter 3 as still existing in the KwaMkhwanazi community.

8.2.7 Limited Horizontal Integration and Coordination of government structures involved in the promotion of indigenous vegetables

The 2004 indigenous knowledge policy in South Africa offers an example of co-operative governance adopted by the 1994 democratically elected South African government. Co-operative governance was adopted because it offers coordination of activities to avoid competition and duplication, development of multi-sectoral perspectives on the interest of all South Africans, and clear division of roles and responsibilities (Rautenbach and Du Plessis, 2009). My findings attest to this (chapter 5) as it is evident that 11 government departments representing different aspects of indigenous knowledge system took part in the formulation process of IKS policy. Reasons that were given by participants in this study were 1) the multidisciplinary nature of IKS that allowed for, and even required, varied perspectives and 2) the quest to 'avoid duplication of work pertaining to IKS' as well as to 'prevent people from double dipping funds'. (DSTP1. Pers. Comm., 2014).

Whereas the concept of co-operative governance seems to have succeeded in bringing different governmental organisations together to formulate a policy, the inclusion of IKS in all departments seems to have fragmented the

implementation of the policy. In this case the ARC, the Department of Agriculture and Rural Development, and the Department of Arts and Culture are all evidently involved in the promotion of indigenous vegetables in the KwaMkhwanazi community area (see chapter 6). Also evident in the study is duplication and overlap of activities. For instance, although the ARC and The Department of Agriculture and Rural Development were not directly working together on this project, they both promoted the value-addition of indigenous vegetables. The Department of Arts and Culture and the Department of agriculture and Rural Development are shown promoting innovation of indigenous food recipes (see Figure 6.1). The duplication of activities is unfortunate in this case study if one considers that lack of resources was given as one of the reasons farmer participants failed to adopt indigenous vegetables. The implication of this finding is that sometimes decolonial principles are difficult to implement in practice. Co-operative governance is a move away from apartheid governance where decisions and implementation were made by the central government, but now that decisions and implementation are decentralised, duplication seems to be the new challenge.

8.2.8 Incorporating indigenous vegetables into western recipes

Hall (1994:307), as already discussed in chapter 3, warns decolonial theorists against making assumptions that indigenous people are against everything that is western. He argues that 'decolonial' is sometimes viewed simultaneously as 'resistance, incorporation and obeisance'. It is clear in this study that the ARC promoted indigenous vegetables for reaffirmation after they lost their value (see chapter 2). Youths and the urbanised are no longer interested in indigenous vegetables. There is also a need to appeal to the taste of people that has changed over time. To address this problem, chapters 5 and 6 reveal that concerted efforts are being made to incorporate indigenous foods and vegetables as ingredients in western recipes. García (2013) writes of a similar practice in Peruvian cuisine where Andean indigenous foods are being used to promote national pride as well as appeal to taste. García (2013:510) calls such efforts 'revalorization of traditional ingredients', a process of designing dishes that retain traditional ingredients while at the same time making sure that they are invisible. Examples in this

study are presented in chapter 6 where IVs are being incorporated in western dishes such as pizzas, scones, and muffins to appeal to the palates of the youth. This finding reiterates Edelman's (2014:973) suggestion that 'food is not just a source of physiologically necessary nutrients but a major source of pleasure and sociality', hence this study finds that youths appreciate indigenous vegetables prepared in an acceptable way.

However, García further argues that this revalorization of traditional ingredients does not come without its problems. She fears that the fusion of indigenous food and western recipes may result in the marginalisation and compromise of indigenous knowledge. An example in this study is that despite obvious appreciation of the nutritive value of indigenous vegetables, indigenous recipes are still being marginalised in favour of what García calls 'Macdonalised' recipes. There are therefore questions that arise that need serious consideration: (1) Will recipes that are being promoted to reaffirm indigenous vegetables solve problems of nutrition in rural communities? 2) Does everyone have the resources to prepare dishes that require more ingredients to prepare? (3) Will indigenous recipes survive?

