The Cultural and Religious Significance of Indigenous Vegetables: A Case Study of the Chionekano-ward of the Zvishavane-district in Zimbabwe

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Declaration

I declare that The Cultural and Religious Significance of Indigenous Vegetables: A Case Study of the Chionekano-ward of the Zvishavane-district in Zimbabwe is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

09/11/2018

J Matenda

Date

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Dedication

I dedicate this thesis to my son Tsungai Prince.

List of abbreviations

A T R	African Traditional Religion
ALV	African leafy vegetable
CoEFS	Centre of Excellence in Food Security
CAADP	Comprehensive Africa Agriculture Development Programme
DAFF	Department of Agriculture, Forestry and Fisheries
GAM	Global Acute Malnutrition
ILV	Indigenous leafy vegetable
IKS	Indigenous knowledge systems
NGO	Non-Governmental Organisation
SAM	Severe Acute Malnutrition
SSA	Sub-Saharan Africa
TLVs	Traditional Leafy Vegetables
TK	Traditional knowledge
WFS	World Food Summit
WV	Wild vegetables
ZimVAC	Zimbabwe Vulnerable Assessment Committee
ZNSA	Zimbabwe National Statistics Agency

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Abstract

This study is situated in the context of multidisciplinary discourse on the pervasive problem of food insecurity in the southern African context. More specifically, it is situated in the context of the Centre of Excellence in Food Security, located at the University of the Western Cape and its project on “Food Ethics and Values” (with Prof Ernst Conradie as principal investigator). It will contribute to discourse on food security from the perspective of the discipline of religious studies and more specifically African Traditional Religion (ATR) and the indigenous knowledge systems (IKS) associated with that. The consumption of food naturally plays a significant role in African Traditional Religion – as is evident from various taboos on food consumption, rituals with prescriptions on food, calendar-based festivities, but also from daily life in rural villages. In reflecting on food in such rural villages, the focus is often on the consumption of meat (chicken, goats, cattle, but also rodents and other wildlife) and of grains like maize. However, vegetables traditionally also formed part of a family’s daily diet. In pre-colonial times, such vegetables were not necessarily cultivated since some indigenous vegetables were harvested based on indigenous knowledge available amongst village elders and traditional healers. The Chionekano-ward includes some 42 villages with an estimated population of around 1020 persons. Through a process of snowball sampling, semi-structured interviews were conducted with village elders and traditional healers who have knowledge of such indigenous vegetables. Where appropriate interviews were followed up with focus groups discussions in particular villages.

This study investigated the cultural and religious connotations attached to specified indigenous vegetable types in the Chionekano-ward of the Zvishavane-district in Zimbabwe. This study has identified fifteen edible indigenous vegetables. Only eleven indigenous vegetables were among the commonly used. These were classified into three groups. Firstly, there are indigenous vegetables found in the farming lands as weeds. These are *Nyovhi*/ Spider plant/ *Cleome gynandra*, *Mbuya Mbuya*/ Thorny pigweed/ Amaranthus spinosus, *Derere*/ Wild jute/ Corchorus tridens, *Tsine*/ *Muhlabangubo*/ Black jack/ Bidens spinosa, *Muchacha*/ Wild gherkin/ Cucumis anguria. Secondly there were Indigenous vegetables that use leaves as by-products namely, *Muboora*/Pumpkin squash/ Cucurbita maxima, *Munyemba*/ Cowpea leaves/

Vigna unguilata. Thirdly there were commonly used Wild indigenous vegetables found in riverbanks, forests and mountains namely *Chirevereve*, *mubvunzandadya*, Fat hen/ Chenopodium album and *Nhuri*. There were religious and cultural connotations attached to the use of these indigenous vegetables. The study found that there are common shared beliefs on the harvesting, cooking and consumption of these vegetables. These commonly shared beliefs and predominant perceptions on the consumption of indigenous vegetables were mainly shaped by the cultural and traditional religious beliefs systems shared by all the participants. Although the study was of a descriptive nature, it advocated for the preservation of such indigenous knowledge in order to promote avenues towards food security where commercial agriculture may be unable to ensure an equitable distribution of food.

Keywords

African Religion

Culture

Food security

Indigenous,

Symbols

Vegetables

Food security

Zimbabwe

Chapter one: Introduction

1.0 Introduction

The consumption of food naturally plays a significant role in African Traditional Religion – as is evident from various taboos on food consumption, rituals with prescriptions on food, calendar-based festivities. These practices are also evident in daily life activities in rural villages. Reflecting on food in such rural villages the focus is often on the consumption of meat such as chicken, goats, cattle, but also rodents and other wildlife. This meat is consumed with different types of grains like maize, sorghum and millet among others. In addition, indigenous vegetables traditionally also form part of a family's daily diet. In pre-colonial times such vegetables were not necessarily cultivated since some indigenous vegetables were harvested on the basis of indigenous knowledge available amongst village elders and traditional healers within different spaces. This study contributes to the discourse on food security from the perspective of the discipline of religious studies and more specifically African Traditional Religion (ATR) and the indigenous knowledge systems (IKS) associated with that. The study was conducted in the Chionekano ward of the Zvishavane-district in Zimbabwe. The purpose was to investigate the cultural and religious connotations attached to the specified indigenous vegetable types consumed in the area. Examples of such indigenous vegetables consumed in the Chionekano-ward were identified and on that basis the cultural and religious connotations attached to the harvesting, preservation, preparation and consumption of such indigenous vegetables was presented.

1.1. Background to the study

1.1.1 Food insecurity in Zimbabwe and beyond

Zimbabwe has been afflicted by food insecurity for more than a decade. This situation has been influenced by the macro socio-economic and political environment in Zimbabwe which is characterised by economic decline, low agriculture productivity, a degraded natural resource base, limited access to means of livelihood, climate change and variability, deteriorating standards of living and health services, as well

as policy inconsistencies.

This political instability has led to the soaring of food prices, high living costs, as well as population shifts. Often poor households suffer inadequate or unstable food supplies together with poor nutrition. Food shortages and massive economic decline consequently threaten the lives and livelihoods of a significant number of households and potentially even of whole communities. A recent study by the Zimbabwe Vulnerable Assessment Committee (ZimVAC, 2016:8) indicates that the 2011/2012 Poverty Income and Consumption Survey estimated 76% of rural households to be poor with 23% deemed extremely poor.

In Zimbabwe, about 80% of the population live in rural areas where they make a living from subsistence crop production and livestock rearing. These farmers are faced with ongoing food insecurity due to crop failure since they depend on rain for agriculture in areas that are often hit by droughts (Belle, Moyo & Ogundeji,2017:195). According to the 2016-2020 Zimbabwe United Nations Development Assistance Framework (ZUNDAF, 2016:9), poverty levels in Zimbabwe are very high at 63% nationally and 76% in rural areas.

A report from Comprehensive Africa Agriculture Development Programme (CAADP) on a Nutrition Capacity Development Workshop for Southern Africa 2013 revealed that poor nutrition causes nearly half of deaths amongst children under the age of five years (Mukudoka, 2013:3). Moreover, a third of Zimbabwe's children between 6 and 59 months of age are stunted in their growth (Mukudoka, 2013:3). The January 2016 ZimVAC assessment indicated a worsening nutrition situation. It also showed that at 5.7%, the Global Acute Malnutrition (GAM) rate of children aged 6-59 months was the highest recorded in 15 years in Zimbabwe. The Severe Acute Malnutrition (SAM) rate for children aged 6-59 months was 2.1%, slightly above the 2% threshold for emergency response in Zimbabwe. Hence, there is a serious concern among researchers who seek to promote and ensure adequate food and nutrition security for people in Zimbabwe, particularly amongst the most vulnerable. Enhancing such food security is clearly in line with cultural and religious values and for rebuilding resilience within communities and for maintaining family dignity.

The pattern of malnutrition is increasingly expressed in low- and middle-income countries (LMICs) and is closely associated with diets that are nutrient-poor, often lacking in variety and low in micronutrients and protein. This is an indication that food

security is of course not only a concern in Zimbabwe. This has prompted an expanding corpus of literature on the notion of food security. This study responds to the recognition that Africa's food security is under threat and engulfed by a wide range of challenges that require significant interventions with respect to policies and strategies.

1.1.2 A Preliminary Definition of Food Security

The literature on food security has spiralled and many definitions and conceptual models have been offered.[1] For instance, the Committee on World Food Security defines food security as existing "...when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".[2] The South African National Food and Nutrition Security Policy of 2013, together with the Department of Agriculture, Forestry and Fisheries (DAFF), defined "food security" in line with the World Bank as "the physical, social and economic access to sufficient, safe and nutritious food for all South Africans, at all times, to meet their dietary and food preferences" (NFNS, 2013:8).

The Food Agricultural Organisation, (2012) suggested that when food security is in crisis, it is important to determine the factors impacting on each of four pillars, namely food availability; food accessibility; food utilisation; and the stability of the food system over time (see also Davies, (2016:2). Accordingly, people need to have available sufficient amounts and a wide variety of food on a constant basis, both at a national and local level. Mtolo, (2016:5) adds that food must be available within local markets and fields in order to secure appropriate and nutritious food.

1.1.3 Centre of Excellence in Food Security

The South African Food Review suggests that for South Africa to be food secure, food needs to be available both nationally and locally, and people must have the means to access it, either by producing it themselves, buying it or bartering for it[3].

[1] See https://drcsc.org/resources/FoodSecurity-Concept%20of%20Food%20Security (accessed on 26 May 2017).
[2] See http://foodsecurity.ac.za/about-us (accessed on 26 May 2017).

Thus, there have been numerous attempts from government, non-governmental, and international organisations from different countries in southern Africa to ensure that all the people, particularly the vulnerable and the poor, become food secure. A crucial South African initiative to attend to food security is the establishment of a DST-NRF Centre of Excellence (CoE) in Food Security at the University of the Western Cape.[3] The Department of Science and Technology South African's handbook, (2014:5) defines Centres of Excellence as physical or virtual centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines on long-term projects that are locally relevant and internationally competitive in order to enhance the pursuit of research excellence and high-level capacity development.[4] The goal of the CoE in Food Security is to investigate the policies, technologies, interventions, and products that are required to promote access to affordable and nutritious food in an ecological, economic, social and politically sustainable way. The objective is to bring together a cohort of experts and researchers to research the systemic and structural factors that shape food access and dietary choice, as well as food security strategies, choices and decisions for poor and vulnerable people. To attain this goal the Center of Excellency in food security consists of national and international experts on issues pertaining to food and nutritional security. They have come up with a partnership approach on building purposive strategic relationships that recognize the underlying causes of food insecurity. Davies, (2016: ii) argues that everyday food security strategies – which enable food access and sharing in communities – are enmeshed in local food system structures. Everyday food strategies are a critical source of livelihoods and are also deeply relational processes, tied to power, identity and agency.

Research activities in the centre cover five broad themes, each with various subdivisions and projects: Firstly, food creation concerns the production, processing and preservation of food. Secondly, food distribution concerns markets, livelihoods and value chains. Thirdly, food consumption concerns issues of health, nutrition, choice and behaviour. Fourthly, food governance focuses on safety, standards, and policy. Lastly, food contestation draws attention to ethics and values together with

[3] See https://www.uwc.ac.za/Faculties/CHS/soph/Pages/The%20Centre-of-Excellence-in-Food-Security.aspx (accessed on 20 May 2017).

[4] See http://www.nrf.ac.za/sites/default/files/documents/DST-NRF%20CoE%20Handbook_2014.pdf accessed on 20 May 2017).

food politics and cultures.

This research project falls under the theme of food contestation, which is divided into two main programmes. The first programme is entitled “Food Ethics and Values” and focuses on ethical, religious and spiritual challenges relating to food security in South Africa. The second programme on “Food Politics and Culture” focuses on gender-related issues around food security and explores human relationships to food, the power dynamics around food production and access and the meanings that food acquires in particular cultural and social contexts.

The principal investigator of the programme on “Food Ethics and Value” Ernst Conradie points out that, this programme contributes to one of the three core research questions addressed by the CoE. These are, “Who are the ‘food insecure’, where are they located, what are their choices, strategies and opportunities when seeking food security, health, and well-being and how do these change in response to the changing food system?”.[5] He further stipulates that the core intuition of this project is that the consumption of food is situated within the social construction of reality and that cultural and religious symbols inevitably construct and distort the ways in which food is selected, prepared and consumed.

This research project seeks to contribute to the programme on “Food Ethics and Value”. The assumption is that the discipline of religious studies, specifically African Traditional Religion, but also the indigenous knowledge systems (IKS) implied in that, can open up an exploration of the complex rituals, symbolism and moral values attached to food systems. Such perspectives are crucial in order to avoid reductionist notions of food security as if humans eat food merely for the sake of survival not taking into consideration that they convey and construct symbolic meaning form food.

It is therefore important to study the values and beliefs attached to the ways in which food is acquired, prepared and consumed. This is particularly important given that colonial policy of assimilation attempted to destroy indigenous knowledge systems in the African context. However, today such cultural knowledge is undergoing some resurgence. This requires further reflection on the place of food in indigenous religions such as African Traditional Religion.

[5] See http://foodsecurity.ac.za/the-symbolic-construction-of-food-consumption-in-the-context-of-food-insecurity-symbols (accessed 27 May 2017)

1.1.4 Food in the Context of Culture and Religion

Eating behaviours develop from cultural, societal and psychological patterns. There is no consensus on the definition of the concept culture. Fieldhouse (1985:2) defines culture as the sum total of learned shared behaviour, which includes knowledge, belief, art, morals, law, customs, and any other capabilities and habits acquired by man as a member of a society. Foods habits are acquired early in life and once established are likely to be long lasting and resistant to change. It is a life-long process; natural functions such as eating become socialised as the growing child is conditioned by customs and traditions. According to Raman, (2014:958), food is a type of language that helps human beings in expressing their basic perceptions of reality.

Food as a cultural element, therefore, forms part of that combination of symbols which builds every kind of cultural system. Every cultural group develops its own preferences for certain kinds of food or ways of preparing it (Giorda, Bossi and Messina, 2014:9) and cultural preferences stem from interplays between food supplies, tradition and necessities imposed by social environments. Traditional food systems of indigenous peoples are defined as being composed of items from the local, natural environment that are culturally acceptable (Kuhnlein and Receveur, 1996:417). These include socio-cultural meanings, processing techniques, use composition, and nutritional consequences for the people using the food. The meanings embedded in cultural symbols, such as food, can serve to represent and institutionalize the values and beliefs of a broader culture (Giorda, Bossi and Messina, 2014:4). Food preparation and consumption are bound to the beliefs, practices, and laws of nations and cultures. The patterns that emerge reveal how food is invested with symbolism, values and identity, and how these are used to constitute a community, social networks and entitlements (Idang, 2015:105). Food habits come into being and are maintained because they are symbolically meaningful forms of behaviour in a particular culture.

A study conducted by Kaya and Lyana, (2014) investigated the knowledge and perceptions of rural communities on the consumption of wild-food resources. The findings revealed that, in spite of the increasing loss of African indigenous knowledge among farming communities, there was still a strong connection between cultural

identity and cuisine. Therefore, safeguarding knowledge of the indigenous cuisine in a given context is key to sustainable development, management of cultural heritage and preservation of social and cultural identity (Moyo, Ngulube and Kazembe, 2016:136). Raman, (2014:958) argues that food is a *sine qua non* for life on Earth even if it has more significance than nutrition and sustenance. According to Mintz and Bois, (2002:99), the culinary attachment to which every cultural being has been accustomed since childhood has a special charm and very strong appeal. The cuisine is the source of psychological and even spiritual comfort that only another perfect human in human culture can match. This could be a reason why Puoane, et al. (2006:90) argue that although urbanisation is accompanied by changes from traditional food to the adoption of western diets, it seems that food habits that were internalised during early socialisation are still adhered to.

Fieldhouse, (1985:1) correctly observes that food meets the energy and nutrient needs of the body, but it is also apparent that the nature of the food intake is shaped by a wide variety of geographical, social, psychological, religious, economic and political factors. Fieldhouse, (1985:1) further notes that foodways are a product of ecological forces acting within the context of historical conditioning and belief systems that represent a melding of new ideas and imperatives with old traditions. In these lines of thought, culture as a social heritage plays a pivotal role in religion and foodways. Thus, spiritual needs are not supposed to be neglected in working with hungry people. Human diets are governed first by what people can get from the environment. Given a choice they then eat what their ancestors ate before (Fieldhouse, 1985: 27). The selection of food is thus guided by an economic, cultural, socio-psychological and religious rationale.

The dietary structure is the way that meals, or the day's food, are composed. Beliefs about the qualities given by consuming a particular type of food and the reasons for adopting a particular structure to the diet are often central to cultural expression and participation (Kuhnlein and Receveur, 1996:421). Moreover, food is used to facilitate social interactions, whenever people meet there should be food. Puoane, et al. (2006:92) note that, because the food is a cultural symbol, eating may be understood as a symbolic act through which people communicate, perpetuate and develop their knowledge, beliefs, feelings and practices towards life. Thus, an understanding of cultural influences on eating habits is essential for anyone who wants to provide

realistic interventions designed to modify dietary practices.

Social and personal elements that determine food selection include such functions as whether the food will be shared, as at social events; whether the food is for birthdays or other personal events; and whether the food is used to express individual, family, and group identity with a culture (Kuhnlein and Receveur, 1996:421). Food is often used as an ethnicity marker. It is also used to express love, demonstrate power, or express rebellion. There are innumerable social and personal reasons for how foods are selected (Kuhnlein and Receveur, 1996:421).

Jones, (2007) observes that researchers typically do not take into account the way that food is prepared, the context of eating, or the associations attributed to food, people, and events. Research should take into account the extent to which "the timing, seating arrangements, and dispensing protocol of a meal reflect ideas regarding role allocations, gender orientation, social order, status, and control" (Jones, 2007:130). Who prepares the food, serves it, and cleans up; where people take their meals; the shape of a table; and who sits where and talks about what – all these convey roles, values, and ideas about gender, hierarchy, and power (see Jones, 2007:130, almost verbatim). Traditional rural ideology, vested in diverse cultural idioms, emphasises respect for seniority and patriarchal tradition, vertical patronage networks of resource distribution, loyalty and obligation, and horizontal networks promoted by an egalitarian ethos of sharing, reciprocity and covert competition (Barilla Centre for Food and Nutrition, 2009:7). This narrative is expressed through food symbolism densely invoked during ceremonies and more generally reproduced in daily food preparation and sharing (Puoane, et al., 2006:90).

A recent study conducted by Alonso, (2015) on the impact of culture, religion and traditional knowledge on food and nutrition security in developing countries show that culture, religion and traditional knowledge affect nutrition and food security. This can be achieved by shaping a community's diet, food preferences, intra-household food distribution patterns, child feeding practices, food processing and preparation techniques, health and sanitation practices, traditional medicine and the accessibility and use of biomedical public health services (see Alonso, 2015:6). Agricultural rituals, beliefs and practices regarding what and how to eat (e.g. food taboos), how to manage pregnancy and delivery, how to feed children or how to treat illness are shaped by a society's cultural and religious belief system and the body of traditional

knowledge embedded herein (Alonso, 2014:5). There is widespread agreement that culture, religion and the embedded traditional knowledge, are major determinants of what and how we eat (Kittler, Sucher, and Nelms, 2011:11, Fieldhouse, 1995). Food is loaded with the symbolic value in all societies. It has become a means of communication, of creating, affirming and reinforcing social relations, of expressing one's personal or group identity (e.g. ethnicity, class, gender) and of connecting to the living or ancestral peer group (Alonso, 2015:8; Fieldhouse, 1995).

1.1.5 Food in the context of African Traditional Religion

Religion is fundamentally a belief system which includes the myths that explain the social and religious order and rituals through which the members of the religious community carry out their beliefs and act out the myths to explain the unknown (Mbiti, 1990:13). In African societies, religion seems to be the fulcrum around which every activity revolves. The African believes that anything can be imbued with spiritual significance. Our ancestors formed religious ideas, formulated religious beliefs, observed religious ceremonies and rituals, they told proverbs and myths which carried religious meaning, and they evolved laws and customs which safeguarded the life of the individual and his community (Mbiti, 1975:12). Contemporary forms of African religion are the products of a long-standing and changing tradition. This requires revitalizing through an ongoing analysis of socio-cultural changes and a response to national development and modernisation processes (Olupona, 1991:10). It is within the context of this challenge that the importance of food in African communities has to be understood.

Food and religion are symbolically linked with emotional security (Stanfield, 2010:27). All over the world, many people choose to eat or avoid certain foods according to their religious beliefs. Food patterns reflect a people's social organisation including their economy, religious beliefs about the health properties of foods and attitudes about family (see Shatenstein and Ghadirian, 1998:225). While not all religions offer specific guidance regarding food, the assumption of this research is that the use of indigenous vegetables in African traditional religion is attached to cultural, religious and traditional knowledge symbolism that needs to be unpacked. Religion, in as much as it provides a means for people to deal with their daily problems, seeks to enhance the quality of human life and ATR is not an exception. It seeks to assist its

adherents in dealing with problems that arise and seek better livelihoods of which one is a food shortage.

In all religions, certain foods are used in ceremonial rites as a means of demonstrating faith and commemorating events. Many religions have a particular cuisine or tradition of cookery, associated with their culture and often great significance is attached to the consumption of certain foods. However, the potential of traditional foods from African Religion perspectives in helping to address Africa's nutritional needs and the linkage between traditional food crops and indigenous knowledge highlights the vulnerability of both the crops and the indigenous knowledge associated with them. It is therefore critical to understand what food means to various groups and how it is planted, harvested, preserved and prepared. It is therefore important to document these patterns governing the harvesting, preservation, preparation and consumption of food. To make such indigenous knowledge on food available in writing will complement the available literature on food (e.g. recipe books) that is widely used also in rural areas of Zimbabwe.

Ibnouf, (2011:238) posits that in rural Sudan the processing of vegetables, fruits, and milk, in times of abundance for times of scarcity using indigenous techniques such as drying or fermentation is exclusively the task of women. These indigenous foods contribute to diversifying the diet of rural people in normal times and are crucial to their survival during times of food shortage. Thus, these indigenous foods become the basis of the survival of the rural community. This will enable social exchanges that will also invite ideological contestation around the very meaning of food.

Religion, culture and traditional knowledge can be drivers of nutrition and food security in developing countries (see Ericksen, 2008:234). African peoples have many rituals and festivals that demonstrate African Religion. These embody what people believe, what they value, and what they wish to apply in a daily life directed at ensuring good health, healing and good harvest. The most common and most important of all is the rain making a ritual. The rainmaking ritual, which often comes before the start of the rains, is a religious act of renewing life, sanctifying life, reviving life, for both human beings and other creatures (Mbiti, 1975:131). For example, the ritual of the first fruits, which is regarded in many African societies as holy, opens up the way for the ripening of the fields and thus the harvest. According to Mbiti (1974:130), the rituals of the first fruits are like religious signals to people that they

may safely eat the fruits of their labours because by blessing the first fruits the whole harvest is consequently blessed and made holy or ritually clean for human consumption.

It is important to note that all rituals and festivals in ATR are accompanied by food. This is a clear indication that religion and food are part of the celebration of life. Religious and social values are repeated and renewed through communal festivals. Taking this into consideration it can be noted that the consumption of food in African Traditional religion is embedded in ethics and values that must be taken seriously. As such, religion plays a large part in the selection and consumption of food by some individuals and their respective communities.

In African Traditional Religion the fundamental belief is that the Supreme Being provides in various ways for the things he has made so that existence can be sustained. God provides for life, fertility, rain, health, food and other necessities needed for sustaining creation. In fact, Mbiti, (1969:43) noted that God is involved in the affairs of humankind, and people experience this involvement in terms of God continuing to create, sustain, provide, pastor, nurse, heal and save. Most of this functions at the physical level and with special reference to human life. Mbiti (1969:44, 1973:12) observes that African people are deeply religious. It is religion, more than anything else, which colours our understanding of the universe and our participation in that universe, making life a profoundly religious phenomenon. Despite the devastating effects of Islam and Christianity on African Traditional religion, as things stand, it is not far from the truth to say that ATR has been undermined but not eradicated. The worldview underlying ATR still exerts a subconscious influence upon people in African societies even if ATR is no longer the only source of reference and identity.

1.1.6 Food in the Context of the Shona People: A case of Chionekano ward in Zvishavane

The boundary between religion and culture is not always clearly discernible in African traditional communities (Shabangu, 2006:23). Like the majority of African people, the Shona people in Zvishavane, which forms the focus of this study, believe in a supreme creator *(Mwari).* There are many praise names attributed to *Mwari*, for instance *Dzivaguru* (the great pool), Nyadenga (the one above the sky),

Musikavanhu (the creator of the people or *Mutangakugara,* (the one who existed at the beginning) *Chikara,* the one who inspires awe. These names indicate certain attitudes or beliefs concerning *Mwari* who is described with both male and female attributes, with names such as *Dziva* a great pool, *Mbuya* (grandmother) and Zendere (Thorpe, 1991:55). According to Daneel, (1971:82), *Mwari* as the author of creation, is therefore both a male god of light and a female goddess of fertility. Therefore, *Mwari* is the final authority above and beyond the ancestors, and as such must be approached indirectly through mediums representing ancestral spirits. *Mwari* controls fertility – both human and agricultural – and is hence regarded as the ultimate source of rain. Whenever drought threatens, the community requests help from *Mwari.*

Describing the Shona people who constitute the population under the case study of this research, Bourdillon, (1982:17) notes that the life of the Shona revolved around food production. They are a community of crop farmers and animal herders. They grow millet, sorghum, maize, groundnuts, cowpeas, and a wide range of vegetables and other legumes mainly for their own consumption (Maroyi, 2011:508). This implies that the availability of food supply and access are crucial to achieve household food security among the Shona. Moreover, Mararike, (2001:54) points out that food is perceived not only as a means of meeting nutritional requirements, but also as a social tool which brings people together to share their successes and/or failures.

Among the Shona, this can be evidenced by the concept of *Zunde ra Mambo* (Chief's common granary). This is a traditional social security arrangement to ensure the wellbeing of the community in terms of food security. The *Zunde ra Mambo* programme would, among other issues, increase food production and, therefore, reduce levels of malnutrition at the village level. Thus the Shona people, guided by their cosmological and philosophical survival strategies, had their own home-grown mechanism of coping and adapting to the environment. There is no doubt that such survival strategies were shrouded in terms of traditional religious beliefs. As a result traditional food systems can be used to identify all food within a particular culture that is available from local natural resources and which is culturally accepted.

In the light of these considerations relative to the cultural implications of food, it is important to understand how the Shona portray food from their cultural and religious point of view. The staple food of the Shona is the stiff porridge *sadza* made from one

of the cereals, the most popular perhaps being maize meal. Although maize porridge is the main part of the diet no meal is complete without relish, in the same way as no European would be content to eat dry bread. Stamped groundnuts *dovi* are perhaps the most usual basis of the relish, and this paste is mixed with the leaves of vegetables or other edible greens in a separate container to the porridge (Gelfand,1968:25). A little meat or fowl is cooked instead, but this is more of a delicacy and not served routinely. The relish *(murivo)* is an essential item of the meal. Insects, birds, certain mice and fish are all prepared as relish. Strips of meat are dried for future use when an animal is killed.

In Western cultures, attention is given to preparing the table, for oneself and for others, how foods and dishes are arranged, as well as the care taken in cooking favorite dishes, are all daily rituals and, in some cases, related to special occasions (Barilla Centre for Food and Nutrition, 2009:8). Table manners are exemplary great care taken to teach children to eat properly. Among the Shona people, before eating a meal, a dish of water is traditionally placed on the floor for diners to wash their hands. *Rudyi* is the Shona word for right hand, which means the "one used for eating." Even if a person is left-handed, it is considered impolite to eat using the left hand. The place where one sits has a precise meaning depending on the historic, social or political context. Similarly, sharing of food, or who gets particular a piece as opposed to another, is not casual, but rather the translation of relationships of power and prestige within the group (Barilla Centre for Food and Nutrition, 2009:8). Traditionally, among the Shona, before eating, women sit cross-legged in a circle round a plate while the youngest children eat from their mother's plate. The mother claps her hands and takes a small piece of *sadza (musuva)* to eat. Each one does likewise in order of seniority starting with the eldest girl. Men eat separately from women. The mother or one of the elder daughters serves the man of the house, kneeling as she hands him his plate of food and withdraws. The men eat together from the same plate starting with the one given to the head of the household. When eating, a person would break off a small piece of stiff porridge, with his/her fingers and rolls this into a little ball between the index and the middle fingers and this is then dipped into the relish. Boys over the age of about 8 years join their fathers and older brothers at the *dare* (thatched hut) whilst women and the small children have their meals with their mother in the *imba* (kitchen). No child is permitted to receive *sadza*

without clapping hands.

Gelfand, (1968:25) noted that the Shona are sensible eaters of food. To the Shona eating is not merely filling a need. Mealtimes are very much social occasions for enjoying the company of relatives or friends. A meal is almost like a ritual when one shares the necessities of life with one's kin. Great attention is paid at the meal to correct manners and respect paid to each one according to the status in the family group (Gelfand, 1965:34). The happiness associated with eating is not confined to the individual. A person who wants to be happy must share this feeling with friends, neighbours and relations, for instance at a beer party, wedding party, collective work gathering, festivals, rituals and so on.

Every cultural setting maintains multiple concepts about how foods should be categorised. These systems of categorisation, in turn, are commonly invoked when making decisions about food selection, preparation, serving and consumption (Gittelsohn and Vastine, 2003:4036).

1.1.7 Indigenous vegetables

A rural household's food basket, for example amongst the Shona in Zimbabwe, typically consists of the most common staple food that is cornmeal mixture called *sadza*. It is served at almost every meal particularly for lunch and dinner and can be served with different a variety of indigenous vegetables, fruits, mushrooms and bush meat that contribute to household food security. Other food types that are occasionally consumed include red meat namely beef, mutton, goat, and game meat and white meat that includes chicken, dried fish such as kapenta. Mopane worms or edible moth caterpillar, sugar beans and soured milk are also included as relish for sadza.

