



Beyond Food Security:
Exploring the Role of Community Gardening in Human Well-Being based on a Project in a high-density suburb of Harare, Zimbabwe

Masters of Science specializing in Climate Change and Sustainable Development

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Abstract

Across different parts of the world agricultural practices within the city have been characterized in several ways, ranging from a vehicle for expansion to that of rehabilitating. Although in developed countries, the industrial revolution rendered urban farming less relevant because of technological advances in food production and increased mobility of food systems, it has recently re-emerged. Similarly the developing world has seen a revival, which has been widely cited as a response to economic crises. Consequently, like the prevalent situation on the continent, urban agriculture in Zimbabwe is examined in relation to poverty reduction and food security. There is very little information on how city farming and particularly community gardening, a more organized form, factors into social structures such as community building and education, and psychosocial as well as physical health. The purpose of this study was to investigate these themes and explore the institutional context within which they function. A community gardening project facilitated by a non-governmental organization was selected as the study site located in the high-density suburb of Tafara in Harare. The personal health benefits of engaging in the community gardening project were physical activity and nutritional diversity. Farmers found gardening activities relaxing and felt a sense of satisfaction. Educational benefits through training sessions from external organizations as well as knowledge sharing amongst gardeners were also dominant outcomes. For a low-income suburb such as Tafara, community cohesion and empowerment primarily arise out of the need for improving the resilience of the garden and income earning opportunities.

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1. Introduction

The practice of urban farming dates back to ancient civilizations (Barthel and Isendahl, 2013). According to Green (2012), approximately midway through the third millennium BC, Mesopotamian farmers began designating pieces of land on which to grow food for their expanding urban population. From the Classic Maya civilizations *ca.* 1000AD to the city of Constantinople of the Roman and Ottoman Empires in Europe, agriculture therefore formed an integral part of the urban activities. In the 1900s, urban gardens were vital in providing foodstuffs such as vegetables for cities throughout the West (Barthel and Isendahl, 2013). The industrial revolution saw the decline of this custom primarily due to the technological advances in food production, and increased mobility resulting in a global food system (Cole, *et al.* 2008). Recent decades have however seen a revival in urban agriculture, particularly in the developing world (Arku, *et al.* 2012).

Although research quantifying the prevalence of urban farming is in its infancy (Lee-Smith, 2010), global estimates place the number of people actively involved in this practice at 800 million, with 200 million considered as market producers and 150 million employed full-time (UNDP, 1996). While in the Global North urban agriculture is framed in the context of revitalizing cities and reducing food miles (Snowdon, 2010; Firth, *et al.* 2011), in developing countries it has been considered a response to the economic downturn (Arku, *et al.* 2012). In Latin America 50 per cent of urban residents are estimated to engage in agricultural activities while the comparative figure for Africa is around 40 per cent (Zezza and Tasciotti, 2012). The findings of a regional study conducted in 2008 by the Africa Food Security Urban Network (AFSUN), for example, indicate that 47 per cent of poor households in Maseru (Lesotho), 62 per cent in Blantyre (Malawi), and 60 per cent in Harare (Zimbabwe) were participating in urban farming. Although other cities such as Windhoek and Cape Town showed relatively low levels of urban farming among surveyed households at 3 per cent and 5 per cent respectively, this does not distract

from the fact that urban agriculture is a relatively common practice in the region (Crush, *et al.* 2010). In Zimbabwe farming within the city is a well-established phenomenon. In Harare, the capital city which contains approximately half of the country's urban population (2.1 million people), (ZIMSTAT, 2012) almost half of the areal extent of land in the city that was previously unexploited is now used for cultivation (Toriro, 2009). In 2008, it was estimated that the number of urban growers in Harare was about 500,000 (Toriro, 2009).

Literature on urban agriculture in Zimbabwe predominantly focuses on its relationship with poverty reduction as well as food security and nutrition (Drakakis-Smith, *et al.* 1995; Kutiwa, *et al.* 2010; Mbiba, 1994; Mbiba, 1995; Tawodzera, *et al.* 2012). Very little has been documented on how urban agriculture and particularly community gardening fits into social structures such as community building and empowerment, and its influence on psychological and physical health as well as knowledge acquisition in the country. In the developed world however there is a wealth of information regarding these themes (Bellows, *et al.* 2003; Glover, 2004; Okvat, *et al.* 2011; Snowdon, 2010; Wakefield, *et al.* 2007). Amidst the array of issues on urban poverty such as unemployment and malnutrition, evaluating the role of urban agriculture in this framework is prioritized, neglecting the aforementioned dimensions. Moreover, there is also a preoccupation with individual rather than communal gardening. As a result, matters relating to the cultural and institutional structure within which community gardening functions, the associated challenges, and advantages remain largely unexplored. Based on these circumstances, this research aims to assess the benefits of community gardening beyond food security in Harare as well as explore the policy and institutional context within which community gardening functions to determine barriers and opportunities for improvement of the practice.

1.1 Research Problem

Most of the literature on urban agriculture in Zimbabwe focuses predominantly on the relationship between urban farming and food security, poverty reduction and

nutrition security. Very little has therefore been documented on how urban agriculture (particularly community gardening) fits into social structures such as community building, empowerment, and its influence on psychological and physical health as well as knowledge acquisition. In addition, there is also more focus on individual (or household farming) rather than on communal gardening. Thus, matters relating to the cultural and institutional structures within which community gardening functions, the associated challenges, as well as advantages for cities such as Harare remain largely unexplored. Particularly important in this regard is recognizing the potential and benefits of formal community gardening activities beyond food security as part the broader context of improving the social health of society and interactions in public spaces. The formal aspect of gardening also highlights the importance of non-governmental organizations, local authorities as well as government departments in contributing to the success of urban gardening and overall health of a community.