However, despite the above questions, in my view, there is merit in taking the good of both sides. By this I mean that it is clear in this finding that the presentation of food is as important as its nutritive value, and as indigenous knowledge is not static one might as well embrace new recipes.

8.2.9 Farmer ambivalence to agro-ecological farming practices

In this study I also investigated farmers' agro-ecological practices as advocated by the food sovereignty theory used in this study. The study findings on agro-ecological practices showed conflicting ideas and practices among farmers. As I demonstrated in chapter 6, there are farmers who simultaneously practise both agro-ecological and conventional farming methods in the production of their indigenous vegetables. One farmer indicated that they use manure for the vegetables that are consumed in the household and fertilisers for market vegetables. Others were clear that they use pesticides for vegetables they grow for selling because it improves their

quality. The reason for this conflicting practice is that farmers are learning from the Department of Agriculture and Rural Development and they seem to understand the effects of fertilisers and chemicals on health and yet at the same time they are persuaded that they need to use fertilisers and pesticides to maximise their profits (see chapter 6). This is consistent with Bernstein's (2014) criticism of food sovereignty's assumption that all small-scale farming promotes agro-ecological farming. In this case it appears that farmers would rather practise conventional farming when they are producing indigenous vegetables for profit, as they indicated that using fertilisers and chemicals results in faster growth and better quality vegetables.

8.2.10 Promotion of networks positively influencing production of indigenous vegetables

The research presented in this dissertation offers an important glimpse into how the creation of networks can assist farmers in marketing products still new on the market like indigenous vegetables. The involvement of corporate organisations like Richards Bay Minerals in promoting local markets for small-scale farmers is shown as playing an important role in providing markets for indigenous vegetables. The farmers' days are also shown as promoting indigenous vegetables as farmers observe others making a living from IVs and join in the trade. Farmers' days organised by the UNIZULU and the Department of Agriculture and Rural Development, and the Department of Arts and Culture also serve to introduce indigenous vegetables to the community and hence improve their marketability. The importance of all these farmer networks is that they are expanding on the ARC's efforts in promoting indigenous vegetables. This is because the interests of farmers in growing indigenous vegetables seem to be related to their associating indigenous vegetables with a crop they can use to make a living.

8.3 Theoretical and practical implications of the study

This research adds to the emerging literature on food sovereignty in South Africa (Ngcoya and Kumarakulasingam 2016; Cherry 2016; Kesselman, forthcoming 2017). Although the global literature on food sovereignty is now

well-established, much of that literature is centred on the study of transnational agrarian movements, national coalitions and social movements (Ngcoya and Kumarakulasingam 2016). As a result there is a paucity of studies exploring how food sovereignty is experienced on the ground (see Boyer 2010, Li 2015, Mendonça and Rocha 2015, for example). This dissertation's focus on community-level processes adds to this body of work. Because of its focus on the ground, it allows for a deeper understanding of issues that small-scale farmers deal with in their quest to attain food sovereignty and security. It has moved away from a diagnostic understanding of food sovereignty which attempts to show whether food sovereignty exists or not. It shows farmers adopting both food sovereignty and food security simultaneously as they strive for security of their livelihood. That is, whilst farmers in KwaMkhwanazi may not employ the language of food sovereignty (see Isakson 2009; Ngcoya and Kumarakulasingam 2016 for examples of farmer who embrace food sovereignty despite it missing in their vocabulary) their non-capitalist practices (the growing of IVs because of their characteristics and adopting agro-ecological practices) it shows their commitment to embracing farming that promotes self-sustenance. On the other hand, they also employed capitalist practices to ensure their security. Chapter 7 shows the structural issues that prevent farmers from practising food sovereignty for food security. The study has also managed to show that despite the interest that small-scale farmers are beginning to show in indigenous vegetables, they are faced with numerous challenges that prevent them from being productive. These challenges are a product of 'circumstances transmitted from the past, which challenge their implementation enormously and jeopardise the future of food security/sovereignty prospects' (Martiniello, 2015:521). Challenges currently facing small-scale farmers in KwaMkhwanazi include lack of access to land, water for irrigation, seeds for indigenous vegetables, and a lack of farm implements. As Nygren and Myatt-Hirvonen (2009:827) posit, expecting farmers in KwaMkhwanazi to change their lives by forming small enterprises through production and marketing of indigenous vegetables might be viewed as an:

overemphasis on the capacity of the poor to reshape their lives and reformulate their livelihood strategies' which 'easily underestimates the ways in which the inequitable socio-economic structures and political power relations constrain the livelihood options of the poor.

The point made here by Hygren and Myatt-Hirvonen (2009) needs to be seriously considered by policy makers who should question the practical implications of the policy. There is a need to address the question of whether promoting entrepreneurship through IKS has not become a way for the government to avoid taking responsibility for its poor. Taking into consideration the case of KwaMkhwanazi, one may suggest that energy in the promotion of IVs should probably be more focused on their cultural and culinary value rather than assuming that they can also be used to address economic issues for poor farmers whose situation make it impossible for them to start small businesses.

As Akram-Lodhi (2007:554) posits:

Food sovereignty requires that priority be allocated to the domestic production of food and that a right to land be given to small farmers and their families. It is a vision of agrarian reform, with an emphasis on smallholder farming and the transformative power of rural social movements that has truly emerged 'from below.

Projects such as the one under study should not be implemented in isolation as it is clear that their success is imbedded in other socio-political aspects currently facing South Africa as a nation. The policy implication of this finding is that holistic programmes that simultaneously combine the promotion of indigenous knowledge with provision of land to small-scale farmers are necessary if food sovereignty is to be realised in rural communities like KwaMkhwanazi. This is despite Ferguson's (2013) suggestion that access to land will not necessarily solve poverty in rural areas. This study believes that access to land remains the pre-requisite for the production of indigenous vegetables for food sovereignty as most of the people who participated in the study are still actively involved in farming despite the lack of land. This supports Aliber and Cousins' (2013) assertion that access to even small pieces of land has a positive effect on food sovereignty and income generation among small-scale farmers.

Since farmers in KwaMkhwanazi are faced with so many challenges and there seems to be no immediate solution to them, perhaps it is for the KwaMkhwanazi farmers to consider revitalising their indigenous technologies to deal with their current situation. However, since getting any type of external help may be time-consuming and costly, the DARD, through its extension work, may need to encourage farmers to practise water harvesting techniques such as ponds and dams that are cheaper and which have been tested in other parts of Africa (see chapter 6). There is also a need to research and draw lessons from other communities in Africa that use indigenous water harvesting techniques. This will allow farmers to irrigate their crops and so provide indigenous vegetables throughout the year.

Similarly, the issue of fencing to deter animals from destroying their plants may be solved by use of indigenous fencing. Those practices that encourage use of natural resources that are available and will encourage farmers to be self-reliant rather than waiting for outside help from government and other entities. My argument here is not to disregard the importance of government's role in supporting farmers but to show that when farmers learn to take control of their own situations they are more likely to be resilient and hence define food sovereignty for themselves. The Cinta Vermelha-Jundiba of Brazil purchasing land rather than waiting for the government to grow indigenous food (Rocha and Liberato., 2013), and the Campesino-to-Campesino agro-ecology movement of ANAP in Cuba (Rosset 2011) all prove that farmers do not necessarily have to rely on external and expensive inputs to achieve food sovereignty for security. In addition, the above examples demonstrate that farmers have the capacity to solve their own problems. Therefore, this study encourages farmers in KwaMkhwanazi to come up with local solutions to some of their problems.