To be food secure, a household has to have enough maize, millet or sorghum to provide adequate *sadza* throughout the year. Van Rensburg, Van Zijl and Sonja, (2007) conducted a study on the "Importance of Traditional Leafy Vegetables in South Africa". The study found that local people formerly ate a diet of meat, milk, wild cereals and wild plants, but the Pedi proverb "Meat is a visitor, but *morogo* a daily food" (morogo are traditional leafy vegetables) has become a reality for most. The challenge then comes on to have relish available most of the time, since the

absence of relish means that the corn meal will not be palatable and therefore may not be consumed in sufficient quantities to give an adequate diet. Thus, the presence of relish directly impacts on the consumption of the bulk of the main staple even though the relish is required and consumed in smaller proportions relative to the staple (see Mavengahama, McLachlan and de Clercq, 2013:227). This is an illustration why indigenous vegetables are an important source of food in the corn-based subsistence farming sector of rural sub-Saharan Africa. Their main role is as relish as they are used as an accompaniment for cereal based diets.

Definitions of "vegetables" vary significantly between countries and regions. There are two main classes of vegetables in Africa. There are indigenous or traditional African vegetables and exotic vegetables that originated from outside of the continent and were introduced to consumers in Africa. It was roughly after the start of the colonial period – in Africa only after 1500 and in Zimbabwe only after 1850. The FAO, (1988) defines traditional vegetables as all plants whose leaves, roots or fruits are acceptable and used as vegetables by rural and urban communities through tradition, custom and habit.[6] However, Pereira, (2014:20) asserts that many definitions specify that vegetables are parts of a plant, eaten, cooked or raw with main meals, have different colors and are high in nutritional value considered good for health.

There is agreement among scholars that one of the characteristic features of traditional African vegetables is that they often contain higher levels of essential minerals and micronutrients than exotic vegetables, as well as being high in protein (Rensburg, et al., 2004). Providing a single and widely accepted definition of a traditional African vegetable is entangled with many difficulties. There are a host of terms describing traditional African vegetables, namely indigenous African vegetable (IAV); indigenous leafy vegetable (ILV); African leafy vegetable (ALV); traditional African vegetable (TAV); traditional African leafy vegetable (TALV or TLV) – and all are subject to contested meanings (Shackleton, Pasquini and Drescher, 2009:9). Traditional vegetables are gathered from both cultivated and uncultivated lands and the knowledge about traditional vegetables is passed on from generation to generation as part of the indigenous knowledge embedded in a community. Before

[6] Maroyi, (2011:5721) adds that: "Traditional vegetables may not be indigenous to a country, but are usually associated with traditional production systems, local knowledge and have a long history of local selection and usage." This implies that traditional vegetables are wild, semi-cultivated or cultivated.

the introduction of exotic crops and associated weeds, traditional vegetables have been found in the wild or were semi-domesticated varieties of the indigenous flora (Shackleton, Pasquini and Drescher, 2009:9).

Dweba and Mearns, (2011:565) suggest that …

> Indigenous vegetables are those edible plants that are biologically indigenous to an area, while introduced vegetables are those vegetables that have been introduced into a particular area, have not physiologically adjusted to the local conditions, and subsequently require many agricultural inputs. These indigenised vegetables have adapted to local conditions after their introduction and now they are considered as local.

Modernisation of agriculture has led to the introduction of exotic species and varieties of vegetables in most developing countries. Examples of exotic vegetables are maize, pumpkins and sweet potatoes cabbage, rape, chomoiller, pea, cowpea, carrot, beetroot, tomato, eggplant, Irish potato, pepper, onion, shallot, spinach, lettuce, maize, beans, pumpkin, okra and sweet potato. Most of these exotic vegetables have seeds that are available and can be cultivated throughout the year. The only vegetable in this list that also may be regarded as indigenous is okra. However, most of the okra that is consumed nowadays is a hybrid version and not the traditional okra that is found among wild edible vegetables. Okra is called *derere* in Shona.

Agricultural weeds or wild edible plants are consumed in several African and Asian countries mainly as vegetables. The use of wild plants as leafy vegetables is very common and some of these species are also very popular, but some species are more sought after than others. In this study, the term “indigenous vegetables” is used to refer to both indigenous and indigenised vegetables, while the term ‘introduced vegetables’ refers to exotic vegetables that have not adapted to local conditions and require high inputs to thrive. Traditional vegetables require less chemical fertilizers and pesticides since they have adapted well to local growing conditions.

Maroyi, (2013) identifies the most popular species in Zimbabwe in his study that aimed to document indigenous knowledge related to the diversity and use of agricultural weeds as traditional vegetables in Shurugwi District in the midlands province of Zimbabwe. Examples that were found include the following:

Okra: *Abelmoschus esculentus;* Shona: *derere*

Pigweed: *Amaranthus hybridus;* Shona: *mowa guru*

Poor man's spinach: *Amaranthus thunbergii;* Shona: *bononGwe,*

Thorny pigweed: *Amaranthus spinosus;* Shona: *mowa danga*

Silver spinach: *Celosia trigyna;* Shona: *mundawarara*,

Fat hen: *Chenopodium album;* Shona: *mubvunzandadya*,

Spider flower: *Cleome gynandra;* Shona: nyevhe,

Spindle pod: *Cleome monophylla;* Shona: musemwasemwa,

False foxgloves: *Ceratotheca triloba;* Shona: *munhuwenhuwe*

Wild jute: *Corchorus tridens;* Shona: derere,

Wild gherkin: *Cucumis anguria;* Shona: muchacha,

Spiny cucumber: *Cucumis metuliferus;* Shona: *mugaka*,

Wild hibiscus: *Hibiscus articulate;* Shona: derere *hambakachere*,

Pumpkin/ squash: *Cucurbita maxima;* Shona: *muboora*

Wild hibiscus: *Hibiscus articulate*; Shona: *derere hambakachere*

Cassava: *Manihot esculenta;* Shona: *mufarinya,*

Black nightshade: *Solanum nigrum;* Shona: *musungusungu*,

These are leaves from wild and weedy species from farmers' fields and the veld. These edible weedy plant species grow naturally in farmlands, abandoned gardens, homesteads and many other ecological areas where they usually occur as weeds and can exist independently of direct human action (Maroyi, 2013:6). In addition, there are vegetables such Pumpkin/squash-*muboora*, Cowpea- *munyemba,* Sweet potato- *mumbambaira* and melons that were introduced in Africa in the colonial period that cannot be regarded as wild edible plants. However, indigenous people used the leaves of these cultivated plants for leafy vegetables as an additional source of food.

1.2 Delimitation and Statement of Research problem

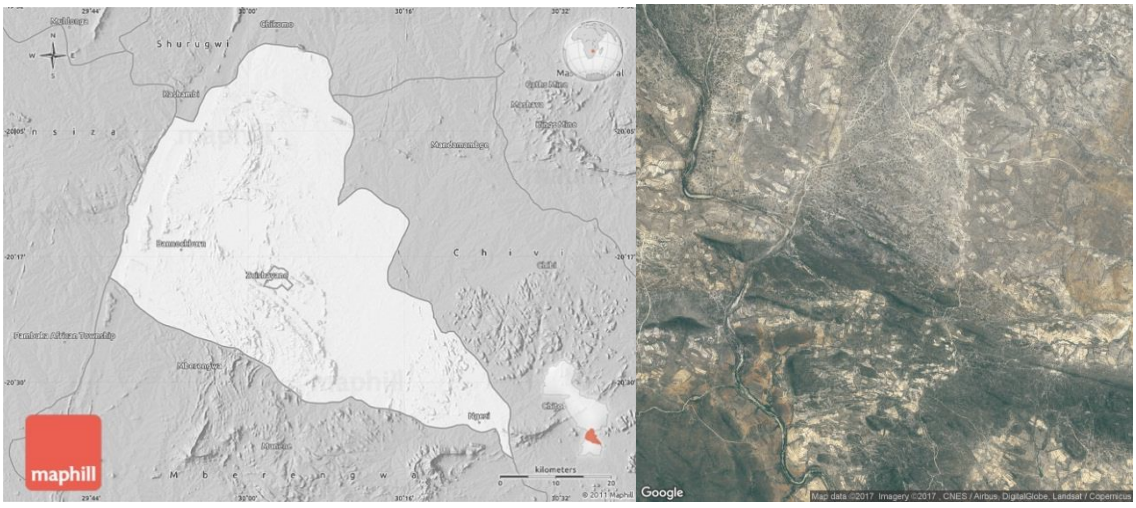
This study explored the use of indigenous vegetables that are consumed specifically

in the Chionekano-ward of the Zvishavane-district in Zimbabwe in which I grew up. Further demarcation calls for further clarity:

1.2.1 Zvshavane district in Zimbabwe

Zvishavane is situated in the Midlands province of Zimbabwe in Southern Africa. Its geographical coordinates are 20° 20' 0" South, 30° 2' 0" East. The Zvishavane district experiences periodic seasonal droughts and severe dry spells in some cases. Crop production is therefore risky except in certain very favourable localities, where limited drought resistant crops are grown as a sideline (Mabeza, 2015). The soils are sandy loam, predominantly derived from granite characterised by low agricultural potential due to low nutrient content, particularly nitrogen and phosphorous. Subsistence agriculture is the mainstay livelihood of the population in Zvishavane district (Maroyi, 2013:193). Maize cultivation is the main economic activity, with other grains such as sorghum and millet being planted by most households as insurance against poor rains, which in some years are inadequate to produce a good maize crop.

The two dominant religions in this study area are African traditional religion and Christianity. Traditional beliefs in Zvishavane communal area are still prevalent and appropriate rituals are still practiced accordingly. Although almost all claim to be Christian, most people practice Christianity and African traditional religion concurrently.



Map 1: The location of Zvishavane and aerial satellite for Chiwonekano ward.

The maps inserted above[7] show that Zvishavane is mainly a communal (rural) area. Growing up in rural Zimbabwe, it was convenient for me to choose Zvishavane as a case study concerning how these communities grapple with the intermittent shortage of relish that is due to a lack of adequate rainfall and poor soils. As eluded before from the context of food insecurity in Zimbabwe, poor nutrition causes nearly half of deaths amongst children under the age of five years I have witnessed this myself when growing up. Due to the scarcity of relishes such as meat, I remember how we were forced to eat vegetables despite how they taste. Refusal to eat was tantamount to be beaten. As the last born in a family of five, I remember being beaten after refusing to eat vegetables to the extent that they got tired of me. Despite the good stories, myths and songs associated with the encouragement of eating vegetables I did not like vegetables whether indigenous or exotic. It was only until I started losing hair that suspicions of witchcraft emerged. My mother, who had a nursing background, took me to the nearby clinic where the nurse revealed that my diet was lacking salt and vegetables as I preferred to eat milk with *Sadza* a lot. I was encouraged to eat vegetables which my mother was good at preparing, particularly Nyovhi and Muboora mixed with peanut butter. Within three weeks of eating these vegetables, my hair started to grow. In our community, there is considerable cultural knowledge associated with the importance of vegetables, i.e. on how delicious and useful are they in life. This is expressed through beliefs, values expressed and transmitted through language stories, myths, proverbs and songs that our grandmothers used to narrate to us or that we could sing when playing.

Due to erratic rainfall patterns in the area the use of indigenous vegetables is very high as most of these vegetables grow very well in dry seasons and the community usually preserve these vegetables for future use. The characteristics of Zimbabwe's seasons are as follows: The main rainy season is from mid-November to mid-March. The post rainy season is from mid-March to mid-May, while the winter season (with

[7] Seehttps://www.google.co.za/search?rlz=1C1AFAB_enZA728ZA728&biw=1280&bih=869&q=map+of+zvishavane&oq=map+of+zvishavane&gs_l=psy-ab.3..0.4919.13348.0.20808.18.18.0.0.0.0.333.3877.2-14j1.15.0...0...1.1.64.psy-ab..3.15.3875.6..35i39k1j0i67k1j0i131k1j0i20k1j0i22i30k1.SB_PqUsw9dM (accessed 21 June 2017)

no rains) is from mid-May to August and the hot season is from September to mid-November (with no rains) (adapted from Mabeza, 2015).

1.2.2 The research site

The research site is located in a semi-arid area of Zvishavane, namely in Runde rural district council. Zvishavane comprises of 19 wards. The study site is Chionekano ward also known as ward four (see Map 1). The ward is about 18 km to the north of Zvishavane town and falls under the jurisdiction of Chief Masunda of the Nyoni people and headman Chief Matenda of the Chionekano ward. Chionekano ward is named after Chionekano mountain in Zimbabwe and is north of Chamhini School and northwest of Hombe. Chionekano ward has an elevation of 1,202 metres above sea level. Some of the other wards are also named after mountains like Guruguru and Hombe.[8] Smallholder farming and peasantry is the major economic activity in the ward. Some villagers in the ward engage in off-farm livelihood strategies such as basket weaving and artisanal mining of gold. In 2012 the total population of the ward was 4352, comprising of 1980 males and 2372 females (Zimbabwe National Statistics Agency, 2012). The total number of households is 966 with an average of 4.5 people per household (Zimbabwe National Statistics Agency, 2012). The villagers mainly engage in mixed farming with most people growing maize, groundnuts, sorghum and millet. Some engage in market gardening and grow crops such as tomatoes, exotic vegetables and onions.

There is also a long history of the use of indigenous vegetables in Chionekano ward and surrounding places. This forms part of the indigenous knowledge base of the African ancestors and in particular of the Chionekano ward. Since some of this knowledge may be lost after the current generation, it is important to document the harvesting, preparation, cooking and consumption of indigenous vegetables. The indigenous myths, proverbs, songs and cultural/religious knowledge can promote the continued use of these indigenous vegetables thereby helping in household food security.

[8] See www.wiki.polskibreivik.pl/page_Municipalities_of_Zimbabwe.html

1.3 Statement of research problem

This study responds to a twofold social problem, namely the inclusion of sufficient vegetables in the diet of rural people in Zimbabwe for the sake of food security and the loss of indigenous knowledge related to the potential supply of indigenous vegetables. It may be helpful to summarise the need for such a study at this point.

Indigenous vegetables are important in local diets and have been used as a source of traditional medicines for the treatment of arthritis, diabetes, constipation and hypertension (Kongkachuichai, et al., 2015:838). Again in poor rural communities' consumption of indigenous vegetables is particularly important for women and children and is still common but nationwide there is evidence of decline, particularly in urban areas (Jansen, et al., 2007:318). However, indigenous vegetables of Africa have been displaced in many areas, leading to a decline in production, use and diversity of the vegetables being grown (Van Rensburg, et al., 2004:52). Dwebaa & Mearns, (2011:563) argues that the consumption of traditional vegetables is decreasing – even in the rural areas of South Africa – in favour of introduced vegetables that are popular on the market.

The importance of leafy vegetables is underestimated and is currently under-researched. The lack of attention means that the potential value of these vegetables is undermined. Moreover, even the involvement of culture and African traditional religion linked to indigenous knowledge in food security discourse has been selective. Maroyi, (2011:507) notes that for most parts of Zimbabwe, the rich indigenous knowledge on wild edible plant species is not adequately documented, although there have been a few attempts to document uses of such plants. The neglect by both policy makers and researchers has led to the scarcity of information on indigenous vegetables. Alonso, (2015:2) conducted a study on the impact of culture, religion and traditional knowledge on food and nutrition security. The findings revealed that, "culture, religion and traditional knowledge affect food and nutrition security by shaping a community's diet, food preferences, intra-household food distribution patterns, child feeding practices, food processing and preparation techniques, health and sanitation practices, traditional medicine and the accessibility and use of biomedical public health services". Thus, the traditional knowledge embedded in traditional medicine and traditional food systems has the potential to

contribute to the improvement of food and nutrition security and public health. There is consensus among scholars that indigenous knowledge, mostly interwoven with local religious beliefs, customs, folklore and land use practices, plays an important role in nature resource management, sustaining traditional culture and livelihoods (Juanwen, Quanxin and Jinlong, 2012). Research on these crops therefore should have high priority. Culture, religion and traditional knowledge may affect food and nutrition security and health in various ways, and deserve a more prominent place in research and policy design.

1.4 Aims and Objectives of the Study

This study on the use of indigenous vegetables in the Chionekano-ward of the Zvishavane district will seek to contribute to the available literature in this regard. More specifically, the purpose of this study is to identify examples of such indigenous vegetables consumed in the Chionekano-ward and, on that basis, to describe the cultural and religious connotations attached to the harvesting, cooking, preservation and consumption of these indigenous vegetables.

This implies that the research problem revolves around the appropriate identification and selection of the most significant types of indigenous vegetables that are still being consumed in the Chionekano-ward. On this basis the study tracks the ways in which such vegetables are harvested, cooked, preserved and consumed. Through semi-structured interviews with practitioners, it offers a thick description of any cultural and religious connotations attached to such vegetables in the Chionekano-ward.

Therefore, the research objectives are:

- To identify indigenous vegetables used in the Chionekano ward of Zvishavane district in Zimbabwe.
- To describe the cultural and religious connotations attached to the harvesting, preservation, cooking and consumption of such vegetables.
- To document indigenous knowledge associated with the use of these indigenous vegetables to deal with the problem of food insecurity.

1.5 Indigenous research methods

In this study, data was collected on the present use of indigenous vegetables in the rural village of Zvishavane district in Zimbabwe using a qualitative, ethnographic research method. This comprised of in-depth semi structured interviews, active or passive participation, observations and focus group discussions. Lichtman, (2013:7) asserts that qualitative researchers are most interested in how human arrange themselves and their settings and how inhabitants of these settings make sense of their surroundings through symbols, rituals, social structures, social roles, and so forth. Moreover, ethnographic fieldwork is embraced as a way of being "there" and it entails long-term fieldwork characterised by participant observation (Sluka and Robben, 2007:10). As a result, qualitative techniques allow researchers to share in the understandings and perceptions of others and to explore how people structure and give meaning to their daily lives.

In this study, the nature of both indigenous knowledge and qualitative inquiry necessitates the development of a research design that accommodates multiple realities between research partners. A community is characterised by common interests in achievable things, economic, socially, religious, culturally and politically, and this gives members of the community a common interest in one another. For the reason that the rural parts of Zvishavane are known to be a conservative area that is still attached to traditional ways of life linked to the village, the remoteness of the area is believed to boost indigenous knowledge due to the value local people put on traditional ways of life.

A study of this nature requires cognisance of discourse on indigenous knowledge but also of appropriate indigenous research methods. Chilisa, (2012:101)observes that "Indigenous knowledge driven research methodologies can enable reclamation of cultural or traditional heritage; a decolonisation of the captive and colonised mind and thought; protection against further colonisation, exploitation, and appropriation of indigenous knowledge and a validation of indigenous practices and worldviews". Chilisa, (2012:10), arguing from indigenous research methodology point of view, notes that;

> Post-colonial indigenous knowledge enables researchers to unveil knowledge that was previously ignored, enabling the researcher to close the knowledge gap

> that resulted from imperialism, colonisation and the subjugation of indigenous knowledge. Consequently this indigenisation process involves a critique and resistance to Euro-Western methodological imperialism and hegemony as well as a call for the adapting of conventional methodologies by including perspectives and methods that draw from indigenous knowledge's, languages, metaphors and worldviews experiences and philosophies of former colonised, historically oppressed and marginalised groups.[9]

This view is very important especially considering that this research emanates from an African Traditional Religion, cultural traditions and indigenous knowledge point of view. The aim was to unpack the values associated with the preservation, cooking and consumption of indigenous vegetables. Such information was gathered also from community stories, proverbs, myths, folklores and language.

1.6 Research design

1.6.1 Population and sampling

The participants in this study were selected on the basis of their knowledge and use of indigenous vegetables. It is assumed that most if not all the participants will be in the age group between 60 and 90 years. Participants of this age was chosen because of their seniority and their experience over a long period, as memory plays a significant role in documenting indigenous knowledge. Elderly people, especially elderly women, are regarded as custodians of the knowledge associated with traditional vegetables (Dweba and Mearns, 2011). Traditional healers were part of the key participants as they are regarded as custodians of traditional knowledge in any community. They was selected because of the role they play in the community and the quality of information they have. In this study, I covered all the villages in Chionekano ward, especially with a focus on female headed households.

Snowball sampling was used so that there would be a sample of all potential participants with relevant characteristics. After interviewing them, these participants were asked for the names of other people who possessed the same attributes as they had. In this study, elderly women were regarded as fundamental sources and repositories of indigenous knowledge considering that it is mostly women who deal

[9] See Chilisa, 2012:101

with the picking and preparing of indigenous vegetables.

1.6.2 Data collection instruments

The study used in-depth semi-structured interviews and field visits in the area because this allowed me to explore how the people of Chionekano ward harvest, cook and eat indigenous vegetables.

A semi-structured interview forms part of a qualitative method of inquiry that combines a pre-determined set of open questions that may prompt discussion with the opportunity for the interviewer to explore particular themes or responses further. In this study, since semi-structured interviews often contain open-ended questions and discussions may diverge from the interview guide, tape-recording the interviews and later transcript these tapes for analysis was the best way to gather and keep the data. Semi-structured interviews also allow participants the freedom to express their views in their own terms (Stuckey, 2013:59).

The questions of the study are:

- What examples of indigenous vegetables are consumed in this area?
- How do you harvest, preserve, cook and consume indigenous vegetables?
- What is the significance of eating these indigenous vegetables?
- What are the rituals that may be associated with harvesting, preparing and eating such vegetables?

The assumption was that raising such questions would become a window through which religious and cultural connotations could be identified and described. The information derived from such interviews forms the basis for reflecting on perceptions and beliefs associated with such indigenous vegetables.

1.6.3 Participant Observation

In order to understand the use of indigenous vegetables and their benefits, I engaged in participant observation. Involvement is important to “understand the psychological realities of a culture, that is, its meanings for the indigenous members” (Sluka and Robben, 2007). This meant that I had to willingly help in daily activities from

harvesting, cooking and consumption. This enabled me to occupy a front row seat to understand the use of such vegetables thus effectively using the method of participant observation for more data. The observation took a period of three months. Besides carrying the tools needed in the various activities, as a researcher, I used a notebook and audio-recorder to record all the data emerging from the observations during the activities. A camera is an indispensable tool for an ethnographer. For this study, I also used it whenever I came across something vital to the research in the absence or supplement of a notebook. The camera therefore played a very important role in capturing the 'magical moments'. Photographs are very important forms of data. Photographs tell many stories and they can be used as an added advantage of providing documental evidence. As such, this study found the camera very useful during the data collection process.

1.6.4. Focus group discussions

In addition to the semi-structured interviews, I also conducted focus group discussions in the form of conversations with members of each of the approximately eight to ten villages in the Chionekano ward. As much as I was staying among the people, making contact with members of the villages on social gatherings, I invited villagers to discussions centred on their experience in connection with the production of indigenous vegetables. During these discussions, especially during social events, I was able to gather stories, myths, and proverbs regarding the cultural and religious use of indigenous vegetables.

1.7 Data capturing and data analysis

Data analysis in this study is descriptive and uses thematic analytic methods, which according to (Seidman, et al., 1998:99) may be used to understand patterns of shared understanding amongst participants and any variability in those patterns Recorded discussions were transcribed and translated from Shona to English. A quality check was also carried out on the transcribed data and translated and correctly to ensure that the original meaning is not lost in translation. Transcribed notes were then compared with notes taken during the group discussions. The inductive approach to qualitative analysis was used to analyze and interpret the data

obtained from the direct quotes, proverbs, songs, myths, transcribed recordings of interviews or focus groups, jotted notes and field notes made during the research. Such sources of information were included in the description of the findings to give more meaning to the context. This approach enabled the research findings to be extracted by identifying frequent, dominant or significant themes that emerged from the raw study data. Colour coding was used to identify possible themes that emerge from the focus group discussions and semi-structured interviews. After assessing all the transcripts, data with the same colour codes were grouped together and themes and subthemes developed to describe the findings.

1.8 Ethics Statement

According to McMillan and Schumacher, (2006:142) ethics are contemplated to deal with beliefs of what is considered to be right or wrong, proper or improper, good or bad. From the beginning of the research process for this study, the researcher made efforts to keep to this fundamental postulation opined by McMillan and Schumacher, (2006:142). Ethical and legal practices are imperative in any research that is undertaken hence I adhered to well-established ethical norms for empirical research such as honesty and maintaining respect for the rights of individuals.

More specifically, I adhered to the following aspects that are relevant to this study:

Seeking permission from authorities to conduct the study: Once ethics clearance was obtained from the UWC Senate Research Ethics committee, I sought permission to conduct the research from the Headman Matenda of Chionekano Ward and on that basis from the village heads and other traditional leaders respectively. (See the attached draft letter requesting such permission in appendences).

Voluntary participation: I deliberately sought to interview key participants such as elderly women and traditional healers. Participating in this research was voluntary. This was done based on an information sheet that explains the purpose of the study. I explained to participants that no financial benefits would accrue because of their participation in the research (see the attached information sheetin appendences). This enabled the participants to decide whether they wanted to participate in the study. Participants had the right to withdraw from the study at any stage and without having to explain their decision.

Informed consent: I asked each participant in the interviews and focus group discussions to sign a consent form in when they agreed to participate in the study as indicated above. I further asked them to give me permission to make audio-recordings and to take pictures of indigenous vegetables that they harvested, preserved and cooked. (See the attached consent form in appendences).

Confidentiality and anonymity: I asked each participant how she or he preferred to be referred to in this study as indicated in the consent form. I presumed that some would want to be mentioned by name in order to receive due credit for the indigenous knowledge that they have maintained. Others may prefer a description in terms of role responsibilities (e.g. “a traditional healer from Chikafu village”), while yet others may prefer a pseudonym (e.g. Interviewee A from Mabuzve village). I adhered to such choices as indicated by participants in the consent forms.

Other Possible Risks involved: A study of this nature seeks to recognise indigenous knowledge and does not pose serious risks in gathering the information. However, others may abuse such knowledge in the sense that there may emerge competition over sources of food previously utilised only by some. It is possible, although unlikely that information about the nutritional or medicinal value of indigenous vegetables may attract the intention of or biotechnological companies. There is a remote possibility that biotechnological companies may use information particularly from traditional healers on the pharmaceutical significance of indigenous vegetables for their own benefit as theirs.

Research on plants such as indigenous vegetables is governed by international conventions on biodiversity. In South Africa, national legislation has been put in place to govern such research and access to natural genetic resources. Researchers are required to obtain legal permits to collect South Africa' natural genetic material. This pertains especially to what is called “bioprospecting”, i.e. “search for new chemical compounds and genes in living organisms that may have some pharmaceutical, cosmetic, nutritional or other commercial application obtained through the cultivation, propagation or cloning”.[10] This search may also take place through “the collection of traditional knowledge (TK) relating to the use of these resources from indigenous

[10] See http://www.sanbi.org/information/infobases/collection-permits (accessed 7 September 2017).

communities and/ or individuals".[11] The purpose of such legislation is partly to protect the interests of stakeholders such as indigenous communities whose uses and knowledge of such plants may be threatened by such bioprospecting.[12]

These considerations do not apply directly to this study as it (a) was done in Zimbabwe, (b) does not focus on identifying new chemical compounds and genes, (c) did not seek to collect and preserve samples of indigenous vegetables and (d) did not gather indigenous knowledge on the consumption of such vegetables for the sake of bioprospecting. Nevertheless, I wrote a letter to the Zimbabwean Ministry of Agriculture to inform them on the intentions of the study beforehand and asked whether any additional considerations needed to be taken into account. (See the attached letter in this regard in appendences).

Data management: The data gathered consisted of field notes, audio recordings and photographs. This was kept in my possession as the researcher during the period of field. Afterwards, I secured the data for safekeeping at my place of residence at UWC for the duration of the study. It is difficult to judge the potential value of the data gathered at this stage as some material may perhaps be in public interest. I will rely on the judgement of my supervisor and the examiners regarding the disposal / further dissemination of such data.

1.8.1 Dissemination / value

The results of this study will be published as a thesis, which will be freely available to the public online through the University of the Western Cape Library. A copy of the final thesis will be made available to each of the two secondary school libraries of Chionekano ward. Results from this study will also be summarized appropriately for inclusion in indigenous recipe books.

1.8.2 Limitations of the study

In any cross-language research, the researcher must always bear in mind that

[11] See again http://www.sanbi.org/information/infobases/collection-permits (accessed 7 September 2017).

[12] See Clause 82 of the National Environmental Management: Biodiversity Act, No. 10 of 2004, published in the Government Gazette on 7 June 2004 (accessed 7 September 2017)

language is tied to social reality; language is an integral part of conceptualisation and understanding of inherited values and beliefs (Temple and Edwards, 2002). This implies that although the researcher and participants may understand one another's viewpoints through dialogue, each is a producer of unique, individual accounts, understandings, and viewpoints (Temple and Edwards, 2002). Although the researcher is fluent in Shona, the mother tongue of the participants, the researcher made sure that the translation of data from Shona to English was done properly as to avoid misinterpretations.

1.9 Structure of the thesis

1.9.1 Chapter outline

The study consists of five chapters:

The first chapter presents a sketch background and the context of the study with specific reference to food insecurity in Zimbabwe and the project on Food Contestation at UWC. It also attended to the methodological considerations on the basis of this proposal explaining various issues including research questions, the target population, sampling size and methods, data collection instruments, data analysis ethics statement, dissemination and the value of the study.

The second chapter reviews literature on food security. It articulates and clarifies definitions of food (in) security, as well as highlighting the rural and urban food security status. Moreover, the chapter discusses the global representation of food in daily food consumption and African representation of food in daily food consumption looking at cereals and grains, fruits and vegetables and meat. The other concepts that permeate literature review is the significance of culture and African Traditional religion in food security, food security and Indigenous knowledge and unpacking ways in which a community's diet is shaped,

Chapter three, the main focus is on African indigenous vegetables and how they can provide human sustenance. The chapter explores examples of indigenous vegetables and differences with exotic vegetables. This allows the careful use of this source of relish in addressing the problem of food insecurity particularly the maize-based subsistence farming sector of rural sub-Saharan Africa. The other concepts

that permeate this chapter is the cultural and religious significance of indigenous vegetables, perceptions of indigenous vegetables in African communities and challenges in the use of indigenous vegetables.