1.2 Research Aim and Objectives

Based on the above research problem, this study aims to assess the benefits of community gardening beyond food security in Harare. To achieve this aim, the following objectives have been set:

- To determine the educational, social, mental and physical health benefits of community gardening on individual members;
- To investigate the community-scale benefits of gardening in terms of social public health;
- To explore the policy and institutional context within which community gardening functions in order to identify barriers and opportunities for improvement of the practice.

1.3 Organization of thesis

This dissertation consists of six chapters. The first chapter provides a timeline of agricultural activities within the city exploring the way in which the practice has

functioned throughout the world. The current status of city farming as well as the attitudes towards it, in Zimbabwe is introduced. This sets a foundation for outlining the research problem, which is mainly that community gardening along with the associated social structures are largely unexplored. In the final section, research aims and objectives are established. The second chapter begins with expanding on the introduction, characterizing urban agriculture and communal gardening. It explores the current literature on the three overarching themes in line with the research objectives. The individual-level and community-scale benefits of community gardening are described based on experiences in developed and developing countries, with the current context of Zimbabwe also explained. The policy and institutional setting in Zimbabwe is then characterized. The third chapter provides the methodology, starting with a brief description of the study area. Data collection consists of direct observation, interviews and document analysis. Subsequent sections deal with the argument for the methodological approach, the theoretical framework, limitations of the study and ethical issues that were taken into account. The fourth chapter provides the key findings from the interviews, illustrating the recurring themes with regards to individual experiences and the collective as well as the institutional dynamics. The theoretical framework, which consists of various components that factor into community gardening is repurposed in order to elucidate how they relate to the research objectives. The fifth chapter expands on the significant findings, explores less significant results as well as insights from other projects as a basis for identifying context-specific problems and areas for improvement in community gardening. Institutional and multi-stakeholder processes associated with the project as well as the broader context of urban farming activities are explored. The conclusion ties in the key themes and provides points of departure for further research.

2. Literature Review

2.1. A Contextual Overview of Urban Farming and the Role of Community Gardening

Urban agriculture refers to the practice of farming within, or on the margins of cities. Within urban areas, farming can be divided into two categories, namely on-plot and off-plot agriculture. On-plot agriculture occurs in residential gardens while off-plot farming takes place in public areas. In Zimbabwe, for both home gardens and public spaces the crops grown are maize, primarily in the rainy season, and vegetables throughout the year. Off-plot production can also produce such crops as sweet potatoes and beans (Mbiba, 2000).

The formal ways in which urban agriculture can be established is either through allotment or community gardens. Government or private organizations facilitate allotment gardens, and land is cultivated independently. Community gardening involves a more concerted effort by members of a local neighbourhood. Local residents manage the fields, and plots are allocated for individuals and families to collectively grow different crops for consumption (Sithole, 2008; Sithole, *et al.* 2012). Community gardens range from close-knit groups to more loosely structured co-operatives that primarily share access to the same resources, have collective land tenure, or are supported outside organizations from the private or public sector (Chadyiwanembwa, 2012).

On a global scale, the rebounded proliferation of contemporary community gardening is widely regarded as an effort that started from the 1970s, originating in North America. Along with cities throughout the UK and Australia, the expansion was shaped by hopes of reconnecting with food, the environment and community (Firth, *et al.* 2011). In the US, emphasis was placed on the need for rebuilding social linkages and the structures of decaying communities. In Australia, gardens were regarded as addressing issues with community and ecology as part of a broader environmental consciousness (Snowdon, 2010). Much of the written work on community gardens is in the Western context, situated in the field of social science with input from sociology, human geography and anthropology (Pearson and Firth,

2012). In this regard, the gardens are centred on the aspect of community in that they provide a space outside of the workplace and the household where citizens can convene and connect as members of a neighbourhood (Glover, 2004).

Similar to the early 20th CE period in the West, community gardening in the Global South has arisen out of a time of crisis (Bryld, 2003; Snowdon, 2010; Toriro, 2009; Zezza and Tasciotti, 2010). Cuba is a well-documented example that underwent an agricultural revolution due to a collapse in trade. Community farming not only reduced food insecurity but was also instrumental in building a sense of community (Snowdon, 2010). In the African context community gardening may be identified but is rarely evaluated as a distinct practice within the urban setting, most likely due to the widespread informality of open-space cultivation and the dominance of domestic gardening. There are however several studies on community gardening in rural areas with central themes of food security and income. Within this paradigm social and health issues such as the gender empowerment, skills acquisition and nutrition crop up as outcomes (Chazovachii, *et al.* 2013; Gallaher, *et al.* 2012; Thornton, 2008; Thornton, 2009; Ward, *et al.* 2004). Shisanya and Hendriks (2011) reference the numerous social and physical health as well as educational benefits. These are however raised as peripheral rather than central issues in the study.

In the African context, urban agriculture is predominantly examined in terms of its contribution to income and food security, both of which affect livelihoods. As a result there is an interrelation with the social dimension, which nevertheless is in most cases neglected in the studies (Battersby and Marshak, 2013; Bryld, 2003). The general consensus is that more support is needed for community gardening, recognizing its added value as compared to household or informal off-plot cultivation (e.g. Sithole, 2008). For a developing country such as Zimbabwe, this is particularly important as the impact of community gardening goes beyond what is elucidated in basic models of development. A strong case can therefore be made for the formalization of urban farming with a communal dimension not only because of the aforementioned developments, but that these outcomes form part of a larger

framework that has a role in the long-term resilience of cities (Okvat and Zautra, 2011).

Another aspect of this argument is that different stakeholders, from regulatory authorities, producers and non-governmental organizations, with an interest in urban agriculture can be coordinated and the relationship amongst these entities improved (MDPESA, 2007). Delineating individual and community-level benefits is challenging because they are interconnected. However, there appears to be direct outcomes overtly linked to each other. In terms of policy, and in the institutional sense this potential is advantageous for a municipality as a healthier and more supported community means fewer problems (Okvat and Zautra, 2011).