The study has also revealed that the effects of colonialism and apartheid are still adversely affecting the lives of those who were disadvantaged by the system. Although there may be policies that are seeking to redress past wrongs, in practice the government still needs to engage in healing processes. One such step the government needs to take in KwaMkhwanazi

would be ensuring equitable water sharing between commercial and small-scale farmers.

Farmers in KwaMkhwanazi also complained about lack of seeds as an impediment to the practice of growing IVs. On this matter part of the blame was taken by the farmers who failed to re-produce seeds provided by the ARC due to various reasons given in chapter 7. In the light of financial constraints identified by farmers, I would advise farmers to develop a system of exchanging seeds amongst themselves. And perhaps in light of the challenges of seeds that farmers are facing, the principles of food sovereignty where farmers become the custodians of seeds becomes very relevant in KwaMkhwanazi community. Decolonial principles that encourage revisiting neglected indigenous knowledge practices might be of benefit to farmers in this community. For instance, seed exchange has been shown to work in other communities in Africa, where one's ability or otherwise to participate in the practice enhanced their food sovereignty (see Kerr, 2013). I therefore think that, in situations like KwaMkhwanazi where there are no private seed producers, and it is not known when they will be available, farmer- to farmer-seed exchange remains the best option, despite Adebooye et al., (2005) calling for replacement of the system.

The issue of providing seed for IVs is not entirely the responsibility of farmers. Although the study appreciates the effort that was made by the ARC in building a nursery at the UNIZULU, the project created a situation where farmers were forced to rely on one institution and when it failed, farmers were adversely affected. It is therefore imperative for the ARC to consider this shortcoming and perhaps aim to improve on its practices in similar projects. One way to do so would be to prioritise training community members in producing seeds of indigenous vegetable crops. This would ensure a continuous supply of seed for increased production even after the life cycle ends.

The production of indigenous vegetables can also be enhanced if there are markets where small-scale farmers can sell their products. For successful

marketing it might be necessary for promoters of IVs, such as the ARC, to increase the market value of indigenous vegetables by providing information on their nutritional and anti-oxidant properties. For instance, in this case it would have been necessary that alongside training farmers the ARC should have promoted IVs in the surrounding areas such as Richards Bay, Empangeni and Esikhaleni. I believe that more information would have allowed potential customers of indigenous vegetables to develop confidence in consuming them. Perhaps, local radio stations could be used to educate people about IVs.

Considering that one of the issues that prevented farmers in adopting some IVs was ignorance on how to prepare them farmers who are interested in growing IVs for profit may want to consider disseminating information to potential customers on the domestic preparation of indigenous vegetables. Such efforts could lead to wider markets and thus increase the commercial value of the vegetables.

Organisations like the ARC and universities need to draw lessons from other African countries like Kenya and Tanzania's efforts to promote indigenous vegetables. These countries have shown that it takes more than encouraging farmers to grow their traditional crops. Production of indigenous vegetables should be linked with successful marketing that involves harnessing the support of the big supermarkets to put indigenous vegetables on their shelves. This requires organising small-scale farmers into formal groups that will work closely with supermarkets in producing vegetables that will meet the requirements of the supermarkets since one of the reasons given in this study was that supermarkets are not yet confident about the quality of indigenous vegetables farmers are producing. Working in groups will also cut transport costs as it is a major constraint for many farmers in this study. The study shows that some farmers who were working as a co-operative were able to transport their products to distant places and were able to spread the costs among members - something an individual would find costly as they would have to bear all the costs.