Chapter 4 analyses discuss and present the results of the research as they relate to the research questions. A quality check was carried out on the transcribed data and translated carefully and correctly to ensure that the original meaning was not lost in translation. Discussions and interpretation of the results is presented on this chapter with an emphasis on the cultural and religious connotations attached to the harvesting, preservation and consumption of such vegetables.

Chapter Five presents conclusions and recommendations of the study with a summary of the importance and worth of the research findings.

Chapter Two: Literature Survey

2.0 Introduction

This chapter presents a brief review of the studies that have been conducted on food (in) security. It articulates and clarifies definitions of food (in) security, as well as highlighting the rural and urban food security status. Moreover, the chapter discusses the global representation of food in daily food consumption and African representation of food in daily food consumption looking at cereals and grains, fruits and vegetables and meat. The other concepts that permeate literature review is the significance of culture and African Traditional religion in food security, food security and Indigenous knowledge. It is important to highlight the role of food in African traditional culture and religion and how that is linked to food security especially to the vulnerable poor rural households who are food insecure. The chapter closes with unpacking ways in which a community's diet is shaped, food preferences, intra-household food distribution patterns, child feeding practices, food processing and preparation techniques and traditional medicine

2.1 Defining food insecurity

Defining food security in a way that is operationally useful is a daunting task (Cafiero, 2013:16). There are complexities that emerge from attempts at describing food insecurity. This clearly reflects the difficulties encountered in the attempts at measuring food insecurity (Webb, 2006:5). A clear indication of differing views and approaches to the problem is evident from different propounded definitions of food security (Napoli, De Muro and Mazziotta, 2011:7). However, the most widely accepted definition is that of the World Food Summit (WFS) in November 1996: "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (Napoli, De Muro and Mazziotta, 2011:7). This study adopts this definition because it recognizes the preferences, traditional habits and socially acceptable food types by considering the needs and preferences of all people from different communities and countries. This concept has been recognised under the term 'Food Sovereignty'. The term has been

used increasingly since the mid-1990s. It is an umbrella term for particular approaches to tackling the problems of hunger and malnutrition, as well as promoting rural development, environmental integrity and sustainable livelihoods (Windfuhr and Jonsén, 2005:1). For the first time at the World Food Summit organised by FAO in Rome in 1996 the ‘‘Via Campesina’’ developed and presented the food sovereignty concept. At the occasion of the World Food Summit which was held in Rome, the NGO Forum to the World Food Summit insisted that: “Each nation must have the right to food sovereignty to achieve the level of food sufficiency and nutritional quality it considers appropriate without suffering retaliation of any kind” (Claeys, 2014:35). This concept includes the right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food-producing resources and the ability to sustain themselves and their societies.’’[13] The actual quality and type of food provided should not merely satisfy protein-energy needs but provide the nutritional balance necessary for a culturally, religiously and socio-psychologically healthy and active life. In addition to that, Altman, Hart and Jacobs, (2009:345) note that food security cannot be understood in isolation from other developmental questions such as social protection, sources of income, rural and urban development, changing household structures, health, access to land, water and inputs, retail markets, or education and nutritional knowledge. Supplementary evidence suggests that other factors influencing food security include unacceptably high levels of poverty in rural households, low priority for nutrition on the agenda of government, poor infant and child feeding practices, inadequate access to healthy environment and health services as well as various care practices (Akinyele, 2009:1). More importantly, the socioeconomic and political environment at the national and subnational level is the principal determinant of food security. These determinants influence food availability, the stability of food supplies, and access to food, which in turn influence the amount of food consumed. Generally, this definition describes what are known as the Four Pillars of food security: availability, accessibility, utilisation and stability. Each of these characteristics captures different but overlapping dimensions of food security. An overview of the four dimensions of food security provides insight into the multi-dimensionality of food security. These

[13] See https://nyeleni.org/spip.php?article125. This was the World Forum for Food Sovereignty held in Mali on the 23rd - 27th February 2007. This gathering gave an opportunity to reaffirm the right to food sovereignty and to clarify its economic, social, ecological and political implications. Its aim was to achieve recognition of the right to food sovereignty (accessed 04 October 2017).

four dimensions are also key to understanding the parts of which this study focused on.

2.1.1 Physical availability of food

The World Food Programme defines food availability as “the amount of food that is present in a country or area through all forms of domestic production, imports, food stocks and food aid” (Napoli, De Muro and Mazziotta, 2011:19). Food availability refers to the physical existence of food, whether from the household’s own farm or garden production or from domestic or international markets (Maxwell and Smith, 1992:4) This dimension reflects the supply side of food security. It looks at how much food is available, regardless of the source (local production, import or food aid), with the assumption that all food produced is consumed (Ike, Jacobs and Kelly, 2015:93). Indicators of food availability, as measured by the FAO, include: average dietary energy supply adequacy, average value of food production, share of dietary energy supply derived from tuber, cereal and root crops, and average protein supply of animal origin (Ike, Jacobs and Kelly, 2015:93).

2.1.2 Economic and physical access to food

Food access relates to how people acquire the food they consume and is determined by two factors, namely economic and physical access (Ike, Jacobs and Kelly, 2015:93). The USAID, (1992) defines food accessibility as when: “Individuals have adequate assets or incomes to produce, purchase, or barter to obtain levels of appropriate foods needed to maintain consumption of an adequate diet/nutrition level.” Maxwell and Smith, (1992:4) note that individuals obtain food through various means, namely, own food production and consumption (including wild food gathering), purchases in the market place, or in-kind transfers or loans from relatives, members of the community, the government, or foreign donors private citizens. Thus, food access is also influenced by the aggregate availability of food through the latter’s impact on supply and, prices in the market. From the economic viewpoint, food security exists when people can afford to buy sufficient food and the physical dimension can be illustrated by a situation where food is being produced and can be easily transported to designated areas (Bikombo, 2014:11).

2.1.3 Food Utilisation

Food utilisation refers broadly to the actual food that is consumed by individuals; how it is stored, prepared, and consumed; and what nutritional benefits the individual derives from consumption (Maxwell and Smith, 1992:4). According to Ike, Jacobs, and Kelly, (2015:94) food utilisation involves food culture, food preparation and the actual consumption of accessed food. This dimension is related to food being nutritious, safe to eat and properly prepared. Utilisation therefore covers a range of aspects that hinge on the consumer's understanding of what foods to select and how to prepare and store them (Napoli, De Muro and Mazziotta, 2011:19). There seems to be a problem that local food habits, culture and human dignity, are omitted from the measures of food security. This highlights the need to assess not just the quantity of food entitlement (i.e. how much food you have access to) but also its quality.

2.1.4 Food Stability

Food stability is the fourth component of food security that cuts across the other three components. It is related to people's vulnerability to and ability to cope with stresses and shocks. Factors that increase vulnerability and reduce coping ability include extreme weather events, conflict, and political and economic factors. Stability is not a stand-alone dimension, and is usually incorporated into other dimension indicators (Ike, Jacobs and Kelly, 2015:94). When households are unable to acquire sufficient food using their regular means of accessing food – for example, because of poor crop production or a loss of a source of income – they will employ a sequence of "coping strategies" to meet their food needs. Coping strategies are involuntary responses to disaster or unanticipated failure in major sources of survival" (Jowah, 2009: 34). These four pillars are important in understanding food security and identifying the setting of food security with its geographical set up that can shade more light in understanding the context of this research.

According to Labadarios, et al. (2009:87) household food security is determined by indicators such as the household location (urban or rural community), household density (the number of people living and sleeping in the same household for more than five days in a week), and the income status of the household. Household food security is described as the ability of households to access sufficient, safe, and

appropriate food to meet dietary needs sustainably in order to lead a healthy and productive life. It refers to the ability of a household to assure all its members sustain access to sufficient quantity and quality of food to live active healthy lives either through production or purchase (Bikombo, 2014:8).

2.2. Rural and Urban food security

2.2.1 Rural food security

Globally, studies have shown that rural communities face food insecurity and are chronically malnourished (Bolwig, Gibbon and Jones, 2009:1098; Hazell, et al. 2007:23). A crisis of rural livelihoods in developing countries exists, and this has been characterised by rising rural poverty, malnutrition, declining food production levels and rising inequality. Hajdu, et al. (2009:11) suggests that rural livelihoods often are constructed as consisting mainly of subsistence agriculture, which is a highly simplified way of looking at rural situations. However, Bryceson's, (2004:617) research in Africa and South African rural study areas shows that from various African countries there is a decline in peasant commodity production, a surge in non-agricultural income diversification, the proliferation of multi-occupational households, accelerating rural class stratification and growing poverty ('non-agricultural' activities are those that do not directly involve plant or animal husbandry). Jowah, (2009:25) conducted research on rural livelihoods and food security in the aftermath of the fast track land reform in Zimbabwe. The study showed that rural livelihoods comprise of small farmers, tenants, sharecroppers and landless workers, who are often the most vulnerable to hunger and poverty and usually have inadequate access to land and other productive resources. Tawodzera, (2010:41) notes that there is an increasing tendency by rural households to diversify from agriculture to non-agrarian economic activities as part of their coping strategies. This suggests that other livelihood activities are neglected in official conceptualisations of rural livelihoods, creating a limited understanding of access to food security. Although most rural households do report engaging in subsistence agriculture, it is important to note that this is seldom their only livelihood activity. In Zimbabwe, rural villages have adopted different livelihood strategies such as fishing, gold panning, community gardens, rural to urban migration or to other countries like South Africa. In addition, it is important to note that

in most of the households there is a member skilled in some income generating activity like traditional house building, thatching, brick making, and basket making.

Whilst poor rural communities often derive a significant share of their sustenance from land-based activities, Jowah, (2009:25) points out that livestock husbandry, cultivation and the utilisation of „wild" natural resources, networks, labour, land, capital, knowledge, employment, technology and markets are other strategies to produce food. Harvesting natural resources also helped to generate incomes in order to make a living. Moreover, communities engage in communal gardens to cater for household food security and sell the surplus production to obtain household income. The participation of households in food security initiatives contributes significantly to addressing poverty, unemployment, under-nutrition, and other socio-economic challenges faced by many rural households (Maxwell and Smith, 1992). Rising food prices, particularly of maize and wheat, which are the staple diet of the poor in South Africa, pose serious problems for the urban and rural poor as most are net buyers of food (Altman, Hart and Jacobs, 2009:347). While some of the non-agrarian activities such as craft work may take place within rural areas, it seems some of the activities which are urban-based have compelled members of the household to move to the city. This has resulted in the influx and overpopulation of urban areas hence risking the problem of urban food insecurity and splitting of the rural family thereby creating multi-spatial households (Tawodzera, 2010:41). Therefore, it is important to look at the urban food security context.

2.2.2 Urban food security

Globally, food insecurity is often misleadingly seen as an issue that only affects rural populations because the highest and deep levels of food insecurity are commonly noted in rural areas (Crush and Frayne, 2011:536). Yet, due to increasing urbanization and rising food prices, food insecurity is increasingly prominent in urban settings. Rural and urban areas are therefore linked through the flow of people and goods, money and information, as well as social exchanges that encourage socioeconomic and cultural transformation (Tacoli, 1998:152). One of the important reasons for this is that compared with rural areas, urban livelihood strategies tend to rely much more heavily on the cash economy and the potential for the sale of labour to secure cash income. So, for most urban households, the amount of cash available

to spend on food, set against the price of food available in urban markets, has a significant impact upon household food security overall and well-being (Tacoli, 1998:152).

The globalization of trade in agricultural products and foodstuffs and the industrialization and commercialization of global and regional food systems have changed the way in which urban centres are supplied with food products. In addition to that, the types of food that are made available and the nutritional character of those foods have changed also. Shackleton, Pasquini and Drescher, (2009:2) are of the opinion that there is a 'nutritional transformation' centred on towns and cities, away from traditional diets to increased consumption of dairy products and meat, fewer complex carbohydrates, and a general decline in dietary diversity. This becomes a major problem because eating behaviours develop from cultural, societal and psychological patterns, and the selection of food is thus not only guided by economic rationale but also from cultural, socio-psychological and religious rationale. Although urbanisation has been accompanied by changes from traditional food to the adoption of western diets, it seems that food habits that were internalised during early socialisation are still adhered to. Therefore, when addressing food insecurity in urban areas it is important to take into consideration that an understanding of cultural influences on eating habits is essential for anyone who wants to provide realistic interventions designed to modify dietary practices. In their study on African indigenous vegetables in urban agriculture, Frayne, et al., (2010:26) aim to promote the use of indigenous vegetables principally in urban and peri-urban areas. The study notes that urban consumers will be an important group to target during the promotion of indigenous vegetables. The realization of the need for a highly diversified diet, rich in vegetables and fruit, for good health, and a shift from the top–down to community-driven rural development, have caused these neglected and underutilized species to attract considerable interest for their multiple underexploited benefits. They are underexploited in terms of nutritional and food security, income generation and medicinal value, suitability for low-input systems, and for marginal environments.

Whilst poor urban households in SADC cities obtain food from a wide variety of sources, urban households access the majority of their food requirements from the local food markets or shops. At least a fifth of the households obtain food from sources that may collectively be described as 'coping strategies' such as food aid,

remittances, sharing meals with neighbours and/or other households, food provided by neighbours and/or other households, community food kitchens, and borrowing food from others). With the fluctuation in market prices and the dependency on the food markets, households remain vulnerable to food price inflation (see Phillander, 2015:15). Other factors such as the increase in the price of domestic electricity and the increase in food prices, particularly wheat and maize, which are the staple diet of many poor households, have decreased the purchasing power of many households, (Phillander, 2015:15). This brings with it a level of uncertainty about the security of urban food supply. Frayne, et al., (2010:26) found that in a number of cities over half of the household expenditure is on food, including Harare (62%), Cape Town (55%), Lusaka (54%), Maputo (53%) and Msunduzi (52%). More important is the fact that urban households also receive food direct from rural smallholdings and in most cases they do so during the harvest and post-harvest season when there are likely to be disposable surpluses (Frayne, et al., 2010:26). If a flow of food from rural to urban areas continues, a proportion of the demand will continue to be met from rural sources, particularly in the case of wild-collected varieties.

2.3 The global representation of food in daily food consumption

Food consumption is a critical multidimensional aspect essential for sustaining life. It ranges from biological to cultural, from nutritional to symbolic and it also includes a dimension from the individual, to the collective, social and psychological. Food comes to serve functions other than nutrition, which puts its nutritional aspects in a broader and more complex context (Rosique, et al. 2012:131). Humans need to obtain nutrients from foods in order to survive and be healthy. The requirements of energy and nutrients are different due to differences in race, age, sex, and physical activity level. People living in different places take nutrients from different kinds of food; therefore, as noted by Ma, (2015:17), nutrition is a cultural biological process rather than a simple physiological and biochemical process. Humans gather, hunt, cultivate plants, and raise livestock for food consumption. Humans also cook, use utensils to eat and institute a complex set of rules following a code of etiquette to govern how to eat appropriately (Almerico, 2014:1). The human trait of sharing food is exclusive to its species. Humans relate to food in a way that is unique to humankind (Almerico, 2014:1). According to Bailey, (2007:40), a familiar saying that

epitomizes the idea of food and identity is, “You are what you eat.” Since everyone must eat, what we eat becomes the most powerful symbol of who we are. It is in these lines of thought that this section wants to understand the representation of daily food consumption globally as much as when people eat, the process can be influenced by economic, politics, culture, religion and many other factors.

A study by Marshall, (2005:1) looks at the importance of understanding situations and context in food consumption focusing on the rituals, habits and conventions of eating meals. It argues that meals provide a link to the wider community reflecting the shared understanding that underpins much of our routine food consumption. The study concludes that meal rituals and routines are likely to remain an important part of eating despite claims about the individualization of this consumption practice. On another note, Stajcic, (2013:8) points out that what we consume, how we acquire it, who prepares it, who is at the table, and who eats first is a form of communication that is rich with meaning. Social values clearly play a role in food consumption. For the moment, such values may be defined simply as *social priorities* that capture not only what is important but why that is important to people. Owuor, and Olaimer-Anyara, (2005) note that generally, the symbolic meaning of food, including ILVs serves the purpose of enhancing the functioning of society and promoting social cohesion and order. However, as far as indigenous vegetables are concerned, these meanings have been scarcely studied. For example, some indigenous vegetables are assigned to special social times and contexts. The study found that in south-western Nyanza in Kenya, cooking skill competence is associated with the social status of wives and their relationship with their husbands. It creates affective bonds within the family. The Luo developed sayings to sustain good cooking habits and reduce social conflicts within the family. For example, “alot ok bul” meaning you cannot roast vegetables. This is emphasised in the Luo saying “yadh hera en chiemo “translated as the “medicine of love is food”. Hence, beyond merely nourishing the body, what we eat and with whom we eat can inspire and strengthen the bonds between individuals, communities, and even countries. In this case, we can consider food as a form of communication because it is a nonverbal means of sharing meanings with others (Stajcic, 2013:8).

Edwin, (2008:39) asserts that eating habits and culinary customs in West African societies are embedded with deep social symbolism and meanings signifying kinship

ties, friendship, political relations, and social status. In his study using a selection of West African francophone novels, Edwin, (2008) examines the trope of food, eating, and culinary customs to reveal the ways the novelists employ food items and habits to critique the sociopolitical situations of West African societies. The results show that the non-nutritive function of food and its social symbolism constitutes the basis for community, relationships, and identity in West African. Eating behaviour, once formed, has continuity. When people moving to other regional or countries, they will continue keeping their traditional eating habit, taste, and cooking methods, unless in very special cases, otherwise, it is hard to change.

Food values and habits function as key cultural expressions that are central to the processes by which people establish, maintain and reinforce their (sub) cultural, ethnic, and individual identities (Kniazeva and Venkatesh, 2007:432). However, it is not the aspect of what can and cannot be eaten in a contemporary postmodern society that makes food a rich phenomenon worthy of academic attention, but the message-bearing, symbolic character of food reflected in eating and cooking practices (Kniazeva and Venkatesh, 2007:432). Similarly, Rozin, (2005:s108) notes that food assumes symbolic functions and takes on moral significance, as with pork for religious Jews and Muslims and beef for Hindus. Moreover, food becomes a medium for aesthetic expression, giving rise to elaborate food preparations and cuisines that cannot be justified solely in terms of nutritional factors. In a religious context, the symbolic significance of food eaten is more important than the nutritional value. For example, the consumption of these foods can determine and reestablish the relationship between humans and God, and between people. People eat special food to celebrate important events or festivals, such as Americans eating turkey for thanksgiving in the United States of America (USA), while specific food will be served for specific social events. In China too, different food is used at different events. For example, rice dumplings for the Dragon Boat Festival, moon cakes for the Mid-autumn Festival, and dumplings for the Spring Festival (Ma, 2015).

A study by Artan, (2000:117) focused on Ottoman Palace cuisine of the classical period in the 15th-17th centuries. In this study, certain cuisine favourites in the palace kitchen are mentioned. The study found out that extreme form of this differentiation of food is found in the allocation of specific foods to specific roles, offices or classes and certain goods were reserved solely for members of the dynasty and upper level. Meat

from sheep, duck, pigeon and goose, certain fruits, dairy products such as clotted cream (*kaymak*) and caciocavallo cheese (*kaşkaval*), caviar, and beverages and pastes made out of fruit and healing herbs were served only to the elite (Artan, 2000:117). This study also found that Turkish cuisine is largely the heritage of Ottoman cuisine, which can be described as a fusion and refinement of Central Asian, Middle Eastern and Balkan cuisines. Another study conducted by Francks, (2007:151), revealed that a disproportionate share of the rice crop was consumed in the cities by a few like the political and economic elite. The diet of much of the rural population continued to depend on the availability of a range of other grains such as wheat, millet, barley, etc. Vegetables, fruit, pulses and occasional fish or game, grown at home or collected in the locality also formed part of the rural population diet. Rice undoubtedly held religious and symbolic significance in Japanese culture from very early on as with other kinds of 'sacred' food elsewhere.

Francks, (2007:151) argues that of the imported Indian muslins and calicoes that triggered the development of fashion as a driving force in the acquisition of clothing and accessories came the 'drug foods', namely sugar, tobacco, tea, coffee, and chocolate. He says that this was due to the increasing colonial production, which facilitated changing patterns of food consumption. Therefore, eating patterns came to be determined less and less by the interplay of nutritional needs. Increasingly, local environment and changes in the structures of social and family life in combination with the economic and cultural forces of globalisation and modernisation consequently influenced the food consumption patterns. At the same time, the tables and chairs, tea sets and household decorations necessitated both by social entertaining, the tea party and by a more intimate family life, family dinners, became key consumer acquisitions closely associated with changing forms of eating and drinking (Francks, 2007:151). The traditional Brazilian dietary patterns include minimally processed food staples such as rice, a variety of beans, and the root cassava (manioc) (Monteiro and Cannon, 2012). These staples form the basis of everyday main meals and are made delicious and attractive by various methods of preparation and cooking, and by the addition of oils, seeds, leaves, herbs, and spices, some of which are rich in nutrient. The amount of meat, fish, and other animal products in long-established Brazilian diets depends on availability, price, and income. In the past, these foods were usually eaten only in small amounts on a daily

basis, and in large quantities only as part of feasts or other special occasions. Meals prepared and eaten by the family at home, including the midday meal and the habit of eating together, remain an integral part of the Brazilian way of life (Monteiro and Cannon, 2012:2).

According to Wassef, (2004:902), food groups that are considered the pillars of the traditional Egyptian food system include cereals (unrefined), legumes, dark green leafy vegetables, other vegetables and fruits, cheese, oils and white and red meat. Bread, the staple food, enjoys a very special place in the diet. For the average Egyptian, sweetmeats and desserts are not a regularly consumed food item but are related to religious feasts and various other celebrations. For the Prophet Muhammad's birthday, a wide variety of sugar-based sweetmeats and colourfully decorated sugar dolls and knights on horseback are produced. The foods consumed during the meatless fasts that are observed for about two-thirds of the year are derived from cereals, legumes, vegetables, green leafy vegetables and fruits. Food analysis tables for prepared foods have shown that the traditional food associations and preparation methods contributed considerably to raising the nutritional value of the foods consumed (Wassef, 2004:902).

Additionally, Gilbert and Khokhar, (2008:207) in their study, they found that Moroccan cuisine is largely influenced by herbs and spices from Arabia while the cuisines of France and Spain have had a significant impact on the ingredients and cooking methods used. Traditional and commonly consumed Moroccan staples include lentils, couscous, chickpeas, and dried fruits. Honey is also used in many dishes as a sweetener. A meal typically begins either with drinking a sweet and warm herbal tea or with a soup called *harria* (Gilbert and Khokhar, 2008:207). Main meals are often comprised of a stew, which is usually prepared with a mixture of vegetables, poultry, lamb, or beef by cooking slowly in a vessel known as a *tagine.* The dietary habits of ethnic populations are influenced by many factors, including the availability of food, level of income, health, food beliefs, dietary laws and religion and cultural patterns and customs (Gilbert and Khokhar, 2008:207).

African Caribbeans originate from the numerous islands of the Caribbean, also known as the West Indies. Gilbert and Khokhar, (2008:205) further report that the traditional diet of African Caribbeans and West Indians consists of starchy vegetables such as yam, potato, cassava, and plantain and cereals such as rice, corn, and

wheat. There is, however, a wide variation in the dietary and food preparation practices of African Caribbeans depending on their origin. Traditionally, Turkish meal includes, for instance, breakfast and lunch that normally contain bread, accompanied by cheeses or meat, while dinner includes a staple (vegetable or meat casserole), yoghurt, salad, bread, and fruit. Several studies have reported that the diets of Turks in Sweden and Denmark are changing to include less healthy components. Gilbert and Khokhar, (2008:205) note that the displacement of traditional food systems in Africa, Asia, and Latin America (‘‘the South’’) by the fatty, sugary, or salty ‘‘long-life’’ ultra-processed products marketed by transnational food and drink corporations, which have been rapidly increasing since the 1980s, have the potential to undermine public health by increasing the incidence of chronic diseases and obesity. In addition, the traditional staples of the Indian diet are cereals (chapatti, paratha, roti, and/or rice) accompanied by a curry containing meat or vegetables. This traditional reliance on a diet of curries and cereals (*chapatti, roti*, *paratha*, and/or rice) and large amounts of fruits and vegetables indicate a dietary intake that is fairly high in fibre and moderate-to-low in fats (Gilbert and Khokhar, 2008:206).

2.4 The African representation of food in daily food consumption

Throughout the continent's vast populations depending on the region, there are sometimes quite significant differences in eating and drinking habits and proclivities. Central Africa, East Africa, the Horn of Africa, North Africa, Southern Africa and West Africa each have their own distinctive dishes, preparation techniques, and consumption mores. Africa, the second largest continent in the world, is rich in geographic and cultural diversity. It is a continent populated by peoples with histories dating to ancient times and cultures shaped by innumerable tribes, languages, and traditions. The number of food groups (cereals and grains, fruits and vegetables, dairy, meat and meat alternatives as well as fats and sugars) consumed could determine consumers’ dietary variety.

2.4.1 Cereals and grains

What African communities eat, can be viewed in the context of the diverse socio-cultural and economic environments. The food consumed is not the same

throughout, although there are some striking similarities. In Africa, most of the dietary energy comes from staple cereals such as maize, sorghum, millet and rice (Oniang'o, et al., 1996:332; Williams-Forson, 2014:71). These contribute 40-60 per cent of the total dietary energy supply. Locally available staples generally form the basis of a meal, but the meal becomes nutritionally adequate and tasty if a relish or soup (consisting of beans or groundnuts, vegetables, fats or oils, condiments and spices) and fruits are eaten with the staple. In most African communities, people rely on one or two staple crops. The case study by Kgaphola and Viljoen, (1999) indicates that maize and bread formed an integral part of the rural Swazi diet. The traditional Swazis lived on what the natural environment had to offer, similar to other black ethnic groups in Southern Africa. Their most important staple cereals are sorghum (adropogon sorghum) with millet (pennissetum spicatum) and later maize (Zea Mays) The ten rural households in the case study reported that maize was their staple cereal although they also included rice in their diet. The most common found starchy foods were maize, teff, cassava, yam, sweet potato, plantain and enset(false banana). These crops provide the bulk of energy intake of household members. To balance their diet, consumers complement staple foods with legumes or foods from animal sources that are rich in proteins and fats/oil.

With a few exceptions, Oniang'o, Mutuku and Malaba, (2003:333) note that the cuisine of all sub-Saharan ethnic groups has the basic format that consists of a starchy food eaten with a sauce soup or dip, which may or may not be spicy. Main dishes are made from cereals (maize, millet, sorghum, teff), roots and tubers (cassava, cocoyam, yams), green bananas or plantain. If the staple is low in certain nutrients, nutritional deficiencies may result. The accompaniment which is known as relish, sauce or soup depending on the part of the continent, may consist of a vegetable dish (green leafy vegetables) or dish made from legumes, meat or fish, where and when available. Main dishes are also made from a combination of cereals and legumes or seeds. For example maize is eaten with beans, cowpeas*, Bambara* nuts or groundnuts; rice can be eaten with cowpeas, beans, or melon seeds Oniang'o, Mutuku and Malaba, (2003).

Main dishes commonly eaten in different parts of Africa include fufu, ugali (also known as *nshima*, mealie pap, *sadza,* or *tuwo* in different parts of the continent), cassava and cowpea stew, mashed pumpkin with peanut butter, matoke, githeri,

mukimo, nuthokoi, steamed pumpkin with honey, yam balls (see Oniang'o, Mutuku, and Malaba, 2003:334). Relishes or accompaniments include groundnut/peanut butter soup, green leaves with peanut sauce, vegetable stew, cassava stew with coconut milk, jute leaves, cassava leaves with groundnuts, chickpea with flour cakes. Unfortunately, cultural food beliefs and taboos are often related to foods of animal origin and mainly affect women and children. Cultural influences may also include attitudes towards certain foods, food preparation, breastfeeding and infant feeding practices. They may also influence systems of food sharing and distribution within the family. Intra-family food distribution is often related to hierarchical positions with the head of the family receiving priority in eating, while mothers and children receive a smaller share of the family's food, relative to their needs (Oniang'o, Mutuku, and Malaba, 2003).

Another study by Haug, et al., (2010::2480) found that in the villages surveyed in Tanzania, the most common type of dish was thick porridge from maize flour. The second most common dish was rice. The main dishes (thick porridge or rice) were usually eaten with only one type of relish: beans, or sardines, or other fish, or green leafy vegetables. Cassava was consumed only when there was a severe shortage of maize. Sorghum was eaten less commonly than maize. Often it was sold to get money, which was then used to buy maize flour. Food preservation was not widely practised (Haug, et al., 2010:2480).

However, the consumption of the traditional coarse cereal staples such as sorghum and millet has declined over the years in Africa as a result of consumers changing their diet to imported staples. Even with the shift in production and use of the traditional staple cereal foods, these foods still form an important part of most rural African diets. Starchy crops such as roots, tubers and cereals make up an important part of the diet of the people in sub-Saharan Africa. Maize as a staple cereal has been adopted by most subsistence farmers in the eastern and southern regions of Africa as the primary staple cereal, occupying about a third of the cultivated land (Vilakati, 2011:61).

African diets are centred on starchy crops, but with a sizeable diversity in food composition within the starchy staple crops (cereals, roots and tubers). In rural areas, these diets are mainly centred on locally produced starchy staples and, consequently, vary with the different production environments. Teklu, (1996:480)

conducted a study in different African countries; the findings revealed that Millet, sorghum and maize are important staple crops in the rural Sahel. Maize is the dominant crop in East and southern African countries. Wheat is an important food crop in the central and lower Nile regions of northern Sudan, and the south-eastern highlands of Ethiopia. Teff and barley are also important crops in the Ethiopian Highlands. Roots and tubers are important in some parts of Africa. Yam and cassava, in particular, are the most important root and tuber crops in the lowland tropics, and much of the sub-humid tropics (Teklu, 1996:481). In Ghana, the roots and tubers are important in the forest and coastal zones, while grains are important in the savannah zone. In southeastern Nigeria, yam and cassava are the main staples. In rural Rwanda, roots and tubers are the second most important food group next to potatoes. The root crop, enset (false banana), which is a staple starch crop for approximately 20% of the rural population in Ethiopia, grows in the higher altitudes of southern Ethiopia. (Teklu, 1996:480).