2.2 Individual-level Benefits of Community Gardening

2.2.1. Education and Nutrition

A variety of literature has cited community farmers as having higher consumption of horticultural produce as compared to home growers and non-gardeners. Healthier eating habits amongst gardeners have been observed throughout a diverse range of urban settings in the US regardless of location or population (Litt, *et al.* 2011; Okvat and Zautra, 2011). Based on studies throughout North America and Europe, Bellows (2003) found that cultivation is related to consumption as the more experience individuals have of growing food, the more likely they are to eat it. Thus public gardening facilitates health and wellness as engaging in food-related activities contributes towards dietary literacy, which also in turn influences behaviour. Processes such as learning seasonality, cooking and preserving positively affect dietary habits. Studies have revealed that vegetables are fairly easy to cultivate and novice gardeners thus consume more vegetables than fruits (Bellows, *et al.* 2003).

Consumption levels have also been linked to levels of engagement, regardless of the socioeconomic situation. In some countries, it has been observed that fruit and vegetable intake sometimes differ across communities, implying that social and

psychological characteristics contribute towards eating habits. Social structures and social dynamics have thus been shown to be relevant in understanding health behaviours. To gain knowledge on growing and harvesting food as well as general information on health and well-being, individuals need to engage with other participants in knowledge-sharing (Litt, *et al.* 2011). Thus, local residents come together due to the collective purpose of producing food and in the process share knowledge and resources (Battersby and Markshak, 2013; Okvat and Zautra, 2011; Wakefield, *et al.* 2007).

Research on community gardens in three high density suburbs of Bulawayo, the second largest city in Zimbabwe, revealed that majority of the beneficiaries had more varied diets (Sithole, *et al.* 2012). Similarly a study on six different wards in Bulawayo concluded that although agriculture in the city does not typically provide staple foods such as cereals, fresh produce is generally abundant. Foods such as green vegetables, beans and tomatoes supply the farmers with a much-needed diversity in diet (Sithole, 2008; Sithole, *et al.* 2012). Local production means more convenient access to fresh foods. More importantly, produce from these gardens have a supplementary role in that low-income households cut the costs of buying these foods that they wouldn't ordinarily prioritize, and divert their finances towards other products (Sithole, 2008).

Community gardens offer a space for community development through education and skills training. In two community gardens in the Nottingham area of England, for example, educational sessions were initiated by local residents as well as health professionals, and managed by community groups with activities ranging from farming to cooking sessions (Firth, *et al.* 2011). Nutrition education has been found to promote micronutrient intake in several countries, balancing diets in places such as South Africa, India, Bangladesh, Indonesia, Mexico and The Philippines (Bellows, 2003).

In less-developed countries such as South Africa and Zimbabwe, emphasis is placed on the cultivation stages in terms of the educational gains, and these come in the

form of training from the public sector or non-governmental organizations (NGOs) (Battersby and Marshak, 2013; MDPESA, 2007; Sithole, 2008; Sithole, *et al.* 2012). Soil for Life is an NGO that operates in Cape Town and offers a program that teaches individuals how to produce vegetables using sustainable organic methods in very little space (Battersby and Marshak, 2013). In the case of Zimbabwe, most of the opportunities surrounding education and training have been initiated by NGOs. Depending on the project, different associations are linked with different initiatives. Whilst some are into capacity building and training, others provide educational resources (MDPESA, 2007).

In addition to supporting urban growers, NGOs have also provided assistance for public sector regulatory bodies (MDPESA, 2007). Organizations such as Caritas Internationalis, Practical Action and Environment Africa (EA) contribute towards public sector efforts through the provision of agricultural inputs, levies, irrigation as well as knowledge (Chadyiwanembwa, 2012). In Bulawayo, farmers have acquired skills from organizations such as World Vision and the Resources Centre on Urban Agriculture and Food Security (RUAFF) (Sithole, *et al.* 2012). World Vision officials run courses with the assistance of other technical branches such as the Agricultural Technical and Extension Service (AGRITEX). The NGO organizes financial and logistical support while the AGRITEX provides expertise. The skills offered to participants primarily involve land preparation methods, planting, weeding as well as harvesting. Project members are also taught different techniques involving low cost agriculture and irrigation of produce (Sithole, 2008).

In Harare, the Food and Agriculture Organization (FAO) has worked in the high-density areas of Budiriro and Warren Park, educating gardeners on the production of mushrooms (MDPESA, 2007). Institutions such as SNV, the Netherlands Development Organization is helping foster marketing skills whereas Environment Africa is involved in promoting the environmental awareness of the different producers. Government sectors that provide extension services to agriculturalists function in a decentralized manner (MDPESA, 2007). The Harare Metropolitan area is regarded as a province, hence provincial structures to back farming practice in the

capital and coordinated from the Harare provincial office. These offices are allowed to liaise directly with civil society groups in their areas of operation. In recent years Agriculture Research and Extension Services in the Ministry of Lands and Agriculture has taken notice of urban farmers and experts are now assisting with technical knowledge on land use and agronomy. As of 2007, more than five extension representatives were servicing groups in Harare (MDPESA, 2007).

2.2.2. Personal Health

In the case of North America, gardening has been widely reported as fostering psychological welfare and self-esteem. Growers have cited it as a practice that increases pride, confidence and personal satisfaction. The idea is that activities with plants in the outdoors positively impacts mental attitudes and personal well-being (Bellows, *et al.* 2003; Wakefield, *et al.* 2007). An analysis by Litt *et al* (2011) found that gardening spurred a sense of awareness on well-being and the importance of the relationship between the ecological environment and personal health. Outdoor activities and working with vegetation has been used in the health industry to help the mentally ill with their social skills and self-confidence. Horticulture therapy is based on plant-human relationships, useful for lowering stress and muscle tension as well as blood pressure. Growing can be a social and leisurely activity useful for inducing relaxation (Bellows, *et al.* 2003; Wakefield, *et al.* 2007).