I also position the discussion of indigenous vegetables on a wider scale by trying to find out how it fits into the promotion of indigenous knowledge. The study was able to show that promotion of indigenous vegetables is intertwined with IKS policy at various levels. This is something new as I am bringing political understanding of indigenous vegetables by placing them [indigenous vegetables] in the historical context of South Africa. Chapter 2 describes the suppression of indigenous vegetables as knowledge of the subalterns. Chapters 5 and 6 show the attempts being made to decolonise indigenous knowledge and indigenous vegetables in particular. The study also shows that the decolonisation of indigenous vegetables in the everyday life of the KwaMkhwanazi community area is not being realised through dichotomising western and indigenous knowledge. The two knowledge systems are being meshed together to allow revitalisation of production and consumption of indigenous vegetables. In this study, decolonisation of indigenous vegetables is shown as a way of dealing with current socio-economic challenges faced by communities. By employing decolonial theory the study managed to show that the promotion of indigenous vegetables as a reaffirmation process is making it possible for rural communities like the KwaMkhwanazi community to achieve food sovereignty. The food sovereignty theory helped this study to explain characteristics of indigenous vegetables that warrant them to be considered as useful in the achievement of self-sufficiency of the people of KwaMkhwanazi. The study shows that the ARC promotion of indigenous vegetables resulted in a resurgence of interest in these vegetables. It is clear that people are beginning to use the vegetables because of their nutritive, cultural, social and economic value.

The research also has policy implications. It was evident in this thesis that the promotion of indigenous vegetables in KwaMkhwanazi failed to reach its maximum potential because the initial process of planning did not consider the views of all stakeholders. An example is the complaint from UNIZULU and small-scale farmers that the project was imposed on them. These perceptions are the reasons why some of the objectives of the project could not be fulfilled or sustained after the project ended. It has become clear in this study that bringing in varieties that are completely foreign is a waste of resources

because it turns out that the project managed to affirm only those varieties that people in KwaMkhwanazi identify with. This study therefore provides a lesson to the ARC and any other organisation involved in the promotion of IVs that no cultivar is of value unless it has traits that are desirable to consumers (Adebooye, et al., 2005). Furthermore, practical lessons for other development projects point to the importance of allowing project ownership by those who will continue working with the people after the project period. Secondly, the project should identify individuals who will be accountable after the project period. These two processes should be completed to avoid investing in projects and structures that will not yield maximum benefits.

Involving all several departments in the formulation of indigenous knowledge policy seem ideal at the national level but the same principle does not seem to be working at the implementation level. The results of the study reveals many groups that are promoting indigenous vegetables in the KwaMkhwanazi community and surrounding areas and yet there is no evidence of coordination among them. This study therefore suggests that addressing fragmentation may be one of the most key issues that the ARC should consider in its future projects that promote indigenous vegetables. This may be achieved by identifying people with similar interests and trying to coordinate the programmes in order to avoid duplication. This might also save resources as they will be diverted to other issues that still need to be addressed, like marketing of IVs.

8.4 Limitations

The results are limited in that the study only focussed on one among four similar projects that the ARC implemented in collaboration with rural universities to promote indigenous vegetables in communities. This was meant to contain the scale of study owing to financial constraints. The study is also limited in the results pertaining to the inquiry that was conducted on challenges faced by farmers in producing indigenous vegetables. Some of the responses that were given by selected farmer participants appear to be challenges faced by farmers in general. This was not pursued as it was

believed that it was not the main focus of the study. I however feel that a quantitative study would allow for a better understanding of small-scale farmers in the community.

8.5 Conclusion

In this chapter, I presented a summary of the main findings in relation to the research questions. I also discussed the findings in connection with the theoretical frameworks employed in the study. The study showed the implication of the study to policy and practice. In sum, the study concludes that promotion of indigenous vegetables in KwaMkhwanazi reflects some of the objectives of South African indigenous knowledge policy. It has however shown that policy can be difficult to put into practice. Those who implement indigenous knowledge policy face diverse obstacles inherited from the colonial past. I therefore argue that, the principle of indigenous knowledge policy may be noble but there are still many issues that need to be addressed if promotion of indigenous vegetables is to be a success.