2.4.2 Fruits and Vegetables

Traditional food crops have been the fundamental sources of food and nutrition for indigenous communities since time immemorial, providing food security for local people (Shava, et al. 2009:32). However, the indigenous vegetables often referred to as traditional vegetables, have been underrated in favour of introduced exotic vegetables. The home gardens in villages and surrounding the suburbs of the urban centres are often planted with cabbages, cauliflower, carrots, tomato, spinach, lettuce cucumber, green beans rape and covo, just to name a few. Whilst, on the other hand, it seems that the majority of local farmers cannot always produce exotic vegetables because of the unavailability of seeds and/or high production costs of these vegetables, the resource-poor urban and rural population often find it difficult to purchase exotic vegetables from local markets because of the high costs (Mabala, 2018). They, therefore, depend on traditional vegetables as a regular side dish or sauce accompanying the staple foods such as maize, cassava, sweet potatoes, banana, millet, sorghum and yams (Rubaihayo, 2002:2). A number of vegetables and other crops are mixed together including fruits, vegetables, medicinal plants, staple foods and shade trees. These vegetables are sold in the neighbouring urban and suburban markets. These wild resources compete with the main crops planted in

arable plots and home gardens but play a significant economic and nutritional role in rural livelihoods (High and Shackleton, 2000:143).

For example, green leafy vegetables formed an essential part of the traditional Swazi diet and were especially valued when other supplements to maize (which became the staple cereal) were exhausted. These vegetables included cultivated indigenous and uncultivated crops that grew in the veld. A wide variety of legumes were cultivated, for example, mung beans, jugo beans cowpeas, and peanuts (Kgaphola, and Viljoen, 2004:29). For sub-Saharan African populations, this attention to vegetables as vital dietary components is significant, as leafy vegetables have long been known to be indispensable ingredients in traditional sauces that accompany carbohydrate staples. African indigenous and traditional leafy vegetables thus have a pivotal role in the success of the World Health Organisation's (WHO) global initiative on fruit and vegetable consumption in the sub-continent Oniang'o, et al., (2005:1). Apart from animal products, most of the ingredients used to prepare a relish in West African soups or other accompaniments are provided by a variety of vegetables such as beans, lentils or groundnuts with green leafy vegetables. Oniang'o, et al. (2005) further notes that African leafy vegetables (ALVs) are increasingly recognised as possible contributors of both micronutrients and bioactive compounds to the diets of populations in Africa.

2.4.3 Meat and meat products

Cattle were traditionally a symbol of wealth and were not kept for food purposes. Cattle were only slaughtered on religious and ceremonial occasions. Sheep, goats and chickens were used for food. The livestock included cattle, goats and chickens. This fact is reflected in a study by Viljoen, (2000:71) that indicated that all participants in the study used chicken as food more than once a month. Insects Caterpillars, termites and locusts were reported to be seasonal delicacies that were usually fried. Only the men ate hen's eggs. The belief was that women who ate eggs would lust after men, and girls were forbidden to eat eggs after puberty. However, it appears that the taboo on eggs for girls after puberty was not strictly imposed or was no longer common. Food products from cattle such as milk and milk products were treated with ceremony and respect on all occasions. Both fresh and soured milk is still regarded as an essential component of the Swazi diet (Viljoen, 2000:71)

A study by Muchadeyi, et al., (2004) on the village chicken production system in Rushinga District of Zimbabwe revealed through focus-group discussions that food security was the major reason for keeping chickens. Farmers were able to secure their food base from chickens through the provision of meat and eggs. Since most households produced only energy-giving food crops, the major source of proteins available to households was livestock, particularly chickens. Given a choice, farmers would prefer chicken meat to other types of meat. The preferred taste of chicken meat made households reserve them for special guests or at ceremonial gatherings, such as marriage feasts, weddings or funerals. Where food sources were low, chickens would be sold and the money used to buy food items for household consumption. Female participants emphasised the role of eggs as relish in basic meals, especially when the supplies of other forms of relish for the households were low. Village chickens were used also in socio-cultural activities of the households. Farmers gave relatives and friends chickens as gifts or as tokens of appreciation for services rendered. Farmers gave relatives and friends chickens as gifts or as tokens of appreciation for services rendered.

2.5 The significance of Culture and African Traditional religion in food security

Africans celebrate life, they celebrate their religion, they dance it, sing it and act it. This is captured succinctly in the statement that, “African people are notoriously religious and religion permeates into all the departments of life so that it is not easy or possible to isolate it”, (Mbiti, 1969:1). A lot of the visible demonstration of African religion occurs in rituals and festivals. Sacrificial meals are symbolic, emphasizing that the family/community has been brought together with the ancestors. These embody what people believe, what they value, and what they wish to apply in daily life. Through rituals, African people not only act their religion but also communicate it to the younger generations.

African peoples have through the centuries lived by farming, stock keeping, hunting and fishing, as well as by ‘food-gathering’ in some cases (Shabangu, 2005:16). Animals and plants constitute human food, and their importance is obviously great. Food seems to be the most important aspect in African Traditional Religion. This can be evidenced by the sacrifices and offerings. While these terms are commonly used loosely, Mbiti, (1969:53) draws a distinction by referring to sacrifices to cases where

animal life is destroyed in order to present the animal, in part or in whole, to God, supernatural beings, spirits, or the living dead. Offerings, on the other hand, refer to the remaining cases which do not involve the killing of an animal, being chiefly the presentation of foodstuffs and other items. The making of sacrifices and offerings is an act and occasion of making and renewing contact between God and humanity, the spirits and people. When these acts are directed towards the living dead, they are a symbol of fellowship and recognition that the departed are still members of their human family. Thus sharing of food in African Traditional Religion is a phenomenon that is common among the living humans and the living dead (Mbiti, 1969:61). In essence, the case in point according to Mbiti is that to be African is to be religious, to be alive is to be religious, and to be religious is to work toward the enhancement of the community to please the Supreme Creator.

Furthermore, in African Traditional Religion, libation and the giving of food to the departed are tokens of fellowship, hospitality and respect. Because the dead are considered by Africans to be living-dead, they are therefore dependent on those still in the world for their care and sustenance. For this reason, they have special shrines where they are served with food offerings and also venerated (Kenan, 1997:27). Therefore, offering consists of foodstuffs such as fruits, maize, millet, nuts, cassava, water, and other things of a miscellaneous nature such as the dung of the hyrax, cloth, money, chalk, incense, agricultural implement s ornaments, tobacco and cowries-shell. Thus, almost everything that human beings can get hold of and use, is offered to God and other spiritual beings. Offerings are given for both communal and personal or family needs. These include whatever people wish and are able to give. Communal offerings as in sacrifices are normally made at shrines or in sacred groves, or other holy places, such as hills, lakes, waterfalls, and so on, (Kenan, 1997:28). True giving is participating, in the life of the offerer, participating in one's universe as a sympathising member. No one can participate without offering first. Giving is essential for a meaningful existence (Mbiti, 1969:61). The simple food offering set aside for the gods, the prayer before meals, characteristic of the mutual core in the small group, are the most real and effective means of communication, cementing togetherness and confirming security. Given this scenario, one can say that African believes that their communication with the living dead results in their wellbeing and at the same time securing their food security.

In most sub-Saharan Africa, the relationship between religion, land and the people has always been close. Shoko, (2006:5) provides a cogent summary of how land and food are the most important facets of life. Ancestor spirits known are spirits of dead relatives are considered to be the 'kingpin' of African Traditional Religion. They influence the activities and lives of their dependents, the living members of the community. Failure to honour ancestral spirits invokes bad luck for both the individual and community. Misfortunes like droughts, floods, crop failure, sickness and death are blamed on the presence of angered spirits because they have not been accorded honour with proper funeral rites (Shoko, 2006:5). The fundamental belief about God from all over Africa is that “He supplies the needs of his creatures’. In various ways, God provides for things he has made so that their existence can be maintained and continued. He provides life, fertility, rain, health and other necessities needed for sustaining creation. For example, the Akan call God the shining one, to signify that he is involved in the light of the celestial bodies whose shining symbolizes his presence in the universe (Mbiti, 1969:41). The Zulu narrate that both the men and cattle sprang from the same spot, and God instructed men saying, “Let them be your food, eat their flesh and their milk” (Mbiti, 1969:41). Cattle, sheep and goats are used for sacrificial and other religious purposes and examples of this are found all over the continent. Birds like chickens are used in most societies for religious purposes chiefly as sacrifices, either to God or lower spiritual beings and living dead. Mbiti, (1969:61) cites another example of the Akamba and Gikuyu that makes sacrifices on great occasions, such as the rites of passage, planting time, before crops ripen, at harvest of the first fruits, at a ceremony of purifying a village after an epidemic and most of all when the rains fall or delay. This evidence clearly shows African people responds to the spiritual world through sacrifices and offerings. Mbiti, (1990:17) also identifies items used for sacrifices such as cattle, sheep, goat, chicken, dogs and Items used for offerings including foodstuffs like fruits, maize, millet, nuts, cassava, vegetables, leaves, honey and eggs, and beverages like porridge, milk, beer, wine and water. The reasoning behind is for maintaining a strong and mutual relationship between God and the ancestors for their life to flourish.

Among other rituals performed occasionally is when there is a war, raids, a locust invasion or a natural calamity. These rituals generate a sense of certainty and familiarity as they provide continuity and unity among those who perform or attend

them (Shabangu, 2005:16). In turn, people find a degree of identity through common observance and experience. There are different types of rituals in ATR and they play different roles in the life of the individual and the community. Mbiti, (1990:77) maintains that fishermen in Ghana observe a ritual of returning a portion of their catch into the sea to ensure that it replenishes itself. This maintained the equilibrium in nature in which God has provided to humans. Many rituals have been evolved to cover all these means of livelihood, incorporating what people believe. There are the rituals that have to do with the earth, the soil, the crops and the seasons but it seems they all serve a purpose of maintaining relationships with God, spirits and the living dead. Failure to do that, one will always have problems of providing for the family.

The most common and most important of all is the 'rain-making' ritual. Rain-making' ceremonies are at the heart of the people's welfare since much of life in African countries depends on the rain. African traditional culture and religion made provision to mark and celebrate this special season (Shabangu, 2005:26). Rain is the most widely acknowledged token of God's providence. To African people, rain is always a blessing and its supply is one of the most important activities of God. It is also widely believed that God shows his providence through fertility and health of humans, cattle and fields, as well as through the plentifulness of children, cattle, food and other goods (Mbiti, 1990:41). Famers, pastoralists and the entire livelihood of the people depends on rain. If the rain is delayed considerably it means that for that season there will either be insufficient harvest or none at all, and this causes a lot of anxiety to everyone. Many societies, therefore, pray for these items. For example, Mbiti, (1969:42) notes that the Nuba perform a ceremony during which they pray for the increase of cattle, saying "God, we are hungry, give us cattle, give us sheep. This is a clear indication that Africans rely on God for their sustenance in terms of food. The omnipresence of God is experienced as protective, sustaining, upholding, saving and healing.

2.6 Food security and Indigenous knowledge

In Africa, farming remains one of the major sources of livelihoods, particularly in rural areas. Therefore, the need to understand how rural livelihoods sustain themselves with the food they produce or that is readily available without buying becomes crucial. Indigenous Knowledge Systems form a livelihood asset and, therefore, plays an

important role in the sustainability of the livelihoods. One can thus argue that Indigenous Knowledge Systems and sustainable livelihoods are intertwined and play interlinking roles to maintain the well-being of a particular family, group, community (Ziervogel and Ericksen, 2010:524). Ervin, (2005:54) in his work assisting rural farming communities in protecting their way of life noted that “The industrialisation of agriculture has been a threat to rural livelihoods as it undermines the family farm and community, erodes rural self-sufficiency and self-determination and negatively affects health and the environment. Therefore, the link between indigenous knowledge associated with culture and ATR is important as it is people-centered and enables them to take charge of their own lives.

There are numerous definitions propounded by different scholars on this phenomenon. While the concept of IKS may have different definitions, proponents of this concept agree that IK is specific to communities and to local environments and therefore can be understood and defined through the social, cultural and human environment in which it is situated. Nyiraruhimbi, (2012:5) suggests that IKS can be defined as local memory when it combines a set of values shared by a particular group of people. These can be in the form of customs, traditions and spiritual beliefs, and these are transferred from generation to generation, evolving as new knowledge is transferred along with these understandings through oral traditions of folklore and folk songs. It is the sum total of knowledge and skills possessed by people belonging to a particular geographic area, which enables them to benefit from their natural environment. Such knowledge and skills are shared over generations, and each new generation adds and adapts in response to changing circumstances and environmental conditions. Indigenous knowledge is unique to a given culture or society; it is dynamic and based on innovation and practical experimentation (Kaniki and Mphahlele, 2002:2). Indigenous knowledge, which has generally been passed from generation to generation by word of mouth, is in danger of being lost unless it is formally documented and preserved (Ngulube, 2002:92). Indigenous knowledge can be reflected in the form of the beliefs of a community based on its religion and/or culture, for example, ancestral worship and the belief that people like to eat certain food because their ancestors ate it. Also, various food preservation and storage systems have been developed and effectively applied in traditional societies. For example, indigenous vegetables are eaten in most parts of eastern, central and

southern Africa. They usually appear at particular times of the year and are therefore harvested during specific seasons. However, they can be preserved for many months or years simply by boiling them in water, sometimes salted and sundried. This indicates the importance of Indigenous Knowledge Systems in most rural food systems because such food will be consumed in times when there are food shortages. Generally, IK in food processing and preservation is highly developed in many communities (Kaniki and Mphahlele, 2002:3).

2.7 Ways in which the community's diet is shaped

Diverse cultural and religious aspects of behaviour may have a significant impact on patterns of eating, drinking, and social interaction, irrespective of socioeconomic status (Shatenstein and Ghadirian, 1998:232). An understanding of different cultural and religious groups give insights to the extent to which they adhere to religious and culturally-based dietary precepts. This also helps to understand the psychosocial influences on food habits, nutritional adequacy, and overall health of those communities. Food behaviour has social and cultural connotations resulting from acquired knowledge as well as carefully selected and maintained traditions. This implies that food historically is intimately woven into the life fabric of a society. Shatenstein and Ghadirian, (1998:232) note that since food has symbolic potential as ethnic identifiers, dietary patterns of members of a related group tend to be conservative; the specific identifying foods are likely to remain as the last vestige of a cultural identity. Specific food habits result from the combined sources of influence exerted by attitudes, beliefs, and experience on the food practices of a group or community, as well as economic factors in conjunction with local market resources.

This section describes how food functions in social allocation, in terms of ethnicity, race, nationality, class, and individuality and gender to shape a community's diet.

Social memory is a common legacy that can preserve the cultural and social identity of a given community. Like all culturally defined material substances used in the creation and maintenance of social relationships, food serves both to solidify group membership and to set groups apart. Conceptualizing food as a marker of heritage opens up an avenue for societies and individuals to gain cultural awareness, freely assert their identities, claim sovereignty, and aspire to grow visibility and economic

capitalisation (Matta, 2015:2). In that way, food plays a vital role in the formation of heritage. Heritage provides historical depth and a permanent pattern in a perpetually changing world. A community may decide to eat certain types of food because it is part of their heritage that has been passed on from generation to generation. So we may view heritage more as a social construction than something fossilised and unchanging that gets handed down as such. Heritage continuously builds up and changes. It is an evolving social product constantly under review and ever-changing (Bessière, 1998:26). However, the challenges facing Africans have been directly attributed to the nutrition transition, whereby traditional foods and food habits have been progressively replaced by the globalised food system of the multinational corporations.

Besides the fact that food shifts are associated with a variety of economic and political changes, such as male out-migration, interclass rivalry and imitation, and market integration, it is apparent that in this contemporary period, capitalised agriculture has produced genetically engineered foods, provoking consumer reactions (Mintz and Du Bois, 2002:101). As a result, colonizers have been agents of dietary change. This transition in dietary practices has resulted in the increased consumption of refined flour, cheap vegetable fats, refined sugars and food additives such as monosodium glutamate. Thus, while the globalised food culture exerts a pathogenic effect and traditional foods exert a protective effect, it is the globalised food culture, which continues to be propagated, and adopted (Mintz and Du Bois, 2002). On the other hand, one can argue that even if there is pressure from the globalisation of food, it is not far from the truth that these foods are expensive and as a result, there are situations in most rural areas whereby there is resistance to other western foods. These people resort to their indigenous diets as much as it represents their culture, religion and indigenous knowledge. They are aware of the health-related benefits of traditional foods and food habits and claim that the food that was eaten by their ancestors helped them to live long and healthy lives. Adoption of these traditional foods and food habits along with the underlying ancient knowledge is likely to hold the key to overcoming the globalised food system and food insecurity.

Colonisation and neo-colonisation have eliminated the earliest, indigenous knowledge, destroyed the environment, suppressed domestic self-sustainability, prevented economic independence, forced rapid urbanisation, destroyed the family

unit, and introduced a globalised food system (Raschke and Cheema, 2008:670). In most African countries and rural areas ultimately, the individual, the family unit and the local community are united and still reclaim their birthright by growing and consuming their own local whole foods according to their own traditional practices. It is essential that knowledge of the contributing factors related to the disappearance of traditional foods and foods habits in Africa become widely acknowledged, accepted and understood.

2.8 Conclusion

This chapter provided an overview of available literature regarding definitions of food security, rural and urban food security. The literature highlights the importance of safeguarding the food sovereignty concept as it promotes self-sustainability, particularly in rural areas. It is quite interesting to note that there are survival strategies adopted by rural people that cater to their food security. An important point of departure as noted from the literature review is that food security needs to be addressed from cultural, religious beliefs of the people because their dietary practices are shaped by the heritage of food. From the literature reviewed, it can be concluded that the part of cultural and religious identity in many communities need to safeguarded in order to promote dietary practices of any given community.

Chapter Three: Based on Literature survey: Indigenous Vegetables

3. Introduction

This chapter reviews the literature on indigenous vegetables. The main focus is on African indigenous vegetables and how they can provide human sustenance. This allows the careful use of this source of relish in addressing the problem of food insecurity particularly the maize-based subsistence farming sector of rural sub-Saharan Africa. The other concepts that permeate this chapter are the cultural and religious significance of indigenous vegetables, perceptions of indigenous vegetables in African communities and challenges in the use of indigenous vegetables. In the process, some gaps in the literature are exposed.

3.1 African indigenous vegetables

African indigenous vegetables refer to crops which originated from the region and which grow spontaneously in the wild or have been semi-domesticated in home gardens in many parts of Africa (Sithanantham, et al., 2004:37). Indigenous vegetables are also referred to as weeds in commercial and even subsistence agriculture. In the rural subsistence agriculture sector, these plants are consumed as vegetables. When they occur in cultivated fields they are removed as weeds although in some cases selective weeding is done so as to leave them in the field. They are therefore generally tolerated weeds because of their food value (Smith and Eyzaguirre, 2005; Taleni, Nyoni, and Goduka, 2012:). Indigenous vegetables grow in the fields or on the roadsides and in the veld or abandoned landscape and harbours. Smith and Eyzaguirre, (2005:2) further note that “Indigenous leafy vegetables are those that have their natural habitat in Africa while the traditional leafy vegetables were introduced over a century ago and owing to long use, they have become part of the food culture in the subcontinent”. African leafy vegetables (ALVs) are traditionally known plants whose leaves (including immature green pods and flowers) are socially accepted, used and consumed as food (Maroyi, 2009:3; Taleni, Nyoni, and Goduka, 2012:2). Thus, wild vegetables have been an integral part of traditional agricultural systems for centuries.

Edible wild leafy vegetables play an important role in African agricultural and

nutritional systems (Chweya and Mnzava, 1997:31; Uusiku, et al., 2010:499). In sub-Saharan Africa, it is estimated that there are more than 45,000 species of indigenous plants of which about 1000 can be consumed as leafy vegetables (Mahlangu, 2014:9). Again Chweya and Mnzava, (1997:31) give a list of over 160 endemic vegetables that are used in one small area in West Africa. Abukutsa-Onyango, 2002; Abukutsa-Onyango Mwai and Onyango, 2005) listed several indigenous vegetables found in Western Kenya that include; Cowpeas (Vigna unguiculata), Leaf amaranths (Amaranthus blitum), African nightshades (Solanum species), Jute mallow (Corchorus olitorius), spider plant (Cleome gynandra), Slenderleaf (crotalaria ochroleuca and Crotalaria brevidens), African kale (Brassica carinata) and Pumpkin leaves (Cucurbita moschata/maxima). These are among the most important ones in the East African region and are widely distributed throughout Africa, although the importance of each vegetable varies with regions. The most important AIVs in Western Kenya are cowpeas, leaf amaranths, African nightshades, Jute mallow, spider plant, slender leaf, African kale and pumpkin leaves (Abukutsa-Onyango Mwai and Onyango, 2005:15). Chweya and Mnzava, (1997) traced the history and origins of Cleome gynandra and found that the species is thought to have originated in tropical Africa and Southeast Asia, and to have spread to other tropical and subtropical countries in the Northern and Southern hemispheres. The Cleome genus is widely distributed in the drier parts of the tropics and subtropics. It is spread by birds, and by seed dispersal, owing to capsule dehiscence. In countries like Asia and America, these plants are regarded as weeds. These countries could therefore, constitute important centres of diversity (Chweya and Mnzava, 1997:32). Another study by Mtshali, (2002:16) found several wild plant species utilised as vegetables in Kwazulu-Natal, especially among the rural population. Most rural households practise subsistence agriculture, which is mostly characterised by mixed crop farming with a mixture of small and large livestock. Indigenous vegetables can play a significant role in alleviating the shortage of relish and providing micronutrients which are in short supply for many people. Mavengahama, McLachlan De Clercq, (2013:228) conducted a research in parts of KwaZulu-Natal and the Limpopo provinces. Some commonly occurring vegetables that they found are listed in the table below:

Scientific name	Vernacular name Kwazulu Natal Province	Vernacular name Limpompo Province
Amaranthus hybridus	Imbuya	Vowa, thebe
Amaranthus spinosus	Imbuya	imbuya
Bidens pilosa	Uqadolo	mushidzhi
Chenopodium album	Imbilikicana	umbicani
Cleome gynandra		murudi
Cleome monophylla	Isiwisa	
Momordica foetida	Intsungu	nngu
Galinsoga perviflora	Isishukeyana	
Solanum nigrum	Umsobo	umsobo muxe
Corchorus olitorius	Ligusha	
Corchorus trilocularis		Delele

(Adapted from Mavengahama, McLachlan and De Clercq, 2013:228)

Indigenous vegetables have ecological, social and cultural values, playing a significant role in the day to day food and nutritional requirements of local people mainly in rural areas, but more increasingly also in urban areas (Nguni and Mwila, 2007:4). Generally, there are cultural differences in food habits between rural and urban communities' lifestyles. Nguni and Mwila, (2007:4) state that, in the urban setting, the status of ALVs is affected by the changing socio-cultural values and attitudes. Different communities in different areas in Africa have their own traditional methods for processing and preparation of these vegetables. The vegetable leaves are generally prepared by blanching or boiling for some time before the addition of other ingredients (Keding and Yang, 2009:137). However, it seems there has been limited documentation of such information on the cooking and harvesting of these indigenous vegetables. Therefore, the processing and preparation of ALVs is a critical factor in the promotion of their production, consumption and conservation of these vegetable species (Nguni and Mwila, 2007:4). The promotion of exotic

vegetables such as cabbage or spinach has masked the value of local food cultures which over years threatens the continued existence of local knowledge pertaining to preparation and preservation of ALVs (Nguni and Mwila, 2007).

Flyman and Afolayan, (2006) conducted a study to determine the kind of plants that are used as wild vegetables in some parts of Botswana. The aim of the study was to document their traditional methods of preparation and preservation. The findings revealed that cooked vegetables are used as relish served with the main starchy meal like porridge prepared from sorghum and maize. Wild vegetables (WV) are an important source of food, mainly in the rural parts of South Africa. This is especially so in the maize-based subsistence farming sector where they are eaten as a relish to accompany *phutu* which is prepared from maize meal. Flyman and Afolayan, (2006) note that, nowadays, tomatoes, onions, potatoes, and processed commercial soups may be added. Traditionally, processed cooking oil was never added to wild vegetables during cooking in the study area. Instead, oil was substituted with peanut butter, cow or goat's milk. In several cases, some of the vegetables are prepared as mixtures of two or more species. When the ALVs are cooked, salt is usually added to enhance the taste. Oil, butter, groundnuts, coconut, milk, bicarbonate of soda, tomato and onion are also added depending on availability and preference (Uusiku, et al. 2010:499). Generally, the wild vegetables are cooked for 10–15 min, except for C. gynandra and T. officinale which may require up to 2 hours of cooking. C. gynandra and T. officinale also require special preparation to remove their astringent taste, but the handling technique differs from district to district. For example, Flyman and Afolayan, (2006) found that in Kweneng Botswana, water is first boiled in a pot with salt before adding the vegetable leaves. The participants revealed that keeping the pot covered throughout the cooking process may be enough to remove the bitter taste. However, in Tswapong and Northeast districts the bitter leaves are initially blanched in water, the water is removed and then replaced with a fresh supply to complete the cooking process. Several studies showed that cooking vegetable mixtures from either two of African nightshade together increased iron bioavailability when compared to cooking one vegetable (Ojiewo, et al. 2015:190). These are some of the innovative cooking methods and recipes that improve the bioavailability of various micronutrients and holding of vitamins.

The harvested leafy vegetables are perishable, but can be processed and preserved

by drying, either in full sun or in the shade (Flyman and Afolayan, 2006; Van Rensburg, et al., 2004:52). For example, the leaves of C. gynandra are blanched, made into small balls and sun-dried for preservation. The leaves and tender shoots are boiled whole, or chopped, and may be mixed with other ingredients. In Zambia, for example, pounded groundnuts are often added to dishes to enhance flavour. The high fibre content of the leaves enables them to be dried and stored. The leaves may be blanched, made into small balls and sundried. These balls can be stored for more than 6 months, and are reconstituted by soaking in water before being used in cooking (Chweya and Mnzava, 1997:31). Flyman and Afolayan, (2006) also assert that A. thunbergii, Corchorus olitorius, and C. tridens are all dried uncooked in the shade for similar purposes. The other species are never preserved, but cooked and eaten fresh. The quality of a particular species to be preserved and stored for a long time may serve to enhance its popularity by extending its availability throughout the year and thus bridging the seasonality gap. These plants provide diversity in local food systems, reinforce culture and introduce diversity in farming systems. These practices and traditions are so critical for household food security, medicinal purposes, nutrition and income generation throughout the developing countries (Machakaire, 2001:3). The introduction of exotic vegetables has also led to less production and consumption of these vegetables, especially among young people and people perceive these crops as poor man food (Dweba and Mearns, 2011:568). Many African communities had depended on indigenous leafy vegetables for survival before the introduction of exotic crops; in some regions, these crops are still prevalent (Mahlangu, 2014:9).

3.2 Exotic Vegetables

Traditional vegetables have been primarily neglected and replaced by exotic vegetables (Van Rensburg, et al., 2007). According to the Oxford dictionary, the word exotic means of foreign origin or character; not native; introduced from abroad, but not fully naturalised or adjusted. Nyadanu, and Lowor, (2015:133) define exotic vegetables as those brought from other localities and mostly not produced in areas where they are consumed. These vegetables are usually expensive compared to indigenous vegetables. Exotic vegetables have become more favoured than indigenous vegetables. This was mainly because of the Impact of modern agriculture,

dietary shifts and changes in lifestyles. Traditional diets have been replaced with a modern diet which relies on a few widely cultivated exotic commercial staple foods. This can be appropriately described as the global homogenisation of the human diet. This dietary shift has led to a subsequent decline in the use of wild/indigenous food plants (Shava, 2005:77). However, it has been noted that these exotic species are highly dependent on pesticides and fertilizers while traditional vegetables can grow under harsh climatic and resource-poor conditions (Altieri and Merrick,1987:86). Most of the rural populace obtain their nutrients from indigenous vegetables, which are cheaper and more accessible than the exotic ones. Unlike traditional lifestyles which had a direct and heavy reliance on the local environment, present-day lifestyles are characterised by a shift towards urbanisation, with subsequent reliance on the easy availability of processed foods (Shava, 2005:78).

African indigenous vegetables (AIVs) have been grown and utilised traditionally by many African communities and possess several advantages and potentials over exotic vegetables that have not been fully exploited (Abukutsa-Onyango, 2009:100). For this reason, traditional rural communities were nutritionally successful even during the periods of drought due to their tradition of recognizing and utilizing wild food resources. The importance of indigenous knowledge and traditional crops in the survival strategies of rural people have only recently been recognised by research (Vorster, et al., 2005:9; Flyman and Afolayan, 2006; Rubaihayo, 2002:1). Wild vegetables are receiving renewed attention, with the recognition that they could become useful parents in breeding programs, convenient sources of income, and vehicles for improved nutrition and increased food supply (Zhou, et al., 2010:577). In such systems, nutritional success has been linked with the diversification of the food base, where agricultural production was augmented with plant collection from the wild (Flyman and Afolayan, 2006; Van Rensburg, et al., 2004). The ultimate goal is to promote the use of African vegetables through improved preparation, promotion of consumption, processing, landrace improvement, and management of their genetic diversity by building on the indigenous knowledge and adding scientific technologies where necessary (Vorster, 2005:3)

There are exotic leafy vegetables and exotic fruit vegetables. (Adeoye and Adegbite, 2016:379) In Nigeria exotic vegetables that include among others, carrots (Daucus carota L.), sweet pepper (Capsicum annuum L), cabbage (Brassica oleracea L),

cucumber (Cucumis sativus L), and watermelon (Citrullus lanatus were identified. In Ethiopia, farmers and large-scale producers also grow different types of vegetables. Among the widely grown vegetables are tomato, onion, cabbage, hot pepper and green beans are the most important ones (Yesuf, and Nazareth, 2005:18). Maroyi, (2009) notes that the most common vegetables used as a relish served with *sadza* in Zimbabwe are onion, cabbage, oilseed rape, pumpkin, bean, and cowpea. There are also varieties of Brassica, locally referred to as *covo*, *rugare*, and *tsunga*, are popular, especially those that can be grown easily from cuttings (Maroyi, 2009:3). This can be viewed as a valuable characteristic, as all the plants will survive with little care for several years and, if kept cut back, will continually produce new side shoots as seeds. K'opondo, Muasya and Kiplagat, (2005:46) argue that for commercialisation, more uniform crops are desirable and methods of breaking seed dormancy, which is common in these crops, should be studied. In Kenya, the formal seed sector focuses on the few crops of commercial value most of which are the exotic crops. Little attention is paid to the other crops of importance to subsistence farmers who produce over 80% of the food crops in the country and contribute greatly to food security. This is particularly true in the case of indigenous vegetables where most of these smallholder farmers grow their crops from the seed of non-authentic sources obtained from informal seed systems (own-farm, local market, neighbours and relatives and from the wild. As a result, K'opondo, Muasya, and Kiplagat, (2005:44) highlight another important area where knowledge is required of seed production, handling and storage. Information on the current methods of seed production, harvesting, drying, processing and storage is important in identifying hold-ups that hamper productivity and subsequent commercialisation of these vegetables.