A qualitative evaluation of ten community gardeners in Australia reported that the garden was a place that gave them a sense of worth and regarded as a sanctuary for forgetting about daily pressures (Okvat and Zautra, 2011). Similarly an empirical study on 96 gardeners in the US cited the positive effects as being a sense of accomplishment (Okvat and Zautra, 2011). Innovative institutions such as hospitals and prisons have incorporated horticultural activities because of the therapeutic and rehabilitative effects (Battersby and Marshak, 2013; Bellows, *et al.* 2003; Chazovachii, *et al.* 2013). Prison garden programs endeavour to instil pride and improve mental health through nurturing the life of plants. Part of this includes

recognizing as well as relating nutrition and bodily self-respect (Bellows, *et al.* 2003).

Gardening activities can also foster a sense of focus as an increase in natural surroundings can enhance the capacity of individuals to concentrate. A nationwide survey on children in the US strongly correlated outdoor activities such as gardening with fewer attention-deficit problems (Okvat and Zautra, 2011). The link between contact with greenery, particularly gardening, and cognitive benefits has also been illustrated in studies with the elderly. A longitudinal analysis of risk of dementia in 2,040 people above 65 years showed that horticultural practices were associated with a 50% lower risk of dementia after accounting for age and cognitive functioning (Okvat and Zautra, 2011). Researchers propose that this is because of the cognitive engagement that arises out of engaging in gardening. The activity on some level fosters cognitive vitality and healthy aging. Importantly, it is possible that the physical, leisurely, or mental aspect of gardening, or some combination, is preventive of the onset of dementia. In Australia, urban growers have also referenced spiritual benefits attributable to community farming (Okvat and Zautra, 2011). Similarly, in a Cape Town study the presence of the communal space also brought about an appreciation amongst growers that took on a spiritual dimension (Battersby and Marshak, 2013). More broadly, an unexplored subject is that of determining the proportion of these various facets that factor into positive impacts of gardening (Okvat and Zautra, 2011).

In the Global South social benefits are increasingly being recognized as a facet of cultivation within the city. Based on an analysis of two gardening projects in Cape Town, the socio-psychological benefits observed were that the activity provided a sense of purpose resulting in less time spent worrying about external issues (Battersby and Marshak, 2013). The research also showed that the activity provided an alternative to unhealthy lifestyles, potentially influencing behaviour outside of the garden. Fulfilment as well as a sense of purpose, both of which were established as the main benefits, arose out of being occupied with growing crops. For some, the

gardens became a site for gaining status, creating a sense of pride (Battersby and Marshak, 2013).

Engaging in agricultural activities requires varying levels of physical exertion, benefitting physical health. Analyses within certain demographics of the North American population have correlated gardening with lowering the risks of obesity, heart disease and glycaemic control and diabetes. Numerous studies throughout this country cite gardening as one of many activities that is an undervalued type of exercise (Bellows, *et al.* 2003). Even intermediate levels of physical activity in gardening result in greater muscle strength and endurance for those with generally inactive lifestyles. Irrespective of age, gender and ethnicity gardening rates highly amongst preferred forms of exercise (Bellows, *et al.* 2003). Wakefield *et al* (2007), for example, found that exercise was an important aspect of community gardening, particularly valued by the elderly. In the same vein, the Cape Town study by Battersby and Marshak (2013) also revealed physical improvements in participants. Generally, the elderly participate in cultivation more than the youth and this sometimes results in them having better health due to the physical exercise that they engage in while participating in gardening. There is also an added benefit for the elderly in that gardening becomes a pastime for avoiding idleness and isolation inside the household (Battersby and Marshak, 2013; Bellows, *et al.* 2003).

2.3. Community-scale Benefits

2.3.1. Community Cohesion and Empowerment

Community gardens offer a space for individuals to meet, network and identify with each other as residents of the neighbourhood (Firth, *et al.* 2011). The success of a garden hinges on social interaction and collaboration, as it depends on factors such as community leadership and initiative (Okvat and Zautra, 2011). The main benefit is that gardens have initiated a collective engagement and relationships, increasing interactions and fostering social connections (Battersby and Marshak, 2013).

Numerous studies have revealed that communal gardens have resulted in greater

instances of support amongst growers (Battersby and Marshak, 2013; Okvat and Zautra, 2011; Wakefield, *et al.* 2007). A firm sense of collective ownership and pride can be generated through such mutual efforts (Firth, *et al.* 2011). Research on city farms throughout the US, Australia and Cuba reported that many individuals since becoming a part of the garden felt more engaged and connected to their neighbourhoods (Snowdon, 2010). Greener areas have been found to relate positively with social interactions and a growth of community networks, which serves as a basis for building community. An analysis of 145 community members of inner city, high-rise areas of the US illustrated that living close to shared spaces with more plants increased familiarity and more socializing with nearby residents, as well as more regular use of these common spaces (Okvat and Zautra, 2011). A participatory attitude to community development is enabled because of community gardens. Moreover, community gardens generally assemble urban dwellers into a more concentrated network than their roles typically allow, lessening isolation through sharing of things such as seeds, tools, and produce (Okvat and Zautra, 2011; Wakefield, *et al.* 2007). Similarly in England, studies of communal cultivation revealed that the activity reduced social isolation and facilitated the growth of social networks (Okvat and Zautra, 2011).

Working towards food production in the city generates civic interactions, trust and development of leaders. According to Bellows *et al.* (2003), developing community and enhancing neighbourhoods is what empowers people. Community gardening empowers individuals by providing a sense of control and self-reliance that arises out of the collaborative decision-making as well as the knowledge and skills acquisition (Battersby and Marshak, 2013; Okvat and Zautra, 2011; Wakefield, *et al.* 2007). Empowerment is described as the way in which individuals, communities and societies or associations attain mastery over their existence. Community farming can be instrumental in empowering people through mastery and sense of control primarily over resources such as land and food, particularly by disadvantaged groups (Okvat and Zautra, 2011). According to Wang (2006), empowerment has to do with people having information and creating their own

dynamics and structures. Decision-making processes and being a part of local food production, which reduces the reliance on external sources can all contribute towards empowerment. The work required to construct and successfully manage communal plots intersects with grassroots efforts, community and ecological activism as well as a more personalized exploration of meaning, spirituality, and community. In some cases, creating communal areas for food production is particularly helpful in difficult financial times, promoting cohesion and independence thus protecting the community from outside hardships (Okvat and Zautra, 2011).