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10 APPENDICES

Appendix A. Interview guide for interviewees who participated in the formulation of the DST IKS policy

- What role did you play in the formulation of DST IKS policy?
- What processes were undertaken in the formulation of the policy?
- What are the reasons behind the South African government decide to formulate policy on IKS?
- What factors (locally and internationally) do you think might have caused the development of DST policy on IKS?
- What is the significance of the policy to indigenous knowledge in South Africa?
- Who were involved in the formulation process of the policy and why?
- What are the main objectives of the IKS policy in South Africa?
- What countries influenced the South Africa's IKS policy?
- How does the IKS affect indigenous people of South Africa?
- What is the significance of having IKS in the Department of Science and Technology?
- What are the advantages and disadvantages of commercialising IKS in South Africa?
- How is this commercialisation being done in South Africa?
- How did the spirit of African Renaissance influence the formulation and objectives of the policy?
- Which international policies influenced or were influenced by the DST IKS policy?

Appendix B Interview guide for the Agriculture Research Council participants.

- Can you tell us more about the ARC and its interest in indigenous vegetables?
- What were the objectives of the ARC in promoting indigenous vegetables?
- Which indigenous vegetables did you promote?
- What did the ARC intend to achieve by promoting indigenous vegetables?

- What are some of the ways you are promoting indigenous vegetables?
- Why did you choose to be based at the University of Zululand?
- How does the ARC's project on indigenous vegetables relate to the DST's promotion of indigenous knowledge?
- What benefit did University of Zululand get from ARC being based at the University?
- How did the ARC benefited from being stationed at the University?
- What did you intend to achieve by working with the KwaMkwanazi community?
- How was the community intended to benefit from the project?
- In your opinion did you manage to achieve your objectives by working with this community?
- What would you say were the successes and challenges that you faced in implementing the project?
- How do you think the implementation of the project can be improved to achieve your purpose of working with indigenous vegetables?
- Did the community you were working with understand the ARC's objectives of the project?
- What do you think could be done to improve their understanding of ARC's objectives?
- What do you think are some of the things which influence people in how they related to the ARC's project on indigenous vegetables?

Appendix C Interview guide for the University of Zululand participants

- What was the relationship between the ARC and the University in this project?
- What was the University's role in the collaboration with the ARC?
- What did the University benefit from its collaboration with the ARC?
- What were the objectives of the ARC in its collaboration with the university?
- In your opinion what would you say were the challenges of the project?
- What were its successes?
- Of what relevance do you think this project was to the community and the University?

- What is your understanding of South Africa IKS policy?
- Did the project live up to your expectations?
- Would you recommend more projects of this nature and why?
- Are there thing that you feel could have been done better in implementation of the project?
- What would be some of your suggestions regarding the implementation of the project?
- How do you think KwaMkhwanazi community benefited from this project?
- Were there any changes that you noted in the KwaMkhwanazi community towards indigenous vegetable as a result of the project?
- What could be some of the factors which influence the community's response to the project?
- To what extent did the project influence your activities in the promotion of indigenous vegetables?
- What would you want to see changed or improved in the implementation of the project?

Appendix D Interview guide for the Department of Agriculture and Rural Development participants

- What is your understanding of the IKS policy in South Africa?
- What is the Department of Agriculture and Rural Development's role in promoting IKS?
- What role do you play in promoting indigenous vegetables and other indigenous plants?
- What do you think are the benefits of indigenous vegetables to small-scale farmers in the community of KwaMkhwanazi?
- As a department that works closely with small-scale farmers what would you say are the challenges being faced by the small-scale farmers in KwaMkhwanazi?
- Why does your department promote the value-addition of indigenous vegetables and other plants to small-scale farmers?
- What is your position as the department on agro-ecological farming methods (known by farmers as traditional methods of farming)?

- What farming methods do you encourage small-scale farmers to use?
- What are the reasons for encouraging them to use such methods?
- What is your opinion of the ARC project that promoted indigenous vegetables in KwaMkhwanazi?
- What would you say were the attitude of farmers towards the indigenous vegetables that were promoted by the ARC?
- What are the reasons for such attitudes?