Very little mention is made of indigenous food plants. Instead, the emphasis is on commercially cultivated exotic food plants. For example, a study conducted by Hart, (2011:324) on the significance of African vegetables in ensuring food security for South Africa's rural poor in Limpopo. The study found that participants are encouraged to grow cash crops such as spinach, cabbage, onions, beetroot, carrots, green peppers, tomatoes and green beans. This contributes to the marginalisation of the use of indigenous vegetables and indigenous knowledge related to the use of these vegetables. Regrettably, access to resources such as seeds, plant material,

water, fertilizers and pesticides and indirect resources raises more concern on the support of the use of exotic vegetables.

3.3 Indigenous vegetables and food security

Historically, wild plants and animals were sole dietary components for hunter-gatherer and scavenger cultures. Today, they remain key to many agricultural communities (Bharucha and Pretty, 2010:2913). A study conducted by Hart, (2011:321) on agricultural practices in a village in eastern Limpopo Province argues that, despite the prevalence and significance of African vegetables to local household food supplies, extension activities ignore these crops and local cultivation constraints. Instead, they persist with the transfer of inappropriate technologies that have little benefit for the intended beneficiaries and the village as a whole. In light of the high levels of food insecurity in South Africa, Maunder and Hart, (2011) call for collaboration between agriculturalists and nutritionists to build on the traditions of crop production and African vegetable consumption. They argue that (almost verbatim), given the widespread consumption of these vegetables amongst those most vulnerable to food insecurity (the elderly, women and children), the collaboration will improve the nutritional content of the diet in poor rural households). Such observations have resulted in calls for improved assistance to rural communities with regard to natural resource management, a greater focus on the local cultivation of these plants, and development of improved varieties and production methods (Hart, 2011:325). Current thinking on food security has moved from a focus on national agricultural production to a focus on the suite of household-level livelihood strategies that determine food security (Crush and Frayne, 2010). Consequently, these events destroyed the subsistence traditional food patterns which ensured food security for all in rural South African communities (Khumbane, 2004:44). Adopting such local food system strategies will go a long way in addressing relish problems in a situation where very few households in rural areas are unable to produce enough to survive.

There is a growing recognition that the present problems with food insecurity and poor nutrition need an integrated approach, which acknowledges the complex and integrated nature of rural poverty (Ericksen, 2008:234). The combined efforts of nutritionists and agriculturalists are needed to promote and enhance the utilisation of

indigenous vegetables. Indigenous vegetables are integrated as part of the main diet have a role in the management of hunger and specifically micronutrient deficiencies (Grivetti and Ogle, 2000:31). They are thus an integral component of the main meal of the day as usual, they are the main relish with which the staple maize dish is eaten. Usually, they are prepared as the preferred relish on their own or as a substitute for exotic vegetables in stews and soups in cases where meat and other vegetables cannot be afforded (Mavengahama, McLachlan and De Clercq, 2013:230). However, where an alternative relish is available, they can be referred to as a supplement. Although they carry a 'food for the poor' and 'famine food' tag for some groups, the fact remains that indigenous vegetables are indeed an important last resort during the famine. There are some groups in society who would not ordinarily eat these vegetables under circumstances of adequate food availability but would consume them under difficult conditions of droughts and famines (Mavengahama, McLachlan and De Clercq, 2013:230). It is possible that for some people who are in poverty these foods become such a part of their diets that even when circumstances change for the better, the attachment to these foods does not go away. Thus a drought-induced famine would have social-cultural effects on wild vegetable (Mavengahama, McLachlan and De Clercq, 2013:230)

First and second-generation immigrants mostly from rural to urban areas with strong preferences for traditional food plants are expected to continue as newly urbanizing populations. Uusik, et al., (2010) assets that poor households use indigenous vegetables more than their wealthier counterparts do. Similarly, Oniang'o, et al. (2006) notes that poor people obtain most of their nutrients from indigenous vegetables, which are cheaper and more accessible than the exotic ones. Shatenstein and Ghadirian, (1998:232) is of the opinion that diverse cultural and religious aspects of behaviour may have a significant impact on patterns of eating, drinking, and social interaction, irrespective of socioeconomic status. This study does not conform to previous researches that point out poverty as the contributing factor of consumption of indigenous vegetables. Rather it could be said that cultural and religious backgrounds shape consumption patterns. It may well be that if a culture of indigenous vegetable use is developed, communities will be more willing to experiment and use additional species. In South Africa, Jansen Van Rensberg, et al. (2007) assert that the consumption pattern is highly variable and depends on factors

such as poverty status, the degree of urbanisation, distance to fresh produce markets and season of the year. The traditional combination of the starchy staple with a green vegetable sauce means that indigenous vegetables play an important role in balancing dietary quality. One of the characteristic features of traditional African vegetables is that they often contain higher levels of essential minerals and micronutrients than exotic vegetables, as well as being high in protein (Keding and Yang, 2009:138). So the case has been made that traditional vegetables can contribute to food security largely than exotic crops (Vorster, et al., 2005:39).

Occasionally, the community is faced with challenges such as hardships resulting from a lack of food; in such cases, the community's innovations to, for example, try new plants or methods of cooking become critical for their well-being or survival. Several studies have shown that some communities know and use dozens of species (Shackleton, Pasquini and Drescher, 2009, almost verbatim). To illustrate the importance of indigenous vegetables in South Africa Vorster, et al., (2005) undertook a study to enhance the role of African leafy vegetables (ALVs) in the nutrition of vulnerable groups in South Africa. The study reports that Traditional leafy vegetables were found to be a very important source of food in summer, but especially in winter. Several drying methods are used to ensure the availability of these vegetables during the winter. It was determined that traditional leafy vegetables played an important role in food security in rural South Africa, but the status of the crops, as well as their conservation, need to be addressed to ensure sustainable use (Vorster, et al., 2005:49).

Household food security and nutrition issues are at the top of the planning agenda in many countries in sub-Saharan Africa (Oldewage-Theron, Dicks and Napier, 2006:795). Due to unpredictable rainfall patterns in Sub-Saharan Africa (SSA), rural areas are becoming more vulnerable in terms of food security. While the introduction of exotic plant species has gradually displaced indigenous food crops in many local diets, it has also meant a loss of indigenous knowledge systems related to cultivation and utilisation of these crops (Babu, 2000:69). Certainly, in some SSA countries, the association between indigenous leafy vegetables and 'hunger' and 'famine' foods, or rural poverty, is such that it can be regarded as humiliating to eat them. The trend towards increased production of exotic species in urban agriculture is therefore, of concern since many of these vegetables, notably the brassicas, have a far lower

nutritional value than traditional vegetables (Ambrose-Oji, 2009:12). In some cases, with increased incomes from these new crops, rural subsistence households tend to depend more on and demand more of, these new food crops, thereby increasing their dependency on market systems. As a result, these households have gradually become more vulnerable to market and price fluctuations in obtaining adequate food to meet their nutritional requirements (Babu, 2000:69). It is argued that attempts to identify, document, and encourage the utilisation of nutrient-rich indigenous plants could be cost-effective, and a sustainable method of improving the nutritional status of local populations (Babu, 2000:169)

3.4 The cultural and religious significance of indigenous vegetables

Many different diets exists, according to different cultures, traditions, religions, and environmental conditions. There are ethnic groups that have preserved much of their cultural knowledge, especially regarding food, and also incorporated many aspects of regional food traditions. This increased the richness and diversity of these ethnic traditions. Guarrera and Savo, (2013:660) refer to this as an ‘‘Intangible Cultural Heritage of Humanity’’. Naeem, (2003:111) notes that strongly held lay beliefs of individuals concerning their bodies, whether sick or not, have serious implications for various policymakers if they want to achieve certain outcomes from their policies concerning the health of the population. Naeem, (2003:111) further states that this would not only be cost-effective and quicker; but also individuals concerned would be motivated to participate if made to feel that their beliefs, attitudes and perceptions have been given due consideration in the policy formulation. Therefore, understanding the cultural and religious influences that affect behaviour in individuals as well as communities as a whole, are of great significance in addressing food insecurity.

3.4.1 The cultural significance of indigenous vegetables.

Culture is a social construct which is characterised by the behaviour and attitudes of a social group (Markus and Kitayama, 2001:119). Determined by upbringing and choice, culture is constantly changing and is notoriously difficult to measure, Naeem,

(2003:111) defines culture as a set of norms, values and guidelines which individuals follow as members of a particular community. It tells them how to view the world, experience it emotionally and how to behave in relation to others, supernatural forces and daily events (Naeem, 2003:111, almost verbatim). As its public manifestation, culture encompasses a complex and dynamic set of social norms, values, beliefs, cosmology, knowledge, and experience that describe the workings of the world to the culture (Shatenstein and Ghadirian, 1998:223). Anthropological research focuses on how cultural, ethnic, and/or religious factors affect what people eat, and the role of food in society in relation to health as well as social well- being (Glanz and Kolonel, 1998:239). Building on a traditional, culturally accepted diet might encourage some people to adopt healthful eating patterns (Glanz, and Kolonel, 1998:240). Culture also includes the sociocultural meanings, acquisition processing techniques, use, composition, and nutritional consequences for the people using the food (Kuhnlein and Receveur, 1996:418). Practises relating to consumption and use of indigenous vegetables in different areas indicate that they are neither high-class nor exceptional to these people or areas. The indigenous vegetable had also become integrated into local cultural practices or way of life in a number of areas and not just local agricultural and commercial activities (Hart, 2004:104). For sub-Saharan African (SSA) populations, this attention on vegetables as vital dietary components is significant, as leafy vegetables have long been known to be indispensable ingredients in traditional sauces that accompany carbohydrate staples (Smith & Eyzaguirre 2005:84). Clearly, information on production, processing, distribution and marketing, preparation and consumption of vegetable species relevant to SSA, are vital and constitute the support on which intervention programmes can be developed (Smith and Eyzaguirre, 2005:84).

Diversification of diets through increased utilisation and consumption of these vegetables would go a long way in alleviating hidden hunger and malnutrition. Several studies reported that the indigenous vegetables consumed had a medicinal value attached to them (Kimiywe, et al., 2007; Shatenstein and Ghadirian, 1998; Smith and Eyzaguirre, 2005 and Hart, 2004). Numerous of these indigenous leafy vegetables continue to be used for medicine and healing purposes by rural communities. Moreover, Shatenstein and Ghadirian, 1998:224) writes, “to assure successful health education programs, it is important to have identified local cultural

practices and beliefs". In Hawaii, researchers have begun to draw on the traditional, culturally accepted diet to redress the impact of westerners on native Hawaiian society. These authors stress the potential of intervention programs that draw on a traditional diet as a means for preventing diseases such as cancer diabetes and HIV AIDS. Others see this application as a means of limiting obesity and other chronic diseases (Shatenstein and Ghadirian, 1998:223). Another study by Kimiywe, et al., (2007) found that a wide range of illnesses was cited as being treated or managed by consumption of leafy vegetables. The most common illnesses cited were malaria, diarrhoea, anaemia, colds and coughs, skin infections, malnutrition, HIV/AIDS, diabetes and high blood pressure, among others. The most common values attached were that the vegetables were: satisfying, a delicacy, appetite booster, and able to make one live long. Other values included improved blood flow, ability to cleanse the blood and so on (Kimiywe, et al., 2007:8). Again, in Mexico, medicinal plants are an important element of indigenous medical systems. These resources are usually regarded as part of a culture's traditional knowledge. The principal reason for this is pragmatism as these plants are selected and used in a consistent manner because of their culturally perceived activeness (Heinrich, et al., 1998:1860). These findings concur with Hart, (2004), who found that there was a potential relationship of indigenous vegetables and the ability to treat diabetes. These indigenous vegetables are used as a medicine, part of ritual practices, it had associated taboos, it appeared to imply social differentiation. The continued use and presence of indigenous vegetables had to do with medicinal value, taste preferences, popularity, commercialisation, associated taboos and knowledge of how to prepare, eat and social customs (Hart, 2004). A similar culturally-based approach has been explored to encourage Pima Indians in the south-western United States to return to their traditional diet to help decrease the dramatically high incidence of noninsulin-dependent diabetes. Shatenstein and Ghadirian, (1998) observe that the importance of cultural orientation and adherence to belief systems, and their collective can influence attitudes and behaviour that may ultimately affect health interventions.

Pregnant and postpartum women often face a large number of food prescriptions based on different cultural and religious beliefs (Kaewsarn, Moyle and Creedy, 2003:358). The consumption of certain foods is associated with a particular illness or health problem. Cultural or religious dietary practices are frequently observed

because of a belief that non-observance will cause physical or mental illness, slow down recovery from illness, lead to malformations or result in unfavourable characteristics such as stuttering or baldness (Briones Alonso, 2015:54). “While staple food items (i.e, rice, lentil soup, bread, etc.) are distributed fairly equally, side dishes usually containing more micronutrients (i.e. vegetables, meat, yogurt, ghee, etc.) are often preferentially allocated to valued household members, including adult males and small children (of both sexes)” (see Briones Alonso, 2015:9, verbatim). A study conducted by Hart, (2004) in Uganda indicates that indigenous vegetables considered to be more nutritious and tasty when raw when dried it is believed to assist with childbirth for pregnant women and women in labour. For example, *Enkolimbo* helps with labour childbirth.

Owuor and Olaimer-Anyara, (2005) state that Indigenous leafy vegetables foods have an exceptional place in African cuisine. Vegetable consumption reflects cultural backgrounds and their value transcends a biological one, like food, to symbolism enhancing the functioning of society and promoting social order. In their paper, they conclude that vegetable consumption reflects cultural backgrounds and experiences. Cultural influences on behaviour may affect dietary patterns and social relationships, independent of material conditions (Shatenstein and Ghadirian, 1998:223). The reasons people choose what they do to meet their food needs are multifactorial and relate to a wide range of environmental, societal, and personal influences (Kuhnlein and Receveur, 1996:418). Food behaviour has social and cultural connotations resulting from acquired knowledge as well as carefully selected and maintained traditions, so that food has historically been intimately woven into the life fabric of a society (Shatenstein, and Ghadirian, 1998:223).

Historically, each culture has had its particular “superfoods” (Messer, 1984:205). Within a given cultural context, they fostered a common identity via their prestige value, and relationship to body image, sometimes performing a special role, particularly in stages of the lifecycle (Crowther, 2018:23). Folklore defines how Africans perceive, define, and value indigenous leafy vegetables in their own terms and present a stable platform for cultural analysis of oral food culture. Indigenous leafy vegetables are symbolic “sources of illumination” that orient African people persistently with the system of meaning in their culture (Owuor and Olaimer-Anyara, 2005:34). It is these latter factors that account for differences in the styles of food

preparation, recipes and tastes across African cultures. Hart, (2004) gave another example of *Egobe* indigenous vegetable that is cooked for inlaws in Uganda. In general, the symbolic meaning of food, including ILVs serves the purpose of enhancing the functioning of society and promoting social cohesion and order (Owuor and Olaimer-Anyara, 2005:34).

3.4.2 The Religious significance of indigenous vegetables

The following section draws on religion as the cultural focal point. Religions often have health and dietary "rules" that are clearly defined to adherents in written texts or that has been passed from generation to generation through word of mouth. Unfortunately, little data exist on the prevalence of observance of dietary rules within religious groups. However, religions evolved within existing cultures, whereby established environmental and magical food habits were simply incorporated into emerging faiths. Religious adherence can enhance a feeling of unity and social solidarity within a group, where practising members participate in common activities in an atmosphere often charged with emotion (Shatenstein and Ghadirian, 1998:225). Food prescriptions or avoidances as practised by a religious group foster a sense of security within that community.

Religion has been traditionally firmly rooted in the ethical values of community life, functioning on personal and social levels to provide a stable niche. In a predictable environment (Mullen, Williams and Hunt, 2000:48) say that this ultimately provides its believers with a considerate meaning of the world and the relationships that exist between beings. Individuals may choose to practice their faith collectively or in seclusion, and their form of worship may diverge according to personal spiritual needs or by the occasion. It has been empirically demonstrated, and is logical, that those who identify most closely with their religious or ethnic heritage are most likely to follow these sets of dietary rules (Glanz and Kolonel, 1998:238). Thus, religion should be viewed not only as a haphazard relation of a single individual to a supernatural power but also as a manifestation of the relationship of the whole community as a collective entity of individuals to a power that has the good of the community at heart. Although it might appear that active religious practice has declined in recent years, religions still provide networks of social and emotional support to many millions. Often this comprises of behaviour monitoring structures that

advise and influence adherents on activities considered acceptable to the group (Koenig, 2012:16). Since foods have symbolic potential as ethnic identifiers, dietary patterns of members of a related group tend to be conservative, the specific identifying foods are likely to remain as the last vestige of a cultural identity (Shatenstein and Ghadirian, 1998:223). Even in modem society, the foods people prefer and select from their environment are dependent on factors that interact in a complex and dynamic cultural, social, and economic milieu (Shatenstein and Ghadirian, 1998:225). Refraining from eating specific foods and observing cooking rituals is how religious people feed both body and soul, enabling them to feel part of a wider, but at the same time differentiated community (Salem, 2015:182). Such foods often strengthen both ethnic identity and religious beliefs, and they reflect their acceptability and availability to the people. In summary, psychosocial, cultural, and situational factors interact to determine food purchasing habits, cultural and ethnic differences, even when the food well as methods of preparation and consumption of these foods (Shatenstein and Ghadirian, 1998:224). It has been observed that cultural-religious beliefs and practices can have a significant impact on health risks.

According to Olupona, (1991:1), it is quite evident that African Traditional Religion plays an important role in shaping the character of African society and culture today. Olupona, (1991:2) deals with emerging themes in the understanding of African Traditional Religion. He notes that eminent historians of religion in the west have, in the past neglected the study of primal traditions especially African Traditional Religion. Yet this tradition continues to suffer from lack of acceptance and inadequate understanding of its central tenets and essence. However, the new approach of treating African Traditional Religion, not as a fossil but rather as one of the most important building block of modern African life in dealing with problems such as food insecurity. Oosthuizen (cited in Olupọna, 1991:36) in his paper, the place of traditional religion in contemporary South Africa observes that the African traditional systems have a lot to offer humanity. A postmodern worldview, which the west is currently formulating, will have an ally in traditional African culture. For example, some indigenous vegetables are assigned to special social times and contexts. A study conducted by Owuor and Olaimer-Anyara, (2005) in rural south-western Kenya found that highly valued vegetables are prepared during ceremonial occasions. Ingredients such as peanut butter and milk are added during the preparation of this

category of vegetables. Some of the highly valued indigenous vegetables are Nightshade S. nigrum and Spider plant G. gynandra. The S. nigrum has a higher ritual value when consumed with millet cake than with maize meal. Some of these vegetables are commonly given as gifts for recovery when visiting sick relatives and friends, and as atonement during funerals.

Humanity in Africa is basically family. A community with a strong emphasis on the traditional religion and its symbiotic union with ancestors and spiritual entities in the metaphysical world. The sacrificial meals are symbolic, emphasizing that the family or community has been brought together with ancestors (Olupọna, 1991:36). From an African Traditional Religion perspective, Hart, (2004) notes that ancestral spirits can make a person ill. Thus the importance of a spiritual equilibrium between the living and ancestral spirits in the Nigerian view on health. Ancestors protect the living and thus need to be kept healthy, for instance through the offering of meals including indigenous vegetables and traditional drinks. According to Agbiji and Swart, (2015:2) "it is, therefore, common for Africans to display their religious beliefs and rituals in moments of joy and despair. Africans come alive when they manifest their religiosity. African expressions, names, activities, symbols, celebrations, work, ideology and philosophies are loaded with religiosity". To be blessed implies having children and food and to be healthy. Because religion strives to make sense of the inexplicable, it is not surprising that guidelines, rules, standards of behaviour, and activities exist within religions to defend against sickness and death. Cultural mores are transmitted from one generation to another; and as a learned phenomenon, individuals within the cultural subgroup may differentially apply tradition (Shatenstein and Ghadirian, 1998:224).

Some of the observances in the most widely-studied modem religious groups, such as Seventh-Day Adventists are noted for their health-promoting lifestyle. These principles promote vegetarianism, with little consumption of animal food, high intakes of vegetables and fruits, little caffeine, no alcohol, and no tobacco use (Salem, 2015; Shatenstein and Ghadirian, 1998:226). It is believed that consumptions of meat and eggs are related to increased mortality from coronary heart disease, diabetes, and obesity while eating of leafy green vegetables has had the opposite impact in this population. Religious and faith-based perspectives provide models to consider our relations with other being in a holistic manner. In one sense, a holistic approach

would mean recognizing the broader effects of our food production systems on people and animals (Whitney Sanford, 2014:977). Whilst scholars and practitioners addressing the global food crisis have rarely incorporated perspectives from religious traditions, understanding dietary practices from a religious point of view can provide fertile ground on ensuring food security. Faith-based perspectives can provide new paradigms through which to assess food, consumption, and production and the attendant social relations. Therefore, it important to assess scientific, economic, and social approaches and acknowledge the moral and religious dimensions of the world food crisis (Whitney Sanford, 2014:977).

3.5 Perceptions of indigenous vegetables in African communities

Dweba and Mearns, (2011:564) state that the introduction of new vegetables has been cited as one of the causes of the loss of knowledge about traditional vegetables. The new vegetables are widely promoted by agricultural research and extension, thus leading to the complete substitution of traditional vegetables. Similarly, Flyman and Afolayan, (2006:506) say "globalisation and modernisation of agriculture have resulted in the simplification of human diets and reliance on a few staples". As a result, Shackleton, Pasquini and Drescher, (2009) observe that in some sub-Saharan Africa countries, the association between indigenous leafy vegetables and 'hunger' and 'famine' foods, or rural poverty, is such that it can be regarded as humiliating to eat them. The declining demand is linked to changes in contemporary tastes and preferences for less bitter vegetables. This probably is because most of the exotic vegetables are quicker to cook and prepare, and are perceived as more symbolic of a modern and sophisticated lifestyle than those species associated with a rural past (Shackleton, Pasquini and Drescher, eds, 2009). Moreover, negative attitudes towards the use of traditional vegetables have also been quoted as one of the reasons that subsidise to the loss of knowledge about traditional vegetables. In most areas Dweba and Mearns, (2011) point out that traditional vegetables are associated with poverty and primitiveness. Another possible reason could be that other people do not like TLV's because they claim that it tastes bad since they could not be familiar to the taste. Consequently, most people, especially the youth, have stopped using traditional vegetables because they do not want to be labelled as backward (Dweba and Mearns, 2011; Jansen van Rensburg,

et al. 2007; Shava, 2000:28). Food is also used to define status, which often leads to a change in food consumption patterns when people stop eating their ordinary food because it is associated with low status and accept food that is thought to bestow them with greater social standing. In the last few decades' great changes have taken place not only in South Africa but the whole African continent at large. Urbanisation, migrant labour, greater access to health care and education, a greater effort to shift farmers from subsistence to cash cropping, increased population pressures and environmental degradation. This has led to changes in the socio-cultural and environmental environments of many people (Zhou, Minde and Mtigwe, 2013:2599). Urbanisation is more of mental reconstruction than a material phenomenon. Cities are seen as the centres of modernisation by some, but by others they are seen as destroyers of traditions and parasites of the rural populations (Olupọna, ed, 1991:36) These changes have severely eroded the indigenous knowledge base on the harvesting, cooking and storage of indigenous vegetables (Taleni, et al., 2012; Hart & Vorster 2006). In South Africa, Taleni, et al., (2012:6) also note that the introduction of social grants has severely affected the agricultural activities in many villages in the Eastern Cape region, with many people now preferring to buy staples, rather than to grow or harvest them (Vorster and Jansen van Rensburg, 2005)

A study conducted by Taleni, Nyoni and Goduka, (2012:1) in Mantusini Location of the Port St Johns Local Municipality, in the Eastern Cape, South Africa explores the perceptions and responses of Mantusini people on indigenous vegetable utilisation. The study reports that contrary to beliefs that youths shun the use of ILVs they, in practice, are interested in them and in many instances initiate their consumption in households. Another study by Kimiywe, et al., (2007:1) found that ethnic origin was found to greatly influence the consumption of indigenous African leafy vegetables. There was no significant relationship between household income and education level and choice or use of indigenous leafy vegetables. Sometimes food choices are influenced by culture and people's beliefs about certain food. By and large, beliefs stem from health or religious reasons, but some are motivated by religious convictions only (Smith, Eyzaguirre and International, 2005). According to Vorster, et al. (2005:2), ethnicity and gender had an effect on the use and preferences of the different crops, with men preferring the more bitter taste and women and children preferring the milder taste. In their study different ethnic groups showed differences

in terms of the bitterness of the taste and composition of the leaf mixes. Several of these indigenous leafy vegetables continue to be used for prophylactic and therapeutic purposes by rural communities (Smith, Eyzaguirre and International, 2005). Some of the reasons for not consuming the vegetables included prohibitive costs and not knowing how to cook them especially those from other tribes. Generally, indigenous leafy vegetables were liked because they were nutritious and had a medicinal value attached (Kimiywe, et al., 2007:5).

The decline in indigenous vegetables poor utilisation may also be associated with the lack of knowledge of how to access quantities and employ practices that can satisfy daily nutrient requirements, particularly among the youths. Wild vegetables are receiving renewed attention, with the recognition that they could become useful parents in breeding programs, convenient sources of income, and vehicles for improved nutrition and increased food supply (Flyman and Afolayan, 2006:405). Incorporation of vegetables into diets has been promoted as the most practical and sustainable way to achieve optimal human diets (Flyman and Afolayan, 2006:405). Communities employ their social and natural environment knowledge to achieve a successful livelihood. Cultures are not only systems to perpetuate values, but also embody ways of knowing, organizing and interacting with the environment. A study conducted by Maroyi, (2011:5726) in Zimbabwe indicate that the participants acknowledge the importance of traditional vegetables in that they provide critical support to the usual agricultural production, cash income and insurance against drought and crop failure. They make significant contributions to the nutritional well-being of humans providing us with a wide range of tastes and flavours to complement our starchy based diets (Maroyi, 2011:5726).

3.6 Challenges on the use of indigenous vegetables

Colonisation, modernisation and globalisation are widely viewed as a uniquely Western process that non-Western societies could follow only in so far as they abandoned their traditional cultures and assimilated technologically and morally "superior" Western ways (Shilliam ed, 2010). This has, to a greater extent, contributed to the abandonment of local food systems and traditional ways of life. The erosion and enslavements of indigenous knowledge about traditional vegetables resulted in the lack of awareness of benefits that the communities get by eating them.

The regular release of improved new varieties of exotic cultivated vegetables contributes to the neglect of ILVs thus endangering their continued existence. This section is going to unpack the challenges that are facing indigenous vegetable utilisation in this twenty-first century.

Colonisation and neo-colonisation in accordance with the desires of the new world order have ensured the systematic erosion of indigenous and traditional food habits in most developing countries particularly Africa. Indigenous and traditional food habits, associated with myriad health benefits, have been progressively replaced by the globalised food system of the multinational corporations. This system inherently is associated with the creation of non-communicable disease epidemics throughout this continent and globally (Raschke and Cheema, 2008:662). Delocalisation of food production, food distribution and food marketing has redistributed power over food systems from the local economy to a few multinational corporations. This rapid centralisation of power has resulted in a globalised food system and commercially driven changes in food habits and tastes (Raschke and Cheema, 2008:662). Industrialisation is seen as the central element of a modernisation process that affects most other elements of society. Inglehart and Baker, (2000:6) present research and theory on socio-economic development that gave rise to two contending schools of thought. One school emphasizes the convergence of values as a result of "modernisation" the overwhelming economic and political forces that drive cultural change. This school predicts the decline of traditional values and they're replacement with "modern" values. The other school of thought emphasizes the persistence of traditional values despite economic and political changes. This school assumes that values are relatively independent of economic conditions (Inglehart and Baker, 2000:6). From these theories, it seems the African continent is facing a problem where perspective, traditional values were not only mutable but replaced by modern values, enabling these societies to follow the (virtually inevitable) path of capitalist development. Consequently, this could be a reason why most of the youth particularly from urban areas are regarding indigenous vegetables as food for the poor and backward. They are abandoning their traditional food values to western diets. They have the impression that we are moving toward a uniform "McWorld" of which Inglehart and Baker, (2000:6) referred to as partly an illusion. The reason being that the seemingly identical McDonald's restaurants that have spread

throughout the world actually have different social meanings and fulfil different social functions in different cultural zones.