Community projects can prompt solving of external issues beyond the garden (Okvat and Zautra, 2011). This is the added benefit of engagement – when it leads to residents tackling other issues within the neighbourhood, and will depend on the characteristics of the community garden. A survey on sixty-three community gardens in New York revealed that low-income areas were four times more likely to address community issues unrelated to the garden as in higher income neighbourhoods (Okvat and Zautra, 2011). The gardens facilitate a greater involvement in the development of a community. It is about interactions that would not ordinarily occur, addressing issues typically associated with city life such as isolation (Wakefield, *et al.* 2007).

Community aesthetics, that is, the physical environment and surroundings can affect habits (Litt, *et al.* 2011). Similar arguments inform the findings that have related urban greening with lower crime rates (Okvat and Zautra, 2011). Particularly in low-income areas, studies on gardening have been correlated with fewer instances of rubbish dumping, violent deaths, and petty crimes by adolescents (Bellows, *et al.* 2003; Herod). A study by Herod found that the prospect for lowering crime rates is affected by the physical and social processes associated with a garden. The extent to which each, the physical aspect of converting a vacant area into a garden as well as the social dimension of developing community, reduces crime is site-specific. Communal gardens can contribute towards overall safety and security. However, the

degree to which this occurs and how this will happen depends on the neighbourhood (Herod; Wakefield, *et al.* 2007).

More broadly, communal gardens aid in generating a relationship with organizations and authorities. These external relations contribute towards accessing resources for community members that are active growers (Firth, *et al.* 2011). In the Zimbabwean context there is anecdotal evidence that cultivators are realizing the advantages of coming together and are therefore establishing groups to improve their chances of gaining access to allotments, training and inputs, something that an individual cannot easily get (MDPESA, 2007). In some cases growers have created co-operatives in order to pool funds and purchase inputs such as seed and fertilizer (Tshuma and Mashoko, 2010).

2.3.2. Social Inclusion and Gender Dimension

As neighbourhood gardens are accessible for local residents they can create opportunities for inclusion of people that have typically been ignored. Marginalization can occur with members of society such new immigrants, the elderly and former prisoners. Communal plots can be a place for diverse groups of society to connect creating a space where all individuals feel welcome irrespective of their unique or unconventional traits. Such hubs can result cohesion between people from diverse backgrounds whether racially or socioeconomically (Snowdon, 2010). Similarly, Firth *et al* (2011) cites the garden as a potentially inclusive domain, accommodative of a range of social backgrounds. Furthermore, food is a unifying component of community environments and the activities related to it allows for informal exchanges between people of different ages, ethnicities and socioeconomic statuses (Firth, *et al.* 2011). In England, shared gardening resulted in greater neighbour-to-neighbour assistance in that when a participant was unable to manage their plot, other members would intervene. An element of inclusivity arose out of this for older individuals and the disabled who were limited in the amount of work that they could accomplish (Okvat and Zautra, 2011). In developing countries,

vulnerable citizens such as women headed households and unemployed migrants are frequently excluded from city farming, as gaining access to a plot requires socio-political knowledge about vacant sites and the tenure status (Bryld, 2003). With the recent recognition of urban gardens functioning as part of different social dynamics, research has shown that in Bulawayo where 12 community gardens operate through the high-density areas, the focus is on improving the livelihoods of HIV/AIDS victims, the elderly, orphaned and the most vulnerable members of society (Sithole, 2008; Sithole, *et al.* 2012).

An important aspect of understanding the dynamics of urban agriculture is recognizing the role of women (Wilbers, 2004). In Zimbabwe they are responsible for the bulk of labour and management of inputs. The percentage of women growers in Harare is approximately between 55 and 60 per cent, and of these female gardeners over 80 per cent practice on their own plots (Chadyiwanembwa, 2012; Mbiba, 2000). Generally women are the leading participants in urban agriculture mainly because of the long-standing tradition of women as domestic providers of food and the male dominated jobs market up until the 1980s (Mubvami and Mushamba, 2004). In a case study by Mudimu (1996) on cultivation in Harare, the majority of the female growers had never been employed. The prevalence women in the off-plot sector is also likely due to the legacy of limited employment opportunities as one could content that they are isolated from different kinds of employment in the formal sectors of the economy (Mudimu, 1996).

Organizational dynamics within a neighbourhood can contribute towards the access to and control over productive resources. Group activities or networks can enhance the degree to which women play a role in decision-making processes (Wilbers, 2004). Based on Gabel (2004) and Martin *et al* (2000) the collaborative efforts of women have arisen out of a need to gain access to land. Although women farmers generally tend to their plots independently, they organize themselves in order to secure land tenure, and also function in a collective manner with farming related activities such as training (Gabel, 2004). Through these co-operative mechanisms, women get together and share resources, knowledge and skills. The influence of

women's social structures and collaborative processes has been identified as a possible factor for development strategies in the urban farming sector. In the early 1990s, women were instrumental in placing pressure on the City Council of Harare. They mobilized themselves to lobby city councillors and Members of Parliament for a change in the approach to cultivation to a more supportive one (Mudimu, 1996). Female growers can engage in affairs associated with governance, local politics, and community issues and there is a need for understanding the extent to which they participate and how. Moreover these groups need to be promoted and as socio-political entities, making urban agriculture a citizen's concern (Mudimu, 1996; Wilbers, 2004).