Appendix E: Interview guide for KwaMkhwanazi small-scal farmers

• Personal information of the participant

Age.....

Other sources of livelihood other than farming.....

Sex.....

Level of education.....

Land ownership and its size.....

• Information on their participation in the ARC project

1. Were you involved in any activities that were held by the ARC project on indigenous vegetables?
2. Why did you decide to participate in the project?
3. How did you become involved in the ARC project on indigenous vegetables?
4. Why do you think ARC was involving your community in their project of indigenous vegetables?
5. Do you think it is important to promote these vegetables and what are the reasons for your answer?
6. Did the project changes your life in any way and if yes in what way?
7. What did you learn from the project about indigenous vegetables?
8. What did you like most about what you were taught and what do you feel should have been done differently?
9. Do you think the project was important for your community and what are the reasons for your answer?
10. Would you say the project changed your life?
11. And if yes in what ways did your life changed?

12. What do you think this project achieved?

14. What challenges did you face being the beneficiary of the project?

• **Question on small-scale farmers farming practices**

1. Are you growing indigenous vegetables that were promoted by the ARC?

2. And if yes which one?

3. And if no why?

4. How do you grow these vegetables?

5. Do you use fertilisers or manure?

6. Explain why you use the methods that you

7. What would you say are the benefits of growing indigenous vegetables?

8. What are the challenges that you face as a small-scale farmer and how do they affect your practice in growing indigenous vegetables?

9. What do you think should be done to overcome the challenges you have mentioned above?

10. Do you practise agro-ecological methods of farming?

11. Give reasons for your answer.

Appendix F: Informed consent form (in English)

School of Built Environment and Development Studies
University of KwaZulu-Natal,
Howard Campus

Dear Participant

Informed consent form

My name is Venencia Shonhai (student number 213569884). I am doing research on a project entitled 'An evaluation of South Africa's government's attempts to promote indigenous vegetables'. An examination of how the Agriculture Research Council project has promoted indigenous vegetables in KwaMkhwanazi, a rural area in UKZN, South Africa.

Thank you for agreeing to take part in the project. Before we start, I would like to emphasise that:

- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member's opinion.

- This interview may last for about an hour and may be split, depending on your preference.
- Any information you give cannot be used against you, and the collected data will be used for the purposes of this research only.
- Data will be stored in a secure place and will be destroyed after 5 years
- You have a choice to participate, not participate or stop participating in the research.
- You will not be penalised for taking such an action.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.

If you are willing to be interviewed, please indicate by ticking (as applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	Willing	Not willing
Audio equipment		
Photographic equipment		
Video equipment		

Should you have any questions my contact details are:

School of Built Environment and Development Studies, University of KwaZulu-Natal,
 Cell: 060 422 7992
 Email: venenciashonhai@gmail.com

Or my supervisor
 Dr Mvuselelo Ngcoya
Ngcoyam2@ukzn.ac.za

DECLARATION


I(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the reserach project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Signature of participantDate

Appendix G: Letter of permission to conduct interviews in KwaMkhwanazi Community

Page 1 of 1



the mtc

THE MKHWANAZI
TRADITIONAL COUNCIL
KWA-ZULU NATAL

Mkhwanazi Traditional Council
Inkosi M.M. Mkhwanazi
P.O. Box 14, KwaDangezwa, 3886
Tel: 035 7938169/0721283469/0730489074

TO VICE CHANCELLOR: UKZN Date 2014-01-22
Re 'AUTHORITY TO CONDUCT RESEARCH' KWA DANGEZWA

Our meeting held at Mkhwanazi Traditional Office on 2014/01/14 refers.

Authority is hereby granted for Veneria Shonhai to conduct a research in the Mkhwanazi Area as explained to the Traditional Council.

The writer Mr. I.S. Mthethwa was appointed by Inkosi to assist in this regard.