It is imperative that greater efforts be directed towards exposing the colonial and neo-colonial forces which have undermined food security and health status in East Africa (Inglehart and Baker, 2000:6). Imperial powers of Europe sought to rapidly expand their empires through the colonisation of sub-Saharan Africa, ancient indigenous knowledge, including an incredible wealth of knowledge about food habits, health and longevity, has progressively waned (Inglehart and Baker, 2000:6). Abukutsa-Onyango, (2005) conducted a study on the diversity of cultivated African leafy vegetables in three communities in Western Kenya. The major constraints identified by participants from the three communities included: poor seed quality, pests and diseases, drought, poor marketing channels, transport to markers, lack of agronomic and utilisation packages. This study also showed that there is a need for increased production of indigenous vegetables and this calls for good quality seed for increased yields to meet the demand for these vegetables, particularly in urban and peri-urban areas. Similarly, Adebooye, et al., (2005) cite the non-availability of improved seeds as a major constraint to the cultivation and productivity of the indigenous leaf vegetables (ILVs) of Africa. Usually, these plants are rarely deliberately cultivated but grow as volunteer crops and in some cases, farmers use the carryover seed stock from the previous year for planting. Currently, seed industry actors operating in Africa mostly promote the production and distribution of seeds of exotic vegetables. Farmers lack adequate knowledge on how to grow and process seed optimally and therefore need to be trained in these aspects. Their ability to withstand drought, low soil fertility and pests and diseases makes them popular with the resource-poor farmers (Akullo, et al., 2007:13). Because of their many advantages, indigenous vegetables should be improved so that they develop into commercial crops. This will assist for both the local and export markets to help alleviate poverty and recover the food and nutrition situation of communities. Viable production of Africa's traditional vegetables depends on the sustainable supply of improved and high-quality seeds.

Consequently, knowledge regarding their habitat and importance is hardly being transferred to the younger generation due to their changing social values. Migration from the rural areas where these vegetables are consumed to the cities where they are ignored and neglected in favour of exotic western varieties also contributes

immensely (Van Rensburg, et al. 2004:53). The leafy vegetable crops feature prominently in the food consumption patterns in South African homesteads and this differs from household to household. This is highly dependent on social issues such as poverty or wealth status, the extent of urbanisation, how far the markets that produce fresh vegetables and the season of the year (Galluzzi, Eyzaguirre and Negri, 2010; Vorster, et al., 2002). The unfavourable market access is the major hindrance to the farmers. Farmers in rural villages are faced with challenges when it comes to selling their produce in the marketplace due to infrastructural challenges as well as the competition posed by commercial farmers. (Maxwell and Slater, (2003) stated that marketing plays a serious part in meeting the overall goal of food security, poverty alleviation and sustainable agriculture mainly among small-scale farmers in emerging countries. The pressure that the small-scale farmers get from market liberalisation makes it difficult for the farmers to partake in markets. The challenge that affects the vegetable production is incapacity for small-scale farmers to enhance the ability to reach markets and vigorously involve in the market.

3.7 Conclusion

This chapter presented the additional literature on which the study has developed. A clear pattern has emerged from the literature supporting the undertaking of the current investigation. There are gaps in terms of literature on, production, utilisation of African indigenous vegetables. This chapter shows both the colonial and neo-colonial forces, which have continuously undermined food security and health status in Sub Saharan Africa. Some of the reviewed literature agree with the notion that, indigenous vegetables have ecological, social and cultural values. They play a significant role in the day-to-day food and nutritional requirements of local people mainly in rural areas, but more increasingly in urban areas. Therefore, preserving the indigenous knowledge of indigenous vegetables consumed in the Chionekano ward by documenting information on how they are harvested, cooked and preserved will go a long way in keeping the heritage of Africans in terms of food. At the same time, this will address the problem of food insecurity, especially among rural communities. Such foods often strengthen both ethnic identity and religious beliefs, and they reflect their acceptability and availability to the people. Furthermore, discussions of several of the findings within the various studies were incorporated, which agrees with the

fact that one of the characteristic features of traditional African vegetables is that they often contain higher levels of essential minerals and micronutrients than exotic vegetables, as well as being high in protein. Negative attitudes towards the use of traditional vegetables were found to be one of the reasons that subsidise to the loss of knowledge. This chapter also included a discussion of scholars and practitioners who suggests that when addressing the global food crisis, it is important to incorporated perspectives from the world's religious traditions, understanding dietary practices from a religious point of view. The point of departure is that this can provide fertile ground for ensuring food security. Finally, various studies were discussed regarding challenges on the use of indigenous vegetables. It was found that the erosion and enslavements of indigenous knowledge about traditional vegetables resulted in the lack of awareness of benefits that the communities get by eating them. The regular release of improved new varieties of exotic cultivated vegetables contributes to the neglect of indigenous leafy vegetables thus endangering their continued existence.

Chapter 4: The use of indigenous vegetables: An analysis of empirical findings

4. Introduction

This chapter presents the results, analyses and discussions of the findings of this study. The results are presented by identifying indigenous vegetables consumed in the Chionekano ward of Zvishavane district in Zimbabwe. The descriptions of the indigenous knowledge associated with the cultural and religious connotations attached to the harvesting, preservation, preparation and consumption of each indigenous vegetable consumed in the area are presented. The analysis of the findings yielded four themes and sub-themes. Thus, results and discussions are presented according to the identified themes and sub-themes. The main themes identified during the focus group discussions and in-depth interviews are thus grouped into three themes namely:

- Identification of indigenous vegetables consumed in the Chionekano ward.
- Indigenous knowledge associated with their cultural and religious connotations attached to the harvesting, preservation, cooking and consumption of such vegetables.
- Predominant attitudes and perceptions on the factors that influence indigenous vegetable consumption

The results of the second theme, the cultural and religious connotations attached to the harvesting, preservation, cooking and consumption of each indigenous vegetable is presented alongside under the sub-themes of identified indigenous vegetables. Lastly, the results of the theme, predominant attitudes and perceptions on the factors that influence indigenous vegetable consumption are also presented and discussed.

4.1 Brief narrative of research proceedings

This fieldwork and data collection primarily took place in the Chonekano ward of Zvishavane district in Zimbabwe. At my first arrival with the local bus that operates in the Zvishavane urban en route to Matenda shopping centre, there was news everywhere about my homecoming, as I had spent four years away from my rural

area. This is the area where I was born and raised, so I had no problems with accommodation, as I had to simply stay at my parents' homestead in Chikafu village. The news of my arrival spread fast as the whole community knew I was in South Africa. This is a common phenomenon in rural areas when someone is coming from the city. The next morning, I was surprised to see different relatives thronging our homestead to greet me. In this village, everyone is related to each other in one way or another- sometimes through blood relations but also through familiarity and associated connections in families. Therefore, most of the "relative" visitors were my potential participants, however, for the reason that permission had not been granted to conduct research by the headman, I was not able to interview them but only promised them that I will visit their homesteads for research purposes. All of them indicated that I was most welcome. The very same morning, I went to the headman homestead that is within walking distance from my home to request permission to conduct my study and permission was granted without hesitation. It was interesting to move around the places because it was in January, the planting season in the area had begun and there was greenery everywhere.

In the rural areas of Zimbabwe, Shona people normally use totems to refer to each other. I am of the *Mhofu* totem of which the whole village particularly Chikafu is full of Mhofus and Matenda surname. This bond and relationship with the majority of people made my research proceedings easier because I am almost related to everyone in one way or the other. Due to the economic meltdown in Zimbabwe, many young people have joined the 'Great Trek' to neighbouring cities and countries to look for employment. Many of them have relocated to South Africa. This had no impact on my participants because the remaining population consists of elderly women who are permanent residents of the areas while the children are in cities. Besides the fact that in these communities, the people look for material things to judge progress for anyone coming from the city, it was not a setback for me because I was very enthusiastic of the data collection task despite what people say or think about my life. Most other youngsters would come to the village driving around in fancy cars with foreign number plates, flaunting their wealth; I was not ashamed to walk to different villages by foot. As a researcher following the ethnographic means in data collection, this was an advantage for me because there was no crisis in managing expectations from my research participants. This afforded me an opportunity to begin to build

networks in different villages, *Muchina, Chimbwa, Madamwa, Koride, Whande* just to name a few.

However, it is important to highlight that the research proceedings had their own share of problems. The main problem I encountered during data collection was when participants mixed personal life issues during the in-depth interviews. The collective culture practice of some elderly women to give advice to me, especially on not abandoning my parents homestead and keep their legacy somehow interrupted parts of the interviews. There was another problem with electricity: I needed to go to the shopping area to charge my phone for recording on a daily basis.

The other interesting part of my research proceedings was the rain making *Mukwerera* traditional ceremony I attended a week after my arrival. The ceremony was held in *Madamwa* village, just about 10km away from my homestead. The purpose was to stop the continuous wind that had been blowing for some weeks of which the elders believe it was disturbing rainfall. The purpose was to stop this wind so that there could be a promising weather pattern bringing enough rain. At this traditional ceremony when the elders were going to the shrine in the mountain, I found out that on the food that was going to be presented to the ancestors consisted of traditional opaque beer, millet *sadza*, goat meat and a portion of indigenous vegetable spider plant *Nyovhi*. On this traditional ceremony, I witnessed a range of forms of behaviour that makes them identifiable as members of culture and religion. This signalled relevance of the field site and showed me that the real work of generating data had begun. The guiding questions that helped to gather data were as follows:

- What are the examples of indigenous vegetables consumed in this area?
- How do you harvest, preserve, cook and consume indigenous vegetables?
- What is the significance of eating these indigenous vegetables?
- What are the associated rituals with harvesting, preparing and eating such vegetables?

Data collection involved in depth semi structured interviews of 24 elderly woman participants with, three Traditional healers and three focus group discussions that composed of six−ten participants. The focus group discussions allowed everyone to

participate evoking a range of responses. Signed formal consent were obtained from each individual who participated in both semi structured interviews and focus groups discussions (see addendum). Staying among the people, making contact with members of the villages visiting them to their homestead, on social and church gatherings helped to gather information centered on their experience in connection with the production of indigenous vegetables. The interviews were conducted in Shona, the local language since the author is a native speaker of the language. I was also engaged in participant observation and willingly helping in daily activities from harvesting, cooking and consumption of these indigenous vegetables.

4.2 Classification of indigenous vegetables consumed in the Chionekano Ward

I asked the participants to identify indigenous vegetables consumed in the Chionekano ward; the majority commented that there are those that grow in our fields as weeds and some that grows in the forests along wet areas, mountains and rivers. The majority also commented that from those found in the forest, there are some that are scarce. Other responses to this question included some participants who actually highlighted that there are some indigenous vegetables grown with the intention of harvesting their fruits but the leaves were used as vegetables. From these responses the sub-themes that emerged from the first guiding question of identifying indigenous vegetables consumed in the Chionekano ward were:

- Wild indigenous vegetables that grow like weeds in agricultural lands,
- Indigenous vegetables that use leaves as by-products
- Wild indigenous vegetables found in riverbanks, forests and mountains
- Scarce Wild indigenous vegetables found in the forests

The harvesting, techniques used to cook and consumption of these indigenous vegetables form part of an important theme that was discussed. The discussions were premised on an effort to unpack the religious and cultural connotations attached to the use of these commonly used indigenous vegetables.

4.3 Wild indigenous vegetables growing like weeds in agricultural lands.

Determining indigenous vegetable utilisation helps to establish the diversity of use and gives an indication of the extent of indigenous knowledge associated with their use. The participants identified six wild traditional vegetables that naturally grow like weeds in the farming lands. Vernacular names, how they are harvested, part of the plant used and preparation methods were recorded for each species. All these species are native to the Chionekano ward area. These wild indigenous vegetables are known for growing naturally in farmlands. During weeding, the majority of people in the Chionekano ward do not remove recognised edible weedy traditional vegetables. The cultural and religious connotations attached to the harvesting, preservation, cooking and consumption of each indigenous vegetable identified will be presented under each indigenous vegetable.

a) Nyovhi/ Spider plant/ Cleome gynandra

The findings of the study reveal that this vegetable is found at the starting of the raining season that is from November until March. Participants expressed that it is found mostly in the cultivated fields or gardens when the planting season starts. Talking about this issue an interviewee said "… you can find them mostly in those fields where maize is cultivated as weeds but for us, we take them and cook as vegetables for our families". One interviewee put it this way, "...soon after the fall of the first rain, the spider plant starts to grow naturally without human intervention". When harvesting, the participants note that edible and delicious vegetables come from the young growing points (shoots) leaves and tender stem. The majority of those who responded to this item felt that there are cultural and religious practices that need to be observed when harvesting and cooking the spider plant. The basis of African traditional religion is when one accepts these beliefs one follows the teachings of the elders who know the customs and traditions of the Shona nation. When one follows the teachings of his ancestors such a person is said to be blessed (*akaropafadzw*a) and holy. Therefore, to live happily, one must be on good terms with the rules set by the forebearers. Over half of those surveyed reported that it is important not to use fingernails when plucking the young stems because doing so will result in an increased bitter taste that may make them unpalatable. A common view

amongst interviewees was that when plucking, one is supposed to use fingertips not nails. This point was emphasised by another participant who said: "…*ukaishunya inovava"* meaning if you pinch it, it will have a more bitter taste.

The indigenous religion of the Africans is the religion that has been handed down from generation to generation by the forebears. It is not a thing of the past, but a religion that Africans today have made theirs by living it and practising it. The reason that makes a community work collectively in a uniform way from this study, presents the fact that despite its suppression from other world religions such as Christianity and Islam, African Traditional religion continues to play a critical role in the life of the traditional African. This study found that it is almost like a ritual to wash the vegetable before cooking as all the participants stressed the need to thoroughly wash them to remove the sand and dust gathered from the fields. Although this seems like common sense, the elders teach the young to do this carefully with lots of water as failure to do so; the vegetable will have sand that makes it uncomfortable to chew. The spider plant seems to be the vegetable that has many cultural and religious connotation; this was revealed when all the participants commented that firstly when cooking, the emphasis is on two important things: to boil the water first with salt and have lots of firewood to make a continuous hot flame. All the participants cited this is the best way to cook *Nyovhi* as failure to do so results in it losing the taste. For example, one interviewee said the fire is the most important tool needed when cooking *Nyovhi.* As one of the participants correctly points out that "… *Nyovhi ikasakushidzigwa inotanha"* meaning failure to have continuous fire makes the Spider leaves lose taste. Some participants said that one is not supposed to change the firewood when cooking because if you change and add firewood the vegetable will again lose taste while others considered that what is needed is hot flame only. Despite other opinions that one cannot change firewood, some participants expressed the belief that spider plant must not be chopped with a knife, what is needed is to put them in a pot and make sure is covered with a lid. Furthermore, a variety of perspectives were expressed by the majority of participants that a clay pot for relish (*hadyana*) produces a delicious taste as compared to steel pots that are commonly used nowadays. One interviewee puts it as:

> *"…..Ukabikira muhari unotohwa musiyano, hari inonyatotsoita kuita zviwedzere kunaka"*

(Meaning- if you cook in the clay pot, the taste is better, the claypot enhances the taste)

(see photograph of spideplant below).

Photograph 1: Fresh (left) and dried (right) Nyovhi/ Spider plant/ Cleome gynandra

In this case, the people even prefer their traditional pots as compared to the steel or modern pots. All of the participants note that the cooking time for *Nyovhi* is one hour for young leaves and about one hour thirty minutes and above for those fully matured that is about to blossom. The same applies even when one wants to preserve it by drying. The spider plant can be eaten fresh. It can also be dried for future use by cooking the leaves first and dry them on direct sunlight. Using their indigenous knowledge systems, the participants point out that it is important to dry them when there is sunlight. If there is no sunlight, it means that taste will be badly affected.

The majority of those who responded on how to cook spider plant said the important ingredients that need to be added are salt, peanut butter *Dovi* or cow milk cream *ruraza/ ruomba* or just cow milk. However, a common view amongst interviewees was that nowadays, tomatoes, onions, and processed commercial soups could be added if available. Whilst the majority mentioned that they use cooking oil nowadays, all agreed that traditionally, processed cooking oil was never added to wild vegetables during cooking. Most of the participants said they prefer peanut butter *dovi* or cow milk cream *ruraza* as the best ingredients that produce the most delicious

taste. Due to its bitter taste, an interesting aspect revealed by all the participants was mixing *Nyovhi* with *Mbuya mbuya*/ *Amaranthus spinosus* to neutralize the bitter taste for those who are uncomfortable with the taste, especially children. This is done especially for those leaves that are fully-matured because they have a more bitter taste. The cooked vegetables are used as relish served with the main meal of thick porridge prepared from maize or sorghum- *sadza*. The small children as narrated by some participants prefer indigenous vegetables cooked from a clay pot with peanut butter are much more delicious to the extent that children will fight for the clay pot in order to scrap the remains. This encourages the children to eat them separately without thick porridge/ *sadza* in large quantities.

b) Mbuya Mbuya/ Thorny pigweed/ Amaranthus spinosus

The discussion around how and when to harvest *Mbuya Mbuya* reflected that its seasonal availability is from November to March during rain agricultural planting season. As much as this vegetable is found in the fields as weeds, the majority of participants were of the perception that when cultivating, some are left for vegetables and they grow together with other cultivated crops. A common practice amongst interviewees when harvesting *Mbuya* is to select the fresh young offshoots of the leaves. There are two types of *Mbuya* identified by participants, the first one is Mbuya Mbuya/ *Amaranthus spinosus* and the second one they call *Mbuya dhongi/danga/Amaranthus thunbergii*. All of them grow like weeds in the farming lands although sometimes *Mbuya dhongi* can be found in and around cattle kraals located near the villages (see photograph below).

Photograph 2: Mrs. E Matenda displaying two different types of Amaranthus thunbergii family of indigenous vegetables. Right is Amaranthus thunbergii/ Mbuya dhongi and Left is Mbuya Mbuya/ Amaranthus spinosus.

This means that while the plants grow well in the farming lands, they flourish where the soil is fertile. Villages that practice subsistence farming make use of this opportunity to get a greater harvest as some manure may have been added to cultivate the plants. The leaves are selected the same as *Mbuya mbuya* by plucking fresh young offshoots. All the participants wash the leaves before cooking. All the participants cited boiling water with salt as the first step before adding the leaves. As one participant explained "…. the first step when cooking *Mbuya Mbuya* is to boil the water first" These two family of indigenous vegetable do not take long to be ready as they can be boiled for a short time of 10 to 15 minutes only. Participants suggested that the vegetable leaves are generally prepared by blanching or boiling before the addition of other ingredients like peanut butter, cow milk cream *ruraza*. All participants further explained that *Amarunthus* family of indigenous vegetable can be preserved for future use by boiling or blanching and expose them to direct sunlight. Generally, participants felt that cooking oil can be a substitute of important ingredients such as peanut butter or milk cream if they are not available. However a common view amongst interviewees was that they preferred peanut butter *dovi* or cow milk cream *ruraza* as they make them more delicious as compared to cooking oil. Clay pots *hadyana* were referred to as the most relevant cooking pots compared

to steel pots. Two interviewees explained, "…these methods of cooking is something we have been taught by our parents and we are passing knowledge to our children so that they can enjoy the delicious taste". While all the participants agreed that nowadays, tomatoes, onions and other soups like royco can be added also, they complained that these other ingredients need money so they would rather use available resources such as peanut butter or milk cream. All the participants reported that this vegetable is consumed as a relish with *Sadza.* Mixing of the two Amaranthus vegetables is a common practice among the participants. Further investigation found that these vegetable leaves they can be mixed with *Nyovhi* also to reduce the bitter taste, especially for that full-grown leaves. This is a special preparation method to remove the astringent taste. Interestingly, the participants revealed that these Amaranthus family of vegetables are presented as gifts to the sick. As one interviewee, Mrs Mandebvu puts it:

> "…*mutsine nembuya zvinoenderana kubatsira kudzosa vutano hwemunhu anogwara nehutachiwana nemadzimai achangobva kuzvara."*
>
> (Meaning- black jack and thorny pigweed go hand in hand and help to heal the sick even those with HIV or women to recover their health soon after giving birth).

c) Derere/ Wild jute/ Corchorus tridens

Participants also identified Wild jute *Derere* among other indigenous vegetables found in farming lands as weeds. Its seasonal availability is during agricultural planting season from November to May. Participants when they were talking about derere, they were able to differentiate between the traditional *derere* that grows naturally in the field and another introduced hybrid that is grown nowadays. In support of this claim, another participant commented that;

> *"….kune derere, handiti unoziva derere riya rekudzvariwa? manje kune rimwe derere rinoita mumunda rinongokura roga sebundo"*.
>
> (Meaning- there is okra, you know that okra which we grow? But there is another that just grows in the fields on its own like weeds).

The majority of participants maintained that when cultivating some indigenous vegetables weeds are left out so that they could later harvest as vegetables. Talking about how to harvest *derere,* the majority of participants said they unpluck the fresh

young offshoots. Some felt that when harvesting, as much as it is weed, in some instances they uproot the whole plant while others considered they just unpluck the young offshoots leaves and leave it to grow so they can come and get some after the new offshoots. One participant explained:

> *"…nekuti ibundo, zvatinoita kana rakura zviya tinoita zvekuridzura tozoti hedu takazororora tabva kumunda totanha mashizha atinoda kubika".*
>
> (Meaning- because it is a shrub/weed, when it grows, we uproot the whole plant, then, we would select the young leaves when relaxing after work in the fields).

This vegetable can be eaten fresh or dried depending on the abundance. On the preservation for future use, all the participants have a belief that *derere* is dried by keeping it in the shade without direct sunlight. Unlike other indigenous vegetables that need to be boiled first, wild jute doesn't need to be boiled, they just dry it in a shade. This is done so because the leaves are too soft, In addition to cultural and religious beliefs of cooking, all the participants share the same view that;

> *"...kana warigeza unofanigwa kusiya mvura yobomha yose"*.
>
> (Meaning- after washing the leaves you must leave the leaves to drain all the water).

Photograph 3: Participant demonstrating how to harvest Derere/ Wild jute/ Corchorus tridens.

All the participants indicated that also when cooking, water must be boiled first and

put salt and soda. About 0.5 g of sodium bicarbonate is added to give a slimy consistency to the cooked vegetables. Although soda is commonly used nowadays, traditionally ash was used as a substitute of bicarbonate of soda to achieve the same result. Tomatoes and onions can be added if available. Another important trick of cooking found from all the participants was to keep on stirring until it is slim. The cooking time noted by all the participants was less than 20 minutes only. Generally, the majority of all the participants consumed *derere* as a relish with thick porridge. However, three participants in a focus group discussion said one could just consume it separately by drinking if you have more appetite for it.

d) Tsine/ Muhlabangubo/ Blackjack/ Bidens spinosa

The overall response on the identification of indigenous vegetables consumed in the Chionekano ward showed that this vegetable is among the commonly used. A large number of those interviewed said that blackjack *mutsine* is also part of weeds found among other planted crops in the fields or abandoned fields. Two participants stated, "…the availability of blackjack depends on the rainfall pattern, which means if there is more rainfall, consequently they will be plenty of blackjack especially in those abandoned fields". There is also a commonly *Ndebele* name used in the area, *Muhlabanguvo*, this name is derived from the two words, *Hlaba- Ngubo* which literally means *Hlaba*-stab, *nguvo*-clothes. With regard to harvesting, all participants stated that fresh young offshoots are harvested before they are fully matured. Whilst a minority mentioned that they like to eat this vegetable fresh, the majority of participants were of the perception that they prefer to eat blackjack *mutsine* after it has been dried. Those participants who preferred to eat dried black cited that while fresh, it has an unpleasant smell. With regard to this, one participant explained,

> *"…asi unoita sekuti une kamweya….zvinoenderana, chido chako ukaujaira unodya, kana ukasaujaira unogona kukonewa kuudya uri munyoro"*
>
> (Meaning- but it has a strong smell and depending on you, if you can handle it, you can eat but if not you may fail to eat it when it is fresh)

Photograph 4: Tsine/ Muhlabangubo/ Blackjack/ Bidens spinosa

When it is fresh some participants reported that one can boil and drain the water to drink and this they believe it can reduce high Blood pressure. All the participants mentioned that in most cases when visiting a sick patient, *mutsine* is usually brought as a gift and also given to women who have given birth. Besides the fact that they have been an awareness from a non-governmental organisation that encouraged people to eat blackjack in the area, it was clear from the participants that they already had vast knowledge from the ancestors that was meant to encourage especially pregnant woman and the sick to eat this vegetable. One participant explained

> *"….zvinhu zvatakakura tichingoita zvatakadzidzsiwa nemadzitateguru edu kuti murivo uyu unobatsira vagwere nevakadzi vachangobva kuzvara"*
>
> (Meaning- our tradition is to give these vegetables as gifts to the sick or woman who have given birth).

All the participants' further note that they are aware of the nutritional benefits of black jack as it is presented as gift when visiting the sick. Boiling water with salt first seemed to be a ritual when cooking all indigenous vegetables. All the participants who asserted that the first step when cooking black jack is to boil water with salt first supported this point. The participants said it does not take much time to be well cooked, as it can be ready within five to ten minutes. Additionally, participants reported that peanut butter cow milk cream produces a better taste as compared to

cooking oil. Consumption is usually as relish with thick porridge.

e) Muchacha/ Wild gherkin/ Cucumis anguria

The participants explained that traditionally this indigenous vegetable is found as weeds in the planting fields especially during rainy season. Some other participants mentioned that it can also be found by the kraals near homesteads and it grows well in those fertile fields with manure particularly cow dung. Another participant added that

"…unongomerawo panoiswa mufudze".

(Meaning- it grows well where there is manure).

Wild gherkins grow by spreading on the ground and one participant explained that plucking fresh young leaves do harvesting without disturbing its growth. Two or three leaves of *muchacha*/ *cucumis anuria* were harvested per reaping. The first thing done revealed by all participants was to wash them first whilst boiling water and salt. Some of the participants reported that water must be drained once to remove the green pigment that comes from the leaves. Depending on the availability, tomatoes, cooking oil and onions and soup can be added also to entice the taste. Traditionally, the participants reported that only peanut butter or cow milk cream were added. Mrs Madamwa supported this when she said:

> *"…kana pane dovi, wotokurunga, kana pane mukaka kwava kungodira kana mafuta aripovo kwava kungodira. Asi isu vakuru vedu vaikurudzira kuisa dovi kana ruomba"*
>
> (Meaning- [depending on what is available], if there is peanut butter, you stir/mix it in, if there is cow milk cream or even cooking oil, you can just pour, all of these can be added but our fore-bearers encouraged and preferred peanut butter and cow milk cream).

Wild gherkin leaves take only about four to eight minutes to be well cooked. They can be eaten fresh or can be dried for future use. The process of drying process can include blanching or boiling and dry it in the sun. It is consumed as a relish with staples starch such as maize thick porridge or sorghum.

4.4 Indigenous vegetables leaves used as by-products

a) Muboora/ Pumpkin leaves / Cucurbita maxima

The young green leaves of the pumpkin plant were eaten and given the name *Muboora* in Shona *Karanga* language. The results from the focus group discussion gave evidence that the knowledge of indigenous vegetables and their associated use was mostly indigenous knowledge, acquired through interaction with others and transferred from one generation to the other. The majority of interviewees had a positive attitude towards the consumption of *Muboora* and they also had a reasonable knowledge of their existence and use. The majority of participants reported beliefs associated with agricultural activities associated with pumpkin squash, how it is grown and harvested. For example, some participants held a belief that, menstruating women are not allowed to go into the fields where pumpkins are since it will cause the loss of fruit. To a certain extent, a few of the taboos and beliefs are related to the female fertility cycle menstruation, pregnancy and some are possible for the protection of mother and child stages of pregnancy. However, some of the participants reiterated that they are no longer taking these taboos seriously. From my observation, it was clear that the participants who did not take some of the taboos seriously were a result of Christianity influence. The young fresh leaves and the stem are harvested by plucking with hands two or three leaves per reaping. The majority of participants demonstrated that the most important first step before washing the pumpkin was to remove the outer fibrous material from the leaves before chopping either for direct cooking or for drying. For example, one participant put it:

> "…. *Chaunoita pakutanga kufururа murivo uyu usati wabika"*.
>
> Meaning- the first step after harvesting the leaves is to remove the outer fibrous material)

Photograph 5: Muboora/ Pumpkin leaves / Cucurbita maxima

In the same way as how most if not all of the indigenous vegetables are cooked, all the participants stated that water with salt is boiled first. Half of the participants particularly the elderly women reports that a knife must not be used when chopping them but rather use hands to tear them. Some participants described a common trend in the community that they preferred to use a clay pot rather than steel modern pots. However in some circumstances, nowadays, steel pots are used. In addition to that participants revealed that peanut butter or cow milk cream is the best additives that produce a delicious taste. Nowadays cooking oil can be used as a substitute and when peanut butter is not available. Tomatoes, onions and other soups are added to improve the taste if they are available. Pumpkin leaves can be eaten fresh or dried for future use. They are two methods of drying reported by participants; it's either to boil first and dry them on direct sunlight or to dry them without boiling. In some instances, the participants reported that tomatoes could be added also when boiling for preservation. The cooking time for pumpkin leaves takes about 8 to 10 minutes depending on the heat. These indigenous vegetables were used mainly as a relish to accompany staple starch foods to enhance the taste. A common view amongst interviewees was that the easy preparation is the reason why pumpkin leaves are among the most consumed vegetable in the Chionekano ward. Yet another reason for its easy accessibility is that it is grown and grows abundantly in the farming fields.

b) Munyemba/ Cowpea leaves/ Vigna unguilata

This is an introduced crop that is grown for harvesting cowpeas but the leaves are now used as vegetable relish in most African countries. As one participant said,

> *"….munyemba tinongoti todzvara nyemba dzedu, handiti tinodzvara, dzotandavara, tobva tatanha kumuromo, tichitanha mashizha maviri maviri ekumuromo asingaiti kukwasharara".*
>
> (Meaning- for cowpeas leaves, we plant our cowpeas, then as they grow, they spiral or begin to spread, we then pluck the two last leaves at the end of each stem, the ones that are not too mature).

Photograph 6: Munyemba/ Cowpea leaves/ Vigna unguilata

One older participant added that these leaves are supposed to be washed before cooking. Most societies are characterised by an interconnected set of specific beliefs and practices related to food and health. Refraining from eating certain foods and observing cooking rituals is how religious people feed both body and soul, enabling them to feel part of a broader distinguished community. This study found that all of the participants interviewed shared a common belief that cowpea leaves must be left overnight then cook the following day. Thus, it is against this religious belief to harvest and cook this vegetable the next day. The reason for doing this from the participants was to avoid a bad smell that it produces if cooked directly from the

fields. It can be consumed fresh or dried for future use by boiling and expose them to direct sunlight to dry. Using indigenous knowledge on weather patterns, the participants stated that through indigenous knowledge on weather predictions, it is only when they assume there will be sunshine for some days where they take advantage of drying these vegetables. Peanut butter or cooking oil can be added together with tomatoes and onions if they are available. It is consumed as a relish with thick porridge from either maize or millet or sorghum.