2.4. Urban Farming in Zimbabwe: Policy Setting

2.4.1. Historical Overview

For Zimbabwe, it is generally considered that the effect of land-use on the environment during pre-colonial times and the early colonial period was minimal. This was because of the nomadic nature of sparsely distributed populations as well as techniques such as soil conservation and fallow land-use (Bowyer-Bower, 1996). Colonial development regarded urban Africans as temporary dwellers with municipal administrators using farming as a reason for paying low wages. From this, ecological damage was projected as a likely outcome hence numerous conservation plans were established, and involved the allocation of areas for cultivation (Chadyiwanembwa, 2012). Modern farming practices in public spaces throughout the urban landscape have been cited as the main reason for decreasing water resources and soil erosion (Gumbo, 2000; Tshuma and Mashoko, 2010).

The issue of legality became prominent in the 1950s with city authorities frequently destroying yields before harvest (Gumbo, 2000; Tshuma and Mashoko, 2010). According to the Regional Town and Country Planning Act of 1976 urban cultivation was established as functioning outside of land development, and as an activity subject to regulations. Agriculture was not overtly prohibited and the Urban Council

Act was used as an instrument by authorities to remove crops deemed to result in negative impacts. Urban tracts of land used for farming increased by 68 per cent from 1950 to 1980 and by 93 per cent from 1990 to 1994 (Mudimu, 1996). This trend was influenced by rapid urban expansion and a declining economy, along with escalating food prices throughout the 1980s (Mudimu, 1996). Thus the number of urban farmers proliferated to include higher income groups because of the financial situation of the country (Toriro, 2009).

In civic planning, farming has been regarded as a conflicting element with urban development. With housing taking precedence, urban cultivation is essentially viewed as secondary to other activities (Sithole, *et al.* 2012). The view that urban farming is not a legitimate kind of urban activity persisted into the 1990s and farming in cities was rarely formally recognized or planned for. The position of Harare City Council became that farming took up too much of the city's land with arguments against it ranging from negative environmental and health implications to regulatory land use zoning plans (MDPESA, 2007; Mudimu, 1996).

In 1990 and 1991, Harare city authorities destroyed maturing crops in order to prevent farming. In response, numerous women's groups argued that they needed land to grow crops and supplement their households. They mobilized themselves to lobby municipal councillors and Members of Parliament for a change in the approach to urban agriculture whilst continuing their farming practices (Mudimu, 1996). Largely as a response to pressure from local growers as well as mounting political pressure the city, in 1992 created a policy framework permitting organized forms of cultivation within city boundaries. Residents were required to establish cooperatives and as a unit, undergo an application process. However, the policy design, known as the Harare Combination Master Plan was lengthy and required extensive procedures to be followed, something that only a very few groups were able to follow and thus apply (Gumbo, 2000). Nevertheless, an important aspect of the plan was that authorities could manage some of the land-use activities by allocating what they considered appropriate areas for cultivation (Mudimu, 1996).

2. 4. 2. Current Context

It is important to note that prior to the policy formulation that addressed urban agriculture there were growers who were allocated land by the authorities and thus did not have their produce slashed. Whilst for a long time it was reported that the city did not have a stance on city farming, the approach was influenced by two principles, namely that one either had to be allowed through statutory plans or had to be allocated by the city. Persons that operated outside the two principles had problems with local authority (MDPESA, 2007). Off-plot farming in Harare is mostly informal and is based on finding unoccupied sites to utilize (Toriro, 2009). Amongst growers, land is viewed as a public good that can be used without anyone else claiming ownership (Gumbo, 2000). In reality, however, urban farmers live with the risk of agricultural activities being temporary and subject to public or private sector owners claiming the land for development (Toriro, 2009). The probability of this risk is variable as some of off-plot cultivation is practiced on unused land deemed unsuitable for construction. More specifically, 67% of off-plot cultivation is estimated to occur in vlei areas, which are poorly drained and thus periodically waterlogged. The soils are also generally poor; hence many growers incorporate chemical fertilizers into their techniques (Gumbo, 2000).

Public spaces under cultivation range from 200m² to 2 acres with many using hoes, shovels, and spades to prepare land (Chadyiwanembwa, 2012; Gumbo, 2000; Tshuma and Mashoko, 2010). A large proportion of land however is left unused throughout the year due to lack of water supply. There are a few community gardens in the country, which are formal, operating on council owned land, but farming independently (Gumbo, 2000; Mbiba, 2000; Toriro, 2009). Some of these are supported institutionally, with access to inputs such as water. In some instances however, civic farmer's groups have no partnerships with local municipality or the public sector. Support comes in different forms and to varying degrees, which in turn affects the training and technical support, access to resources and knowledge sharing among urban farmers (Sithole, 2008; Sithole, *et al.* 2012).

Numerous organizations ranging from civil society groups, research institutes and grower's associations are engaged in dialogue regarding the state of urban cultivation. The discourse is primarily centred on the sustainability of the practice, agricultural inputs, and access to land as well as security of tenure. Majority of producer's groups were established in 2000 and a few years thereafter, coinciding with the rise in unemployment rates (MDPESA, 2007). Farmer groups that approach local government to create a forum for discussion usually initiate the subject of obtaining land. If a decision is reached that satisfies all parties involved, the platform may become inactive, but if a demand persists it remains in place. The platform where the different stakeholders participate in discussions is the Urban Agriculture Stakeholders Forum, which was initiated out of the need to coordinate the processes related to farming. Other interactions such as with NGOs involve varying initiatives. Platforms that are educational have primarily been set up by NGOs and may take the form of competitions for good techniques as well as exhibitions. Whereas some NGOs are involved in capacity building and training, others are active in advocacy for low-income communities (MDPESA, 2007).