From B.M.B.W
Secretary to the
Mkhwanazi Traditional Council

KWAZULU NATAL DEPT OF LOCAL
GOVERNMENT & TRADITIONAL AFFAIRS
2014 -01- 22
MKHWANAZI TRADITIONAL COUNCIL
P.O. BOX 14, KWA-DANGEZWA 3886
UTHUNGULU DISTRICT
TEL: 035 7938 169

Appendix H: Letter of permission to conduct from the Department of Science and Technology



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Private Bag X894, Pretoria, 0001

Tel.: +27 (0)12 843 6300

Fax: +27 (0)12 349 1030

www.dst.gov.za

Attention: Mr Prem Mohun

Venencia Shonhai
11A Hignett Street
Mtunzini
3867

Email: venenciashonhai@gmail.com

Dear Venecia

REQUEST FOR A LETTER IN SUPPORT OF RESEARCH ETHICS APPROVAL

While I see that you have answered “No” to the question “Has any organization / company participating in the research or funding the project, imposed any conditions to the research?”, I would like to inform you that the DST has a formal system for processing requests for information in terms of the Promotion of Access to Information Act.

Knowledgeable staff may grant interviews, however, staff may not necessarily be free to share project documentation with you. This occurs because there are clauses in the legal agreements between the DST and implementation agencies that concern project information in general and project information that is claimed to be confidential in particular.

I trust that the research goes well.

Yours sincerely

 2015-01-27
ERIC WATKINSON
DEPUTY DIRECTOR – DEPARTMENT OF SCIENCE AND TECHNOLOGY

Lefapha la Saense le Theknoloji • uMnyango wezeSayensi neTheknoloji • Muhasho wa Santsi na Theknolodzhi • Departement van Wetenskap en Tegnologie • Kgoro ya Saense le Theknoloti • Ndzawulo ya Sayense na Theknoloji • LiTiko leTesayensi neTheknoloji • ISebe lezeNzuluwazi neTheknoloji • UmNyango wezeSayensi neTheknoloji

Batho Pele - putting people first

Appendix I: Letter of permission to conduct to research from the Agriculture Research Council



ARC-INSTITUTE FOR VEGETABLE AND ORNAMENTAL PLANTS
LNR-INSTITUUT VIR GROENTE EN SIERPLANTE

Private Bag X293, Pretoria, 0001, South Africa
Tel: (012) 808-8000 • Fax: (012) 808 1127 • (Int +27 12)
Web site: www.arc.agric.za

Enquiries:

Ref. No.

9 February 2015

To whom it may concern

This is to confirm that the Agricultural Research Council- Vegetable and Ornamental plant Institute (ARC-VOPI) gave Mrs Venecia Shonai permission to collect information on the collaborative project between Unizulu's Department of Agriculture and ARC on indigenous vegetables with the understanding that:

1. ARC-VOPI will be acknowledged for any information obtained from ARC reports, interviews with ARC employees and/or related work done by ARC.
2. ARC will be consulted before publication of any results obtained in this study related to previous and current work conducted by the ARC.
3. Work must be done under an ARC staff member to be identified to act as supervisor to the project, where ARC work is concerned.

Kind regards

A handwritten signature in black ink, appearing to read "M Jeenah", written over a horizontal line.

Dr M Jeenah
Acting Group Executive: Crop Sciences

Appendix J: Letter of permission to conduct to research Department of Agriculture, University of Zululand

**Department of
Agriculture**



UNIVERSITY OF ZULULAND
P/Bag x1001
KwaDlangezwa
3086
Tel: 035 - 902 6092
Fax: 035 - 902 6096
Email: gzhacae@uozulu.ac.za

26th January, 2015

To whom it may concern

This is to confirm that the Department of Agriculture gave Mrs Venecia Shonal permission to collect information on the collaborative project between Unizulu's Department of Agriculture and ARC on indigenous vegetables.

A handwritten signature in black ink, appearing to read 'G.E. Zharare'.

G.E. Zharare

Acting HCD, Department of Agriculture