4.5 Wild indigenous vegetables found on riverbanks, forests and mountains

Participants identified a number of indigenous vegetables that they believed were either commonly used or very scarce. Due to different reasons, the participants frequently mentioned the following vegetables as commonly used wild indigenous vegetables.

a) Chirevereve

Chirevereve is seasonally available from May to August usually after the planting season. Favourable areas to find *chirevereve* are those wet areas along river banks and streams and in some cases, it is found in those fields that have been ploughed in preparation for the next farming seasons. The majority of the participants cited more rainfall as the determining factor of the availability of this vegetable. For example, one participant explained that"….if there is lots of rainfall during the rainy season, this increases the chances of getting more *chirevere* from May to August. The small young leaves are harvested and in most cases, the participants note that they just pluck together with the grass that grows alongside this vegetable. When they get home they select the vegetable and wash before cooking. The seasonal availability of this vegetable shows the diversity of vegetable distribution throughout the year. Most of the participants said they would try by all means to find this vegetable during this period because that is when they will get a fresh indigenous vegetable. This vegetable cannot be dried and is mainly consumed fresh. From the participants, it was found that the cooking methods differ with age. The elderly woman preferred to add only peanut butter with salt whilst the young elderly reports that tomatoes can be added. One elderly responded emphasised that more peanut butter improves the

delicious taste of *Chirevereve* such that when eating, the taste of Chirevereve must not overpower peanut butter *dovi* but otherwise. The majority of participants explained that when cooking this vegetable, they strictly prefer to use a clay pot as they give testimonies that clay pot produces a better taste than steel pots. *Chirevereve* takes a short period of five to 10 minutes to be well cooked. This vegetable is mainly consumed with Sadza from maize, sorghum or millet and in most cases, children are encouraged to eat separately as they will enjoy peanut butter taste.

b) Mubvunzandadya/ Fat hen/ Chenopodium album

Participants stated that this vegetable is found in winter soon after the end of the harvesting period from May to September. It is usually found in wet areas, riverbanks in the forest or in the fields that are ploughed in preparation for the next farming season. Two participants explained, "…fat hen is commonly found in the forests but sometimes you can find them in those prepared fields that are ploughed in preparation for next farming season". Generally, participants explained that fat hen is mainly consumed while fresh and cannot be dried for future use. Additionally, participants noted that when harvesting, they just pluck the young offshoots leaves and firstly wash them to remove the soil. When cooking, water must be boiled first and add salt before adding the indigenous vegetable leaves. As one interviewee commented, the vegetable leaves are left to boil first with salt for a short time before adding peanut butter in correct proportion with the preference of adding more peanut butter for the delicious taste. The cooking time explained by participants is that, it takes about 10 minutes to cook Mubvunzandadya. The majority of participants maintained that fat hen can only be cooked with peanut butter and no any other ingredients are added. However some participant said depending on the availability, tomatoes can be added to entice the taste. Additionally, another participant explained that there is no need for adding tomatoes or onions as one elderly participant clearly states that "*dovi rinonatsa zvose*" meaning peanut butter does everything for a delicious taste. A recurrent theme in the interviews was a sense amongst all interviewees that this vegetable is so delicious. This fact was explained by one participant who assumed that the name *Mubvunzandadya* was copied from the fact this vegetable is so delicious to the extent that, it will be only after eating when one

will be asking, what is this delicious vegetable I have eaten. *Bvunza*- ask *ndadya*- after eating. The cooked vegetables are used as relish served with the main meal like thick porridge prepared from millet, sorghum or maize.

c) Nhuri

There were discussions on the harvesting, cooking and consumption of *Nhuri* as a vegetable that is found in the forest and mountains. All the elderly participants were able to identify this vegetable. Seasonally, it was found that *Nhuri* is available during the rainy season. It grows by stretching along small trees. Participants mentioned that this vegetable needs a lot of rainfall, this was explained by another participant who stated that,

> "…. *Unoda mvura yakawanda nekuti zvinoitika dzinde racho hariomi pasi saka paya panoturuka mvura, unotanga kutungira"*.
>
> (Meaning- this vegetable needs a lot of water and the plant seeds remain on the ground then whenever rain comes, it starts to grow naturally).

Some participants complained that the young ones are not familiar with this vegetable, it remains, therefore, the duty of the elders who are still able to walk to go and look for this vegetable. The young tender leaves are harvested by plucking the young offshoots. Washing the leaves before cooking whilst water and salt is boiling is the first step stated by all the participants. After the vegetables are simmered, there would be some additives such as milk, cream and peanut butter. These were not only added to make the vegetables palatable but also to improve the nutrient quality. A few participants explained that *nhuri* tastes delicious if consumed with millet thick porridge. All the participants agreed on the notion that this vegetable tastes more delicious with peanut butter as one of the ingredients. Additionally, some participants prefer to use clay pot whenever cooking this vegetable.

d) Marenge

This vegetable favours wet areas and it is usually available during the rainy season. It grows together with grass along river streams. Despite the fact that it is found in the forests, the majority of the participants confirmed using it as a relish. It is harvested by plucking the young tender leaves. The popularity and easy identification of this

vegetable attributed by the majority of participants was the fact that it is similar to the introduced vegetable of rape. A religious ritual stated by all the participants when cooking was to boil the water first. After that because of the bitter taste, all the participants mentioned that the water must be drained once before adding peanut butter. Although the minority of participants stated that milk or milk cream can be added, the majority prefer to use peanut butter without any other additives. Marenge can only be consumed fresh as a relish with thick porridge.

e) Other scarce wild indigenous vegetables found in the forests

There are wild indigenous identified vegetables that were available but are no longer consumed for various reasons. These vegetables and the reasons for their extinction, scarcity or disuse are discussed. Some of the indigenous vegetables identified are very scarce nowadays. Most of the elderly participants note that they grew up eating these vegetables as their forebears consumed them. However, some have disappeared, some are available but the problem is that these elderly women are old now and they are not able to walk in the forest, mountains to look for them. The young generations do not have the indigenous knowledge to gather them and in some cases, they do not even know them. Another contributing factor mentioned by participants is due to natural deterioration as their continued growth is not encouraged nor monitored and protected. The existence of these wild indigenous vegetables was because they were weeds and due to continuous weeding processes, eventually the seedbeds in the soil will be depleted after occasional harvesting or weeding and the frequent seasonal ploughing activities. Most of all the participants note that the local weather patterns have slightly changed in recent years and were slightly less favourable for some of the indigenous vegetables namely, *Munenzwa* and *furanondo*. They indicated that the most suitable type of weather pattern for these indigenous vegetables, was moderate sunshine and moderate rainfall while *mutangandime* and *chakarasi* need lots of rainfall. The locally observed changes in the weather patterns tended to be increased rainfall at certain periods during the rainy season and longer periods of hot and dry spells during the dry season. These changes were considered unfavourable because they disrupt the growing season and in extreme cases caused damage to the crops. The table bellows show the indigenous vegetables that are scarce.

4.6 Attitudes and perceptions on the factors that influence indigenous vegetable consumption

All the participants indicated that they eat indigenous vegetables because it is part of food that was consumed by our ancestors. This implies that eating indigenous vegetables has become the culture and tradition of people in the Chionekano ward in Zvishavane district of Zimbabwe. A traditional healer, Mr Muzhira from Chikafu village who specified that, explained this point:

> *"…zvakakoshera mirivo yedu yechivanhu iyi ndezvekuti mirivo yaidyiwa nemadzitateguru edu ichisimbisa mabhonzo avo uye kuti vararame upenyu hurefu".*
>
> (Meaning- the importance of consuming indigenous vegetables is that, "its food that has been consumed by our forefathers making their bones strong hence they lived long life).

Additionally, Mr Muzhira stated:

> "…*mirivo iyi inoshandawo semishonga nekuti inongokura yoga semamwe makwenzi anoshandiswa semushonga*.
>
> (Meaning- these vegetables work as medicine too because they just grow voluntarily as weeds as any other herbs that are used for medicinal purposes).

He argues that these indigenous vegetables are unique to other introduced vegetables that use fertiliser for them to grow very fast. His argument rested on the premise that the lifespan of special foods that grow very fast becomes the lifespan of the people consuming these vegetables. Therefore, nowadays people do not live longer because of the introduced special foods that they prefer.

The two traditional healers interviewed with the other one who refused to be named by name shared the same belief that our ancestors lived longer because of the natural food they ate such as these different indigenous vegetables. All the participants support these testimonies as one interviewee Mrs Grace Machingauta puts it:

> *"…mirivo yechivahu iyi inodzivirira zvigwere ichitipa vutano, chero ukanditarisa ini unotovona kuti ndakagwinya nekuti ndinodyamirivo iyoyi".*
>
> (Meaning- indigenous vegetables guard against some of the diseases and keeps us healthy and fit. She gave an example of herself as a living testimony of the

benefits of eating these vegetables).

She looked very young than her actual age and she was confident that the indigenous vegetables she eats contributed to her healthy life and other traditional food system that she enjoys as compared to introduced exotic vegetables. In addition to that, another participant Mrs Chikafu mentioned that:

> *"…Imwe yemirivo iyi yaichengetedza maziso, imwe yosimbisa mabhonzo, imwe yogadzira ganda, imwe yopedza musoro, yorapa maronda, imwe yodzikisa blood pressure",*
>
> (Meaning- some of these indigenous vegetables had different roles to play as health benefits, some helps to improve eyesight, some make bones strong, and some remedy skin, some heal a headache, some heal the wounds, and some help in reducing high blood pressure levels).

All the participants shared this belief of which it can be attributed to the religious significance of indigenous vegetables.

It was established that all the participants favoured indigenous vegetables because they give a diversified diet throughout the year. During a focus group discussion, all the participants shared a common view that the fact that these vegetables are seasonal, during their season, they make sure that they eat them to enjoy the yearning taste. This diversity of enjoying the taste whether fresh or dried, when it comes to the season was commonly shared perception.

All the participants were familiar with relish problems in the rural areas. Therefore, the presence of indigenous vegetables is a practical solution to the problem of relish. In many cases, when there is drought, some of these vegetables are resistant to the extent that they can adapt to dry weather. One participant explained:

> *"…drought yarova, zhara yabata vushe munzvimbo, panongoturuka tumvura, mangwana munotonzwa kumunda kwamai nhingi kwava kuwanikwa zvinyovhi, kwamai nhingi derere razara, ko akadzwara munyovhi ndiani?... zvinongomera zvoga vanhu vowana vusavi".*
>
> (Meaning- when drought hits the area, hunger invades, but as soon as the rain falls, tomorrow, or the next day you will hear, at this field, there is now nyovhi, there, is now derere in abundance. By the way, who planted the nyovhi? It just

sprouts on its own and people have relish- naturally!)

Another interviewee commented:

"…zvatinonyanyodira mirivo yedu iyi inyaya yekuti mimwewo mirivo inotengeswa"

(Meaning- the reason associated with our consumption of indigenous vegetables is that in most cases we cannot afford to buy most of the other relish because they are sold).

Thus, just because these vegetables do not need any cost we utilise what is available to feed our families". Therefore, in this way, there will be a scramble for the vegetables in all households' people sharing what is available in order to feed their children.

The majority of participants prefer the unique taste of indigenous vegetables. They share the common belief that indigenous vegetables are so delicious to the extent that one will naturally miss and think of the delicious taste. Another participant, Mai Munyaradzi Gwiringwi explained:

"…mirivo iyi inonaka zvekuti unongoifunga woga zvokuti paunopedza kudya unotonzwa kuti neupenyu hwangu hwauya".

(Meaning- this relish is very delicious to the extent that even yourself when you are done eating indigenous vegetables you will just feel the whole body nourished with satisfaction).

Although some of the participants were not aware of the exact micronutrients benefits in these vegetables, they all shared a common belief that they help bodies in different ways to live a healthy life. Two participants highlighted that even diseases such as Kwashiorkor were not known by the time they grew up. The reason was that they used to eat these indigenous vegetables. In addition, all the participants showed that they have certain rules in the family whereby children are forced to eat whatever the mother or grandmother in the house cooks. One participant asserted that:

"…ini vana vangu vanotofanigwa kudya zvandabika mumba, kune vaya vanoshara chikafu, ndinotofoseredza kuti vadye nekuti ndinoziva kuti mirivo iyi ine vutano. Kana nesu tichikura taidzidziswa kuti mwana anodya zviripo ndizvo zvatava kudzidzisavo vana vedu".

(Meaning-"…. for me, my children have to eat what I have cooked, for those children that are selective, I force them to eat because I know its healthy food for

them" she added, "… even us when we were growing up, we were taught to eat what is available that is the reason we are doing the same to our children).

Another participant further explained this point:

"…mirivo iyi inofanigwa kudyiwa nedovi.vana vedu vanga vasingabatwi nekwashi nekuti taikurunga dovi nemirivo iyi, tichikama mombe tichitora ruraza tichisa mumirivo. Zvekwashi izvi zvakangouya todya mafuta iwaya echirungu, asi tichikurunga dovi kwanga kusina zvigwere chero ivo vairapa kwanga kusina".

(Meaning- the relish is supposed to be eaten with peanut butter, our children were not victims of kwashiorkor because we used to spice our relish with peanut butter and milking cows, taking the cream and add in the relish. The cases of Kwashiorkor came when we started eating oil and modern/English foods but when we spiced our relish with peanut butter, there were no diseases even those who cure them were not there).

The general feeling of participants was that additives such as peanut butter or milk cream or milk helped to increase the nutritional value of vegetables and at the same time enticing a favourable taste. In addition to that one participant Mrs Mhike explaining the same point stated that;

"…vana vanotoifarira nekuti ini kana ndabika chikafu mumba, vana vangu ngavatochifarira nekuti ini kana chero vazukuru vanobva kumadhorobha vanotouya vachiti gogo tibikireiwo murivo uya. Chero wakaoma uya mugoisa dovi hamuna here?"

(Meaning- Children are supposed to be appreciative when I cook food in my house, the children should be appreciative because even my grandchildren who come from cities/towns come saying granny may you cook the relish for us- even the dry one and put peanut butter- do you not have.)

These sentiments show that the elders have become custodians of knowledge in terms of food consumption especially that of traditional vegetables. The people get socialised into the taste of indigenous vegetables as young children growing up in most rural areas and also when visiting their roots in cases where they were born and bred outside the village, hence it has become a heritage for the young generations.

4.7 Indigenous vegetables: Discussion and interpretation

Based on the above points, this section assesses and interprets the results of this study in the context of previous researches that have been conducted. Most, but not all, religious diets prescribe a variety of foods on a time-based or permanent basis, and thus those diets turn out to be restrictive in nature. Whilst the African traditional religious heritage in terms of food remains, a potent force that on a sub-conscious level, there is still influences on the values, ethics, identity and outlook of Africans in food consumption. Christianity and Islam have become major sources of influence in African society, however, traditional religion shows resilience in its impact in such areas as Africans' historical-cultural roots, self-consciousness and expectations are still prevalent. The reported cultural and religious connotations attached to the influence of indigenous vegetable consumption patterns is discussed within the framework of harvesting, preparation and consumption. This study found that in African traditional communities, beings exist and participate together with commonly shared culture and belief systems. This is evidenced from the fact that the community had common ways of harvesting, preservation and of cooking indigenous vegetables. Although there were few cases whereby a few have diverted the ways and beliefs practices, it is clear that there are cultural and religious connotations attached to the use of indigenous vegetables. Everyone is expected always to be life affirming, hence, to do things in a prescribed same way. For example, if the harvesting period of indigenous vegetables starts this process is done by the whole community and this experience leads them to exchange ideas thereby leading the whole community to take reasonable judgments about the commonly understood experience.

4.7.1 Harvesting indigenous vegetables

The combination of these findings provides some support for the premise that the traditional African view hinges around the themes of community, life and relationships. Healthy and prosperous life is upheld in terms of what the land produces. As such, waters, plants and animals are in communion with the human beings. The results of this study show that the collection of indigenous vegetables is often combined with other daily activities such as cultivation, weeding arable cropland and collection of firewood. Indigenous vegetables were harvested when

they display certain standards that local inhabitants believed were suggestive of their readiness for harvesting and subsequent consumption. Maturity is generally based on the size of the leaves depending on the part of the plant that is harvested. Plants should be harvested before flowering otherwise the quality of the vegetable is reduced. This is the reason why tender and small leaves are preferred. However, in the case of some indigenous vegetables, the participants distinguished between the methods used for each depending on the cultural and religious connotations attached to them. Only leaves are harvested for vegetables such as *Derere/*Wild jute and *mutsine* Black jack/ Bidens spinosa, *Munyemba*/ Cowpea leaves, *Chirevereve*, Mubvunzandadya/Fat hen, Nhuri and *marenge*. In some cases, leaves with tender stems are harvested for, *Muchacha*/Wild gherkin/ Cucumis anguria, *Mbuya Mbuya*/ Amaranthus spinosus and *Mbuya dhongi* and *Cleome gynandra Nyovhi.*

As with similar studies in other parts of Africa (see Hart, 2013) this study on the indigenous knowledge of indigenous vegetables showed that these crops not only played an important role in sustaining livelihoods and contributing to food security but that they were complicatedly rooted within the ritual, belief, social, health and food culture of the Chionekano ward residents. There are a number of belief practices and rituals associated with harvesting, cooking and consumption of some of the indigenous vegetables consumed in the area. They are performed with a common belief that failure to perform these rituals would make these vegetables unpalatable. Since almost everything is ritualised in the traditional African religion, there is no way one can conceive of, or effect change in ritualistic matters.[14] In the case of *Cleome gynandra (Nyovhi)*, leaves and tender stems were the most harvested part of the plant. Additionally, it was found that using fingernails is prohibited when plucking the spider plant leaves. Moreover, the most common shared belief on how to cook spider plant was cooking on a hot flame and in some cases not to change the firewood produces palatable vegetables without a bitter taste. These results match those observed in earlier studies by (Flyman, & Afolayan, 2006:411) that show that the spider plant also require special preparation to remove their astringent taste, but the handling technique differs from district to district. These findings further support the idea of African Traditional Religion as regulative, that is, it

[14] See Manci, 2009:93

helps its tenets to be best fitted for participation in the community.[15] *Cleome gynandra (Nyovhi)*, is the most consumed vegetable in the Chionekano ward. These results match those observed in earlier studies by Ndoro et al. (2007) in five districts located all over Zimbabwe. The study indicated that the most common traditional vegetables as the domesticated namely Cu *Cucurbita species* (*muboora),* B*rassica juncea* (tsunga), and *Vigna anguiculata* (*nyemba*), the semi cultivated *Cleome gyanandra (nyeve),* and the wild *Corchorus* species *(derere)* and A*maranthus species (mbowa)*. Due to its abundance mostly in the rainy season, all the participants revealed that they preserve it for future use. In some cases, the surplus is kept for those who will be coming from the cities or for sale in urban areas. For all the commonly consumed indigenous vegetables, sharing is a common practice especially to the nearby villages or to those in urban areas. In South Africa Vorster (2007), reports the similar results that amaranth is always the most popular *morogo* and amongst the most important consumed species. This study reveals that harvesting of indigenous vegetables was not permitted on a sacred day of rest. A possible explanation for these results may be that it is a sacred day perceived for everyone not to take part in the cultivation of fields. There seems to be a strong belief that if one decides to break this rule, the next planting season there be inadequate vegetables in the field of the perpetrator. There are other taboos that were mentioned by a few participants on the harvesting of indigenous vegetables such as pumpkin leaves, cowpea leaves. For instance, an elderly participant Mrs Gwihi said

> *"…minda yechibage haipindwi kana kwanaya chimvurahwe nekuti chinodzokazve"*
>
> (Meaning- maize field may not be entered for two days after a hailstorm, or the hailstorm will come back).

She further narrated that long time back, no children were allowed to jump over any pumpkin or cowpea type plants or fruit, as these children will then never marry and any fruit will abort. Some of the participants in the Chionekano ward show the influence of the church on these beliefs and taboos, as they were seen as pagan beliefs that are not acceptable in a Christian household. This might be the reason for the low reporting of beliefs and taboos especially, with a few participants who expressed surprise at some of the beliefs and taboos mentioned during group

[15] See Manci, 2009:72

discussions.

4.7.2 Preserving indigenous vegetables

Participants consistently mentions blanching or boiling as the commonly used method to preserve indigenous vegetables. Some few indigenous vegetables are only consumed fresh whilst many are dried in the sun. However, the results also indicate that wild jute *derere* and pumpkin leaves can be dried without blanching in a shade to avoid direct sunlight. This result may be explained by the fact that generally it is not blanched owing to its mucilaginous nature and smooth leaves. In the case of *Cleome gynandra, Mbuya mbuya, Muchacha, munyemba, Mutsine* these vegetables are blanched before sun drying. Reed mats or sacks were the common drying surfaces placed on raised platforms. Placing drying surfaces on platforms is done in order to protect vegetables from domestic animals and dust. The drying process is said to be faster on the stone than the mat or sack with a common belief that those from a stone are more palatable. An observation made was that mainly those vegetables that grow in the fields as weeds can be dried but those from the forests, rivers and mountains are mainly consumed fresh.

4.7.3 Preparation of indigenous vegetables

Participants strongly expressed their attitudes and beliefs about the preparation and consumption of indigenous vegetables. For both fresh and dried vegetables the survey results showed that the majority of the participants shared common knowledge for preparation methods of all vegetable types across the communities. Most of all, vegetables were consumed in their cooked state soon or after they were freshly harvested. The participants indicated that the vegetables were both nutritious and tasty when consumed fresh with an exception of cowpea leaves that needed to be left overnight before being cooked. In the African worldview, what is elsewhere called religion is called part of the heritage. This means that it comes to us together with all the other things that our forefathers and mothers have passed on in what they ordained to be culture and custom and interaction with the natural world. These common customs and rituals have been witnessed in the method of cooking shared by all the participants. The first one is to first boil water with salt in a pot. All the

participants when cooking indigenous vegetables cited this as the first step they do after washing the vegetables. The participants were also asked to indicate the ingredients/recipes they use in cooking these vegetables. Water, salt, cow milk or cow milk cream and peanut butter are the main ingredients used with a strong preference for peanut butter or cow milk cream. Tomatoes, onions and other soups added are some of the ingredients that could be added depending on their availability. Some felt that cooking oil could be used nowadays while others considered that they prefer peanut butter as it increases nutrient density and enhances the palatability.

These findings concur with those of Makokha and Ombwara, (2003:11) who report that in Kenya after the vegetables are simmered, there would be some additives such as milk, cream, ghee and groundnut sauce. These are not only to make the vegetables palatable but also to improve the nutrient quality. Two divergent and often conflicting discourses emerged on pots used by participants in the different countries in southern Africa. In Kenya, it was found that the indigenous knowledge survey on recipes recommends the use of pots rather than pans for cooking, as pots retain heat and give better-simmering effects. In Zimbabwe, clay pots for relish (*hadyana*) are much more preferred to steel pots because they give better simmering effects. Another single most striking observation to emerge from the data was that in the Chionekano ward, it was the only *muchacha* because of its green pigment colour that needs to be drained of water and *Marenge* because of the bitter taste that needs to be cooked by draining water once before adding ingredients. In other countries, for instance in South Africa, Dwebaa and Mearns, (2011:567) reported the method used to prepare traditional vegetables at eMantlaneni village was mostly boiling the leaves in large quantities of water. Once the vegetables were cooked, the excess water was drained and discarded. However, there have been arguments on the methods of cooking, for instance, it has been argued that this cooking method of draining water is likely to cause nutrient loss, especially where the water-soluble vitamins such as vitamin B complex and vitamin C are discarded with the drained water (Dwebaa and Mearns, 2011:567; Flyman and Afolayan, 2006:412). Whilst this has been scientifically proven, Makokha and Ombwara, (2003:13) conducted a study on the potential for increased use of indigenous Kenyan vegetables as functional foods. Their argument is that while the significance of indigenous vegetables as a source of

nutrients (vitamins and minerals) is limited by some of the factors mentioned, it is important to take note that traditionally, many communities used the vegetables not only for beneficial nutrients but were also widely applied to enhance health.[16] In Asia, particularly in countries such as China and Japan, functional foods have been part of their people's culture for centuries (Verbeke and Poquiviqui López, 2005:826). Therefore, preparation and consumption of indigenous vegetables become ethnic food.[17]

The majority of the participants expressed pleasure with these vegetable species, although differences were expressed in terms of accessibility, frequency ease of preparation as the reason why some other indigenous vegetables are the most preferred wild vegetable. Most of these vegetables took less than twenty minutes to cook except for *Cleome gynandra* where fresh young tender leaves take about sixty minutes and more than sixty minutes for fully matured leaves. The majority of participants consumed indigenous vegetables as relish accompanied by thick porridge, made mainly from staple food crop maize, sorghum and millet. In all the cases, all household family members consumed vegetables with children strongly encouraged despite they like or not.

4.7.4 African religion and consumption of indigenous vegetables

Traditional African religion is part of the culture in Africa. This assumption is itself backed by the statement that traditional African religion is based on the philosophy of relationships. These relationships are wells and springs for life, through them one, willingly gives life to, and draws life from others. This is very important in discussions on indigenous vegetable consumption in daily lives or special occasions. African traditional culture, on the other hand, brings out the religious value of indigenous vegetables, indirectly, one would be able to sensitise the people in that, through utilizing them, there is a sense of belonging that maintains improved healthy society

[16] See Verbeke & Poquiviqui López, 2005, many vegetables and fruits are natural sources of phytochemicals. Though not necessary for the maintenance of life in the same way as nutrients, these phytochemicals help promote optimal health by lowering risk for the occurrence of chronic diseases such as cancer and coronary heart diseases (CHD). They are believed to have many other health benefits.

[17] See Verbeke & Poquiviqui López, 2005:826, Ethnic food refers to the expression of food in terms of attitudes, values, behaviours and beliefs of a culture that is an expression of its cultural traditions or heritage, religion or national origin.

and building better relationships. God bestowed the duty of the preservation of life and its prolongation on the ancestors. The ancestors, in the name of God, established a moral order that guides the community in maintaining the lives of their offspring. This is evident from practices such as common food consumption shared by the people of Chionekano ward as discussed below.

Those in authority, know that anything that is performed ceremoniously with seriousness quickly revokes the sense of respect. In the light of the leader's closeness to God and the ancestors, traditional Africans shy away from opposing the systems imposed by them because to do so does not simply disturb the observable order but affects the realm of the divine. The society either has a way of dictating the beliefs and practices that are performed routinely by its members or performed whenever the occasion demands. The traditional family bond brought members together in the observance of initiation rites, funeral and religious events of family members as well as a celebration of cultural festivals by the community as a whole. In the Chionekano ward, the results show that it is common practice for family members to usually share meals from one bowl, irrespective of one's religious and social background. An observation made was that a regular visitor to an African village will be struck by the absence of indigenous vegetables. Every woman makes sure that she has indigenous vegetables preserved specifically for visitors. Upon visiting participants to their homesteads, I observed a common practice that food is offered to any visitor. If one refuses, a common practice observed was that other presents such as groundnuts, cowpeas and indigenous vegetables are presented as gifts. A possible explanation for these results may be common proverb among the Shona that says, *ukama igasva hunozadziswa nekudya* meaning any relationship is incomplete without food offered but will be completed by sharing of food. An observation made is that traditional food bind people as much as this food symbolically means something. For instance, a mealtime is commonly accompanied by shared stories; if it is a family dinner, every meal cooked have experiences and memories shared about them. A good example from my active participation in the study was when I visited my grandmother form Mabuzve village. On that day, she had cooked the spider plant with peanut butter, when we were eating, my grandmother Mrs Makumbo was narrating how our grandmother used to like these vegetables and how she was good at preserving and cooking them. She further

reiterated that it was well known that if one visit grandmother *Mbuya* Vazango, she would always be presented with a plastic of dried vegetables (*Mufushwa*).

At certain times, the findings observed from older women with their special skills of preparing these traditional foods was that they will cook and invite grandchildren to come and eat. In another circumstance, another participant Mrs Mawaririre narrated that,

> *"…..vazukuru kana vauya, vanotoita zvekukumbira kuti gogo hamuna here zvimufuswa mumbotikurungira muhadyana nedovi".*
>
> (Meaning- that when grandchildren come, they even request that granny, don't you have dried vegetables to cook/stir for us in your relish clay pots).

Another important finding is that lunch and evening meals are fundamentally the same and consist of a one-course dish made up of sadza, meat or vegetables. A few vegetables, such as tomatoes and onions introduced by the Europeans if available, are added also. If meat is not available then vegetables *murivo* are eaten with sadza, the popular vegetables being spider plant or leaves of pumpkins *manhanga* cooked with peanut butter or cooking oil. In addition, meat is often dried, just as in the rural areas, kept, and used when required. Indigenous vegetables formed part of special food prepared by anyone who wants to be happy. This happiness associated with eating is not confined to the individual but the whole family of relatives and friends. This is demonstrated by different ceremonies that were conducted during the study period. For example, it was found that at a beer party or a wedding party where a considerable quantity of beer is brewed, an ox or goat is killed for the occasion. Relations, neighbours and friends are invited. Drums are played the whole night and many become drunk. In such a special occasion, food is the most important aspect of the gathered people that brings unity and happiness. Although there could be a lot of meat, it seems indigenous vegetables also have a special place on the diet as they are served to a high table. There are similarities between the attitudes expressed by participants in this study and those described by (Owuor and Olaimer-Anyara, 2005:37). Their study on the importance of leafy vegetables found that highly valued vegetables are prepared during ceremonial occasions. Expensive ingredients such as ghee and milk are added during the preparation of this category of vegetables. Some of the highly valued indigenous leafy vegetables are Nightshade S. nigrum and Spider plant G. gynandra. The S. nigrum has a higher ritual value when consumed

with millet cake than with maize meal.

Another gathering of gaining happiness is at the threshing of corn *kupura*. Again, one's neighbours would be invited, much beer would be prepared and a goat and fowls killed for the occasion. Shona life means living as a unit together with one's family and neighbours to share and be at peace with one another. Therefore, the family and their friends gather on all important occasions. Together they plough the lands, weed them and reap the harvest. Food on this occasion brings people together. Traditional leaders are served with a portion of specially prepared food. Interestingly, it was found that indigenous vegetables also formed part of special food served to the high table despite the fact that there will be meat. Examples of such indigenous vegetables depend on the season. If it is rain season wild jute and spider plant were reported to very special food. Moreover, it is summer, fat hen *mubvunzandadya* is also specially prepared for the high table.