A large proportion of the stakeholders is formally recognized, having gone through a registration process and subsequently obtaining a legal persona. Farmer's groups however remain an informal entity and do not have a well-defined identity, an issue that is likely to have arisen out of the lack of clarity concerning the position on farming in Harare. They are loose cooperatives and the lack of structure weakens their cohesion as a group as well as their socio-political voice. While leadership configurations within the groups are well established, they are not representative of a legitimate endeavour, as they are not legally constituted. They generally do not have offices, addresses, or institutional letterheads and the absence of administrative structure also impedes any chances of successfully interacting with financial or credit institutions for funding. It also means that they are beholden to priorities of other groups and where there are problems, farmers cannot speak in unison. Generally the regulatory bodies have not upheld their supportive policy

declarations with the necessary permits or leases. Most farmers remain unclear whether and to what extent they can invest in land (MDPESA, 2007).

2. 4. 3. Ordinances and By-Laws

Five legislative items as well as a few by-laws and statutory plans sum up the institutional profile of public cultivation in Zimbabwe. The aforementioned Regional Town and Country Planning Act of 1976 govern matters concerning the use of land as well as the plans and subsequent demarcation of lots. This act provides a basic set of rules allowing for context-specific procedures to be expanded on by local authority's policies with the overarching objective to practice efficient planning and environmental sustainability (MDPESA, 2007). Thus, although this act does not directly reference agriculture, it permits the activity when it is integrated with local and regional schemes. The Urban Councils Act of 19 oversees local authorities and authorizes the Minister of Local Government to create policy directives regarding the administration and management of urban agriculture such as the removal of crops (Mushayavanhu, 2003). This statute does not specifically outline how cultivation should be conducted but instead requires a rigorous planning process on land-use for farming (MDPESA, 2007).

The Environmental Management Act (EMA) is an overarching law that encompasses the rights of individuals and prioritizing their needs whilst ensuring ecological sustainability. It also advocates environmental rights such as the right to information, environmental education and community participation. The EMA was set out to coordinate all laws associated with environmental issues. Should there be any other regulation that is incompatible with this act, the EMA always takes precedence. The Water Resources Act of 1927 addresses practices that impact stream banks or wetlands and the Natural Resources Act of 1952 prohibits land degradation and the removal of plants in wetlands and along stream banks (Mushayavanhu, 2003). Despite the prevalent situation of production on vlei land it is prohibited by these regulations, which stipulate that no individual can grow or

destroy any vegetation, or change the soil properties or surface of a wetland within 30 metres of the banks of a public stream or water body (Boywer-Bower, 1996; Gumbo, 2000; Mushayavanhu, 2003).

The Use and Occupation of Council Land of 1979 as well as the Protection of Lands By-Laws of 1973 prohibit all cultivation on municipal property that is conducted without the written approval of authorities, and allows for the destruction of crops. The role of the latter by-law is to maintain ecologically sound practices (Bowyer-Bower, 1996; Gumbo, 2000; MDPESA, 2007). Statutory plans are detailed frameworks that function under the Regional Town and Country Planning Act. The Cleveland Local Plan 4 was one of the initial schemes that formally acknowledged urban cultivation. It sets out a land use zone for access by producer groups in the suburbs of Mabvuku and Tafara for example, and also outlines areas designated as recreation as well as conservation areas. Similarly the Harare Master Plan seeks to establish the preservation and protection of woodlands, natural and man-made environments. It also contributes toward the process of determining suitable areas for cultivation as well as the introduction of buffer zones along major river corridors and areas of particular natural value (MDPESA, 2007).

3. Methodology

This section discusses the methodological approach that was used in the study. The procedure consisted of the combined use of direct observation, interviews and document analysis. More specifically, for the first research objective of determining individual health benefits, in-depth one-on-one sessions with farmers were conducted. For investigating community-level benefits, in-depth interviews with farmers, local authorities and an NGO official, as well as focus group discussions were carried out. Finally the institutional context of gardening was explored through an NGO official as well as a document analysis. This chapter also outlines how the collected data was analysed, the limitations and the ethical considerations.

3.1. Study Site

The site for this study was an urban community gardening project located in Tafara, which is a low-income high-density suburb approximately 17km east of the central business district of Harare (Fig. 2).

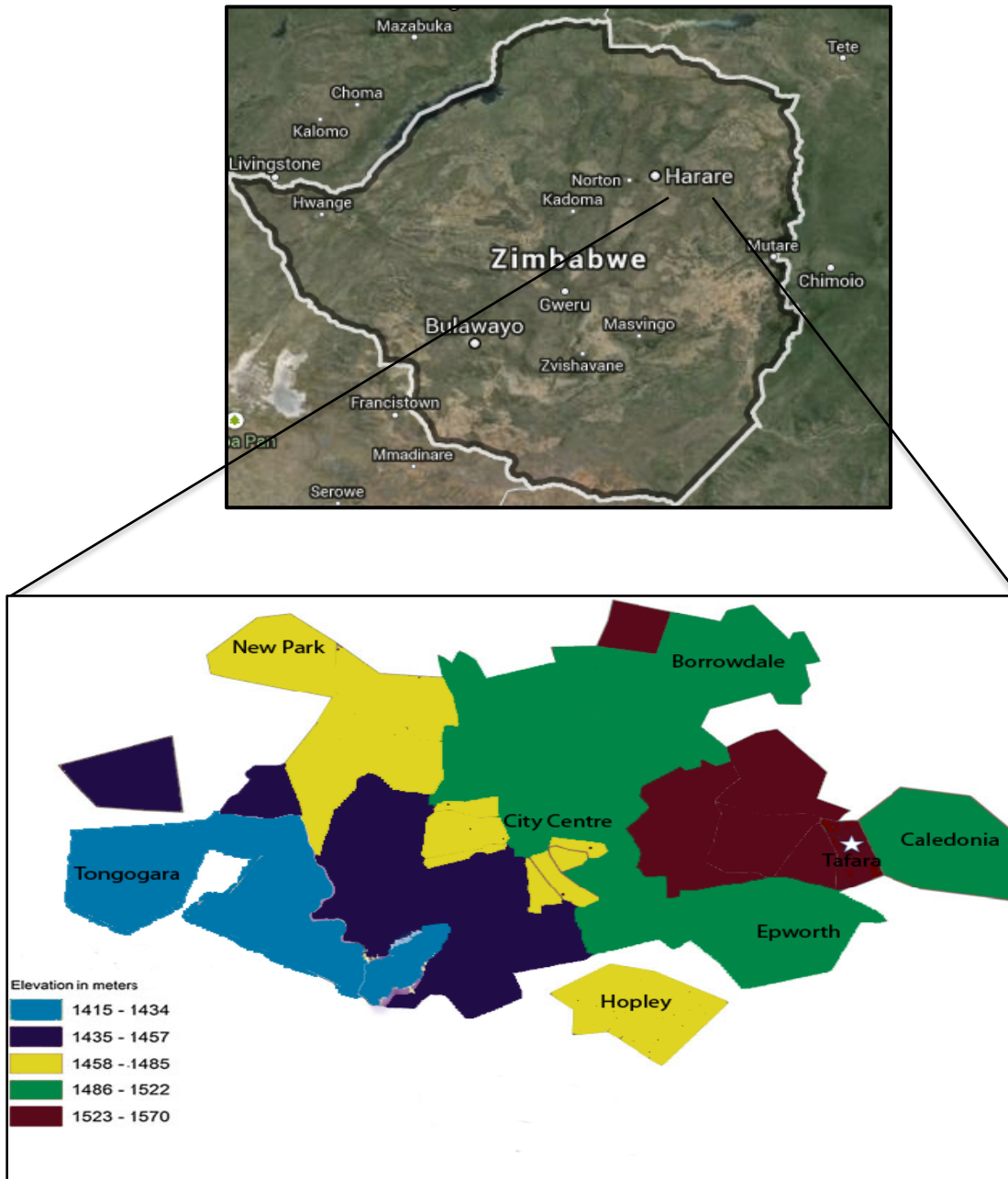


Figure 1: Site Map of Harare, Zimbabwe (Adapted from Fernandez, *et al.* 2012; Google Maps, 2014).

The project has been in operation for about two years and has seventy participants, thirty-four of which have remained members from initial establishment. It is currently the only active Environment Africa community gardening project in Tafara and is funded by a German organization (EED). Environment Africa is a private voluntary organization working in the area under the 'Improving livelihoods and natural resources utilization and conservation in selected districts of Zimbabwe' project. Nutrition gardening forms one of the main themes under this initiative with the particular project under study known as EED3. The crops being grown are rape, tomatoes and onions, which are primarily for household consumption and the non-governmental organization provides expertise in order to facilitate urban farmers to mobilize and secure land and water supplies.

3.2.Data Collection

3.2.1. Direct Observation

The first methodological approach was direct observation, which consisted of studying the activities of project members without direct interference or interaction. Taking on a passive role meant that research subjects were likely to behave naturally, which aided in gaining an idea of the main features of the project. Direct observation was used to establish whether there was a collective routine amongst the urban farmers. It was carried out briefly before and after interviews over the course of two weeks, and supplemented by observational accounts from farmer's as well as coordinators of the project. It was also used throughout the data collection process to gauge any social dynamics amongst respondents as well as the persons affiliated with the project (Sithole, 2008).

3.2.2. Interviews

Interviews encompassed the second overarching procedure, which took the form of in-depth interviews and focus group discussions. All interviews were conducted in a

familiar environment for participants to comfortably express themselves. In order to fully engage with the interviewees the sessions were recorded and later transcribed. As Longhurst (2003) argues, recording interviews and focus groups has the advantage that the researcher can, at a later stage, go back and listen to the recordings and be able to capture the views of the participants more accurately. At the end of each day of data collection, audio recordings were transferred onto a computer and transcribed. Access to the recordings was restricted to the researcher and supervisor only, and was strictly used only for the analysis regarding the study. Research subjects have remained anonymous throughout the whole study and all recordings done in the field will be destroyed in early June 2014, upon the official completion of the degree.

3. 2. 2. 1. In Depth Interviews

In-depth interviews comprised one-on-one sessions with selected beneficiaries and key informants based on a semi-structured format. Four respondents were interviewed as key informants. Each interview session was conducted for approximately forty minutes. These research subjects were selected on the basis of their active role and being in positions of leadership regarding the project. It was therefore premised that these individuals would be in a position to know more about information regarding the benefits of community gardening to participants. Participants included an NGO official from Environment Africa who is based in the Harare office as well as a partner of the organization who is a Tafara resident. Key informants representing local authorities were the ward councilor, and a local resident who has been instrumental in the project maintenance and has become an authority figure in the community. The key informants were instrumental in providing information on the characteristics of the Environment Africa project, how it functions, and the local issues concerning farming and the community. Key informant interviews were also useful in providing knowledge on the challenges as well as external perspectives on experiences of project members (Tongco, 2007; Sithole, 2008).

A combination of purposive and random sampling was employed in order to obtain a sample of project beneficiaries, and because they were conducted one-on-one, the sessions offered a more in-depth method of gaining information. Stratified random sampling was used to divide the community gardeners into two groups based on who had been a member for the whole period and who joined the project after establishment (Sithole, 2008). Purposive sampling was used to select five key respondents who were members of the project since commencement. Purposive sampling is a non-random method for obtaining participants that display specific qualities and facilitates the process of obtaining a comprehensive account of the personal benefits and experiences of engaging in community gardening by ensuring the selection of subjects that have been active throughout the entire period (Berg, 2001; Sithole, 2008). When dealing with small sample sizes that are chosen randomly, there is no assurance of achieving research objectives. One can however increase the probability of getting accurate results by choosing those respondents that are informative (Gerring, 2007), hence getting more data on community gardening and its benefits beyond food security. For the larger group consisting of beneficiaries that became members after initial establishment, random selection was applied and four farmers were interviewed. Each in-depth interview session with project beneficiaries