4.7.5 Predominant attitudes and perceptions on the factors that influence indigenous vegetable consumption

African traditional religion teaches that there is a community through participation and that this participation is vital in as much as it is meant to give life. The assumption, therefore, is that when people engage with the land in the community, vital participation in land activities will benefit them and they will be able to fulfil their religious mandate and role to participate. This section discusses the perceptions and beliefs surrounding the use of indigenous vegetables. Participants had a positive attitude towards the consumption of indigenous vegetables and they had a reasonable knowledge of their existence and use acquired through a system based on indigenous knowledge. Despite, dietary shifts, modernisation, it was found that the participants in the Chionekano ward strongly abide by the consumption of indigenous vegetables.

The results reveal that the majority of the participants consume indigenous vegetables. This shows that indigenous vegetable consumption had become integrated into local cultural and religious feeding practices. Indigenous vegetables have natural, social and cultural values, playing a major role in the day-to-day food and nutritional requirements of local people in the Chionekano ward. A common belief shared by the majority of the participants support the statement that food

choices are primarily influenced by culture and people's beliefs about certain food (Shatenstein and Ghadirian, 1998:223). Health and nutrition was the most significant reason for the consumption of indigenous foods by most participants from the study area. Frequent response to the importance and significance of indigenous vegetables was that indigenous vegetables formed part of the diet and were also eaten by ancestors making them live a long, healthy life. Although they could not identify specific benefits for all the indigenous vegetables consumed, they were very aware of the nutritional benefits of consuming these vegetables. Among the indigenous vegetables identified, the majority of participants name *outside (*blackjack) as a medicine for blood pressure. One of the participants, Mrs Digwa who pointed out, explained this point that one can boil and drain water of blackjack to drink and this helps reduce high blood pressure. Again, blackjack and amaranth leaves were mentioned as medicine that helps patients who are HIV positive to recover and live long, hence the patients are encouraged to eat these vegetables*.* In addition*, Mbuya mbuya* was also cited as a gift given to the sick for a quick recovery. The findings of the current study are consistent with those of Osei, et al. (2013:58) and Faber et al. (2010:19). These studies reported that amaranth leaves were thought to be rich in antioxidants and have antibacterial functional properties, which assist in the promotion of good health by playing a role in the prevention of cancer and hypertension. The reported high level of nutrients, especially zinc, has resulted in indigenous vegetables being recommended in the management of HIV and AIDS and other chronic diseases. Zinc plays an important role in actively metabolizing cells as well as in HIV positive people and has been previously reported as the most deficient nutrient in HIV infected patients. Mavengahama, (2013:55) notes similar findings that indigenous and traditional foods were believed to be of a higher quality, particularly in terms of freshness (as the cycle from harvesting to consumption is shorter), to be nutritious, natural, unrefined, produced locally and associated with health benefits. Each culture-specific set of interwoven beliefs and practices may affect food and nutrition security and health in multiple ways. This complexity implies that culture-specific sets of beliefs and practices need to be carefully evaluated in a holistic framework.

Furthermore, it was found that sickness and death, as anti-life agents, are well prepared for in the traditional African community, which by its nature is life-affirming.

It is as if all that matters is the protection of life and its processes. These findings concur with Manci's (2009:101) findings on the role of African tradition and poverty in Mzimkhulu district in South Africa where each community, according to its power, has some form of medicine, charm and expert to deal with anti-life forces whenever they appear. It is a domestic religion that says, "to be good for god and the ancestral spirits is to be good for other people". In this way, traditional African religion is a people-centred religion that concerns human relationships in the here and now. In fact when talking about cultural, historical, religious and social experiences, the traditional African refers to them indiscriminately as "the ways of our fathers". Thus, the development of fighting diseases such as HIV AIDS and malnutrition is a common practice not only in the Chionekano ward but also in many African countries. This ideology appears to have been predicted and is used as communal wisdom on the health and social importance of leafy vegetables. The objective is to encourage people to consume these vegetables for the benefit of their health. These results agree with the findings of other studies, in which Owuor & Olaimer-Anyara, (2005:37) observed a commonly used phrase stressing the importance of indigenous vegetables that says "*a lot ma ocha ema tieko kuon*" – translated literally, as "the despised potherb is what relishes the corn cake"; this saying promotes the value of leafy vegetables relative to other dishes. It is translated as: "a thing that is despised might become respected"

Religion has been measured as the second worldwide component of ideology. It has traditionally been firmly rooted in the ethical values of community life, functioning on personal and social levels to provide a stable role in a predictable environment. This ultimately provides its adherents with an understanding of the world and the relationships that exist between individuals. Although it might appear that active religious practice has declined in recent years, In the Chionekano ward of Zvishavane district in Zimbabwe, the results of this study show that religion still provide a network of social and emotional support to many, often comprising behaviour-monitoring structures that advise and influence adherents on activities considered acceptable to the group. Despite the differences between Africans from different cultures, religiosity in terms of geography, and ways of life this study found that there is a dominant socio-religious philosophy shared by the people of Chionekano ward in Zvishavane. Sharing either prepared or unprepared wild foods

take place among neighbouring communities but is more common among residents in the same community. Although the sharing ethic applies to all foods, it is critical for some people to access some wild indigenous vegetable species for which they lack the skills or time to harvest. Mrs Gwandira explained this by saying,

> *"… isu chatinoziva ndechekuti vusavi uhwu takahupiwa nemadzitateguru edu kuti tigodya pamwe chete tichiraramisa mhuri… ini kana ndikabika derere rangu zvakanaka, zvandinoita kusheedza muvakidzani wangu kuti tidye pamwe chete nekuti chiShona chinoti, chawawana idya nehama mutorwa ane hanganwa"*
>
> (Meaning- what we know is that this relish we were given by our ancestors so that we eat together whilst looking after our children"… I myself, if I cook my okra well, what I do is to call my neighbour so that we just eat together because chiShona [our culture] says what you have found/received, eat with your relative because foreigners can forget you).

On the child feeding beliefs and practices, all interviewed participants accepted responsibility for providing healthy food to their children. The results show that it was the responsibility of women especially in shaping family diets. Therefore, this shows the cycle of continuous use of indigenous vegetables and that the taste is socialised at an early age. Eating indigenous vegetables is, therefore, become a cultural tradition shared by the whole community. These cultural influences apply to each patterns of adults as well as what and how adults feed their children, how the children are socialised not to choose foods for themselves. Two participants explained this saying:

> *"...isu sevabereki tinoziva kuti mirivo iyi yakakosha ndiyo yaichenegtedza utano hwedu kubva tiri vaduku, zvino ini semubereki ndinotofoseredza vana kuti vadye nekuti ndinoziva kuti ine utano".*
>
> (Meaning- we as a parents, we know that these relishes are important, they are the ones that keep us health from the time we were young, now myself as a parent, I even force the children that they eat because I know it is healthy.)

Parents seem to use different methods to persuade their children to eat indigenous vegetables. Some of the participants reported that they use story telling to encourage children to eat indigenous vegetables. Mrs Goboza narrated another folktale story she commonly used,

This is a story of a son in law who visited his wife parents, during the evening meal,

he was offered indigenous vegetable wild jute (*derere)* he refused to say that he wanted meat. He was given meat and ate but at night when he was sleeping in the kitchen with other two little kids, he woke up and ate all the *derere* while the other child was watching, in the morning the child reported the story to the parents and this was the most embarrassing moment for the son in law.

From there most mothers tell this story and there is a common saying that *"chekudya chose ramba waravira" meaning* one must taste the food first rather than refusing before tasting.

These cultural aspects of food are universal, yet their expressions differ greatly among populations, classes and groups, shaped and conditioned by interactions with the physical environment as well as socio-political and economic trends and events (Kumanyika, 2008:65). Parents were relatively confident regarding their nutrition knowledge and believed that their sources of nutrition information were reputable. Participants strongly expressed their attitudes and beliefs about the child-feeding practices of their peers. Issues that were cited included role modelling of poor eating habits. Substantial differences were noticed in parents' perceptions about how to deal with children that are selective and are not willing to consume indigenous vegetables. The reported difficulties in encouraging vegetable consumption were balanced by the number and wide range of strategies used to increase vegetable consumption. Therefore, these findings support the statement that food habits are acquired early in life and once established, are likely to be long lasting and resistant to change. In this way, this is how children are socialised to the taste of indigenous vegetables and will last in their lives.

4.8 Conclusion

The participants in the Chionekano ward made use of approximately fifteen plants which they identified as indigenous vegetables. Only eleven indigenous vegetables were among the commonly used. These were grouped into three sub-themes. Firstly there are indigenous vegetables found in the farming lands as weeds. These are *Nyovhi*/ Spider plant/ *Cleome gynandra*, *Mbuya Mbuya*/ Thorny pigweed/ Amaranthus spinosus, Derere/ Wild jute/ Corchorus tridens, Tsine/ Muhlabangubo/ Blackjack/ Bidens spinosa, Muchacha/ Wild gherkin/ Cucumis anguria. Secondly

there were Indigenous vegetables that use leaves as by-products namely Muboora/Pumpkin squash/ Cucurbita maxima, Munyemba/ Cowpea leaves/ Vigna unguilata. Thirdly there were commonly used wild indigenous vegetables found in riverbanks, forests and mountains namely *Chirevereve*, *mubvunzandadya*, Fat hen/ Chenopodium album and *Nhuri*. There were religious and cultural connotations attached to the use of these indigenous vegetables. The interesting aspect was that there are commonly shared beliefs on the harvesting, cooking and consumption of these vegetables. Predominant perceptions and beliefs on the consumption of indigenous vegetables were mainly shaped by the cultural and traditional religious beliefs systems shared by all the participants.

Chapter 5: Conclusions and recommendations

5.1 Indigenous vegetables and household food security

The literature review studies (Chapters 2 & 3), and an analysis of empirical findings (Chapter 4) have provided evidence that indigenous vegetable species are indeed important in the diets of corn-based smallholder farmers. Use of indigenous vegetables are mainly consumed at the household level and this study shows that they play an important role in household food security. In sub-Saharan Africa, the emphasis on cereal staple based cropping systems are premised on the knowledge that the staple main meal thick porridge (*sadza*) which is prepared from maize meal, sorghum or millet invariably requires relish to complement it. Among the majority of the rural population, indigenous vegetables assume the role of the main relish. Indigenous vegetables in the Chionekano ward form part of the main diet that play a significant role in the management of hunger and specifically micronutrient deficiencies. They are thus an integral component of the main meal of the day as usually, they are the main relish with which the staple *sadza* dish is eaten. They are usually prepared as the preferred relish on their own or as a substitute for exotic vegetables in stews and soups in cases where meat and other vegetables cannot be afforded. Even though the relish is acquired and consumed in smaller proportions in relation to the staple starch dish, one of the more significant findings that have emerged from this study is that the presence of relish directly influences on the consumption of the bulk of the major staple.

The results of this investigation show that indigenous vegetables are typically more tolerant of local soil, water and climatic conditions than exotic vegetables and they do not require expensive inputs such as fertilisers. Consequently, this study reveals that their use is a sustainable plan for mitigating food insecurity. Their resistance nature ensures that they thrive in both drought and flood times and as a result, they are available during harsh environmental conditions when most cultivated crops would have failed. They are thus resilient and their increased utilisation and cultivation would introduce resilience foods into the food systems of most subsistence farmers. Africa is blessed with various types of food products and possesses diverse indigenous knowledge systems for their preservation and storage. Therefore, using indigenous knowledge in solving food shortage, therefore, remains a powerful means

of sustaining household food security. Indigenous methods of food preservation commonly practised in the study area are sun drying. Locals have used this method over a generation to preserve their produce after harvesting thereby serving as a survival strategy. Indigenous vegetables provide inexpensive, safe, nutritious relish throughout the whole year thus boosting overall food security. This is especially important among low-income earners and the rural population as the vegetables are not purchased, but can be locally harvested.

Several studies conducted on indigenous vegetables have suggested that they generally have higher levels of various nutrients than the conventionally cultivated species. The nutritional composition of indigenous vegetables has been and continues to be considered as they generally have been reported to be rich in micronutrients especially beta-carotene, zinc, and iron, the principal nutrients whose absence from a diet results in 'hidden' hunger (Mavengahama, McLachlan & De Clercq, 2013; Flyman & Afolayan 2006). This study has shown that the consumption of indigenous vegetables is used to fight diseases related to malnutrition.

Food security of households tended to fall into two separate phases namely, when fresh crops are abundant (usually rainy season from November to May) and when fresh crops are limited (usually winter and spring from June to October). As fresh TLVs are available from two weeks after the first rains, they are an important source of food for households in the pre-harvesting period of cultivated crops. In addition to that, using preservation method, the participants also highlighted that during those months where there is short supply, or can no longer access fresh vegetables, they consume the dried ones, thereby providing a year-long source of sustenance.

5.2 The classification and utilisation of indigenous vegetables

The participants identified indigenous vegetables consumed in the Chionekano ward; the study reveals that the commonly used indigenous vegetables are those that grow in fields as weeds and those that use leaves as by-products. To name them, these are Nyovhi/ Spider plant/ Cleome gynandra, *Mbuya Mbuya*/ Thorny pigweed/ Amaranthus spinosus, Derere/ Wild jute/ Corchorus tridens, *Tsine*/ *Muhlabangubo*/ Blackjack/ Bidens spinose, *Muchacha*/ Wild gherkin/ Cucumis anguria,. Examples of indigenous vegetables that indigenous people use the leaves of these cultivated

plants for leafy vegetables as an additional source of food are, *Muboora*/ Pumpkin squash/ Cucurbita maxima and *Munyemba*/ Cowpea leaves/ Vigna unguilata. An explanation of the extensive use is because they are harvested on daily agricultural activities of cultivating, thus the young generations are exposed to their harvesting techniques from a tender age. The indigenous knowledge associated with their harvesting, preparation and consumption is readily available and is shared among all the inhabitants of the area where they are grown.

Indigenous vegetables that grow in the forests along wet areas, mountains and rivers are commonly used including the ones that are now scarce. The commonly used are *Chirevereve, Mubvunzandadya*/ Fat hen/ Chenopodium album, *Nhuri* and *Marenge*. These are gathered when people are looking for lost cattle or fetching firewood. In some cases, the participants revealed that they go to the forest specifically to look for these vegetables. Indigenous knowledge of their use is primarily in the hands of elderly women. In this case, it was found that there is an indigenous knowledge gap that the young generation is lacking. In this sense, the young do not always have extensive knowledge of their harvesting, cooking and consumption.

The scarcity of some other indigenous vegetables namely, *furanondo*, *chakarasi*, *munenzwa* and *mutangandime* was attributed to the local weather patterns that had changed slightly in recent years. These changes were considered hostile because they disturbed the growing season and in extreme cases, caused damage to the crops. Livestock grazing, residential patterns and expansion of cropping systems were other contributing factors revealed by participants that might also remove these plants from the area.

Women and children mostly do harvesting. Young tender leaves are picked from the plant by hand throughout the growing period. In some cases, however, whole plants are uprooted or desired branches are plucked. Vegetables growing in the fields are sometimes harvested by uprooting the whole plant and later on the leaves are pulled off at home.

The young leaves of indigenous vegetables are usually sandy so they have to be washed before cooking. Preparation mainly involves boiling although there are differences in actual recipes. The boiling could be for fifteen to twenty minutes for some indigenous vegetables except the spider plant that needs about one hour to one thirty minutes depending on the species. In some cases, as for bitter vegetables

they are techniques used in the Chionekano ward like boiling in continuous hot flame with a pot tightly closed. Peanut butter, cow milk cream was found to be the most favourable ingredients although nowadays-cooking oil mixed with tomatoes and onions can be added if available.

5.3 The cultural and religious significance of indigenous vegetables

This study reports that indigenous vegetables have also become integrated into local cultural practices or way of life in a number of ways in the Chionekano ward. They are also used as medicine, part of ritual practices, they have associated taboos and they also imply social differentiation and status. Besides hunger alleviation, the common continued use and presence of indigenous vegetables had to do with taste preferences, diversity in relish, popularity, associated taboos and knowledge of how to harvest and prepare them. The findings from this study make contributions to the current literature such as, Mararike (2001:54) who points out that food is perceived not only as a means of meeting nutritional requirements but also as a social tool which brings people together to share their successes and/or failures. The results of this investigation show that mealtimes are very much social occasions for enjoying the company of relatives or friends. A meal is almost like a ritual when one shares the necessities of life with one's kin. Great attention is paid at the meal to correct manners and respect paid to each one according to the status in the family group.

The following conclusions can be drawn from the present study that, meal cultures have been shown to play a very important role in what people eat. They define the choice of food, food consumption in terms of intake and frequency. The substance and range of food types, methods of preparing food, the standard ways of consumption and the time and quantity of meals are inevitably dependent on cultural aspects. The dietary structure is the way that meals, or the day's food, are composed. Beliefs about the qualities given by consuming a particular type of food and the reasons for adopting a particular structure to the diet are often central to cultural expression and participation (Kuhnlein and Receveur, 1996:421). The present study confirms previous findings of a study conducted by Alonso, (2015:5) on the impact of culture, religion and traditional knowledge on food and nutrition security in developing countries. The study shows that culture, religion and traditional knowledge affect nutrition and food security. Additional evidence that suggests

agricultural rituals, beliefs and practices regarding what and how to eat (e.g. food taboos), how to manage pregnancy and delivery, how to feed children or how to treat illness are shaped by a society's cultural and religious belief system and the body of traditional knowledge embedded herein (Alonso, 2014:5).

Closeness to God and the ancestors in African Traditional Religion revealed that traditional Africans shy away from opposing the systems imposed by them because to do so does not simply disturb the observable order but affects the realm of the divine. The society either has a way of dictating the beliefs and practices that are performed routinely by its members or performed whenever the occasion demands. African traditional religion and culture, on the other hand, bring out the religious value of indigenous vegetables, indirectly one would be able to sensitise the people in that, through utilizing them, there is a sense of belonging that maintains improved a healthy society and building better relationships. The presence of indigenous vegetables offered to visitors in an African village shows how important are these vegetables. The results of this study indicate that every woman makes sure that she has indigenous vegetables preserved specifically for visitors. Indigenous vegetables formed part of special food prepared by anyone who wants to be happy. This happiness associated with eating is not confined to the individual but the whole family of relatives and friends. These findings enhance the understanding of the importance of indigenous vegetables, how they are utilised. The study shows that highly valued vegetables are prepared during ceremonial occasions. Special ingredients such as peanut butter and cow milk cream are added during the preparation of this category of vegetables. Clay pots are favoured when preparing indigenous vegetables for important people. Some of the highly valued indigenous leafy vegetables are fat hen *(mubvunzandadya)*, and Spider plant.

This study shows that indigenous vegetable consumption has become integrated into local cultural and religious feeding practices. Indigenous vegetables have natural, social and cultural values, playing a major role in the day-to-day food and nutritional requirements of local people in the Chionekano ward. Frequent response to the importance and significance of indigenous vegetables was that "…indigenous vegetables formed part of the diet that was eaten by ancestors making them live a long, healthy life". Blackjack and amaranth leaves were mentioned as medicine that helps patients who are HIV positive to recover and live long hence the patients are

encouraged to eat these vegetables. *Mbuya mbuya* was also cited as a gift given to the sick for a quick recovery. The reported high level of nutrients, especially zinc, has resulted in indigenous vegetables being recommended in the management of HIV and AIDS and other chronic diseases. Zinc plays an important role in actively metabolizing cells as well as in HIV positive people and has been previously reported as the most deficient nutrient in HIV infected patients. In this way, traditional African religion is a people-centred religion that concerns human relationships in the here and now. Thus, the development of fighting diseases such as HIV AIDS and malnutrition is a common practice not only in the Chionekano ward but also in many African countries. This ideology appears to have been predicted and is used as communal wisdom on the health and social importance of leafy vegetables. Although it might appear that active religious practices have declined in recent years, In the Chionekano ward of Zvishavane district in Zimbabwe, it was found that religion still provides a network of social and emotional support to many, often comprising behaviour-monitoring structures that advise and influence adherents on activities considered acceptable to the group. On the child feeding beliefs and practices, all interviewed participants accepted responsibility for providing healthy food to their children. The study found that women are the people who are responsible for shaping family diet.

5.4 Recommendations for policymakers

In summary, indigenous vegetables are important sources of household food and make a significant, valued contribution to the food security and medicine of the rural communities in Africa. Therefore, wide-ranging awareness building and capacity development about their importance as a nutritionally balanced food, source of medicine and as a direct and indirect source of income, particularly for the resource-poor families, must be included in the national development plan and agricultural policy.

Policy makers and development managers should consider the following issues for the review, enhancement of the protection and utilisation of neglected production and consumption of indigenous vegetables. Some of the issues, which could be considered among others include:

- Continuously educate people about indigenous vegetables use and conservation status. Agricultural extension officers can do this through agricultural research and awareness campaigns.
- Support the inclusion of culture, religion and traditional knowledge to improve the stability of the food and nutrition security status.
- Plan and implement of community-based participatory approach towards prudent and sustainable use and management of indigenous vegetables. The government should encourage the formation and membership of people to social groups through which such campaigns for food security can be done.
- Encourage the marketing of indigenous vegetables to nearby cities to earn cash for minor home requirements.
- Increase awareness campaigns about the value of the indigenous vegetables in the form of advertisements and education as is done with exotic vegetables.
- Educate farmers on how to grow and domesticate other scarce indigenous vegetables and also assist the farmers in modern technologies. Wild non-cultivated vegetables deserve to be more thoroughly researched from cultural, traditional religious beliefs, ethics and values attached to the use of these indigenous vegetables. This will serve as a basis for agricultural, nutritional and other studies which may lead to the cultivation and use of some new or renewed food plants.
- Consider the potential for indigenous knowledge to contribute to the achievement of household food security is tremendous because the livelihood of the rural poor depends almost entirely on indigenous skills and knowledge which are essential for their survival. It is logical then that for any developmental plan and process to be effective, indigenous knowledge is of particular relevance.
- Promote and publish different recipes and preparation methods that are passed through generations for wider consumption by the elite, young, and urban dwellers on indigenous vegetable consumption. This can be done by incorporating indigenous cuisine on the internet.

5.5 Concluding remarks

The study concludes that indigenous vegetables are very popular in rural areas and people share common beliefs and practices on the harvesting, preparation and consumption of these vegetables. The study also concludes that the utilisation of indigenous vegetables is primarily conditioned by cultural and religious perceptions rather than the socioeconomic conditions of people. It has also been concluded that predominant attitudes on indigenous vegetables are related to palatability, health benefits and nutrition. With regard to the contribution of indigenous vegetables production and household food security, the study concludes that the accessibility of indigenous vegetables throughout the year either dried or fresh ensures household food security and dietary diversity. Their importance as relish rich in micronutrients cannot be underestimated for the corn-based rural population diets. Thus far, the study concludes that households who participate in indigenous vegetable production are more likely to be food secure than non-participants.

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7. Addenda

University of the Western Cape

Addendum A: Consent Form for focus group discussions

Research Project:

Cultural and religious significance of indigenous vegetables: A case of Chionekano ward of Zvishavane district in Zimbabwe.

Researcher: Mr Matenda J

Please initial box

1. I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. ☐
3. As a participant of the discussion, I will not discuss or divulge information shared by others in the group or by the researcher outside of this group. ☐
4. I agree that the data collected from me to be used in future research. ☐
5. I agree to take part in the above research project ☐
6. I would want to be acknowledged by

   By Name

   By Pseudonym

   By Role/ responsibility ☐

_____	_____	_____
Name of person taking consent *(If different from lead researcher)*	Date	Signature
_____	_____	_____
Lead Researcher (*To be signed and dated in presence of the participant*)	Date	Signature

Copies: All participants will receive a copy of the signed and dated version of the consent form and information sheet for themselves. A copy of this will be filed and kept in a secure location for research purposes only.

Researcher:

Mr J. Matenda
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Faculty of Arts
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Supervisor:

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University of the Western Cape

Addendum B: Letter to the Environmental Management Agency

University of the Western Cape

Robert Sobukwe Road

Bellville, 7535

03 September 2017
The Director
Environmental Management Agency
P.O Box 385, Causeway
Harare

Dear Sir/ Madam

Research on the Consumption of Indigenous Vegetables in Chionekano-ward of Zvishane district

I am Job Matenda, a student from University of the Western Cape registered for Master's degree in Religion and Theology doing research in the multidisciplinary discourse on the pervasive problem of food insecurity in the southern African context. The purpose of this research is to identify the selection of the most significant types of indigenous vegetables that are still being consumed in the Chionekano-ward of Zvishane district. On this basis I will track the ways in which such vegetables are harvested, cooked, preserved and consumed. I will then offer a description of any cultural and religious connotations attached to such vegetables. This will benefit your community in that we will have documented heritage of indigenous knowledge on the use of indigenous vegetables. This will promote the future use of indigenous vegetables as they are regarded as rich in micronutrient needed for household food security. This will also address the shortage of relish faced by many households.

The purpose of this letter is merely to inform you of this intended research project. If there are any questions or concerns that you may have in this regard, please do not hesitate to contact my supervisor whose contact details are provided below.

Job Matenda
Sincerely

UNIVERSITY of the WESTERN CAPE

Faculty of Arts

Addendum C: Information sheet

The Cultural and Religious Significance of Indigenous Vegetables: A Case Study of the Chionekano-ward of the Zvishavane-district in Zimbabwe

What is this study about?

My name is Job Matenda, a student from University of the Western Cape registered for Master's degree in Religion and Theology. This study is situated in the context of multidisciplinary discourse on the pervasive problem of food insecurity in the southern African context. More specifically, it is situated in the context of the Centre of Excellence in Food Security, located at the University of the Western Cape and its project on "Food Ethics and Values" (with Prof Ernst Conradie as principal investigator). It will contribute to discussions on food security from the perspective of the discipline of religious studies and more specifically African Traditional Religion (ATR) and the indigenous knowledge systems (IKS) associated with that.

What will I be asked to do if I agree to participate?

I would like to invite you to participate in this study. If you agree to participate, you will be asked to take part in individual semi-structured interviews which encompass open-ended questions that relate to the study and your experiences in this specific field. If you volunteer to participate in this study, you will be asked to answer the following:

- What examples of indigenous vegetables are consumed in this area?
- How do you harvest, preserve, cook and consume indigenous vegetables?
- What is the significance of eating these indigenous vegetables? What rituals may be associated with harvesting, preparing and eating such vegetables?

Written informed consent will be required and the experiences shared by you will be tape-recorded with your permission.

Would my participation in this study be kept confidential?

You will be asked how you would prefer to be referred to in this study. Space for this will be indicated in the consent form. I presume that some of you would want to be mentioned by name in order to receive due credit for the indigenous knowledge that you have maintained. To those who may prefer a description in terms of role responsibilities (e.g. "a traditional healer from Chikafu village"), and those who may prefer a pseudonym (e.g. Interviewee A from Mabuzve village). I will adhere to such choices as you indicated in the consent forms.

What are the risks of this research?

A study of this nature seeks to recognize indigenous knowledge and does not pose serious risks in gathering the information. However, such knowledge may be abused by others in the sense that there may emerge competition over sources of food previously utilized only by some. Participants in the focus group discussions will be asked to regard information provided during the discussions as confidential.

What are the benefits of this research?

The benefits to society includes that your community will have heritage of indigenous knowledge preserved by elders in terms of food, religion and culture. This will promote the future use of indigenous vegetables at the same time addressing the problem of food insecurity facing many households.

Do I have to be in this research and may I stop participating at any time?

Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty.

What if I have questions?

If you have any questions about the research study itself, please contact: Mr J. Matenda University of the Western Cape**,** Bellville**,** 7530 Cell: 0742533054 Email: 3776399@uwc.ac.za	Should you have any further questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact: **Research Supervisor: Senior** Professor Ernst Conradie, University of the Western Cape, Private Bag X17, Bellville, 7535 Telephone: (021) 959 2206 Email: econradie@uwc.ac.za

University of the Western Cape

Addendum D: Consent Form
Interviews

Research Project:

Cultural and religious significance of indigenous vegetables: A case of Chionekano ward of Zvishavane district in Zimbabwe.

Researcher: Mr J Matenda.

Please initial box

7. I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project. ☐

8. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. I understand that no financial benefits would accrue because of my participation in this research. ☐

9. I agree that the data collected from me to be used in future research. ☐

10. I agree to take part in the above research project. ☐

6. I would want to be acknowledged By Name ☐

By Pseudonym ☐

By Role/ Responsibility

_____	_____	_____
Name of person taking consent *(If different from lead researcher)*	Date	Signature
_____	_____	_____
Lead Researcher (*To be signed and dated in presence of the participant*)	Date	Signature

Copies: All participants will receive a copy of the signed and dated version of the consent form and information sheet for themselves. A copy of this will be filed and kept in a secure location for research purposes only.

Researcher:

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UNIVERSITY of the WESTERN CAPE

Faculty of Arts

Addendum E: Letter to the Headman

University of the Western Cape
Robert Sobukwe Road
Bellville, 7535

03 September 2017

The Headman
Matenda Primary School
P. Bag 614
Zvishavane

Dear Headman Matenda

Ref: Request for permission to conduct research

I am Job Matenda, a student from University of the Western Cape registered for Master's degree in Religion and Theology doing research on the problem of food insecurity in the southern African context. The purpose of this research is to identify the selection of the most significant types of indigenous vegetables that are still being consumed in the Chionekano-ward. On this basis I will track the ways in which such vegetables are harvested, cooked, preserved and consumed. I will then offer a description of any cultural and religious connotations attached to such vegetables. This will benefit your community in that we will have documented heritage of indigenous knowledge on the use of indigenous vegetables. This will promote the future use of indigenous vegetables as they are regarded as important source of food that is locally available and can address the shortage of relish faced by many households. For any questions regarding this research, don't hesitate to ask me or contact my supervisor on the contact details below.

In this regard, I kindly request for permission to conduct research in your area.

I will greatly appreciate your assistance.

Sincerely

Job Matenda

rof Ernst M. Conradie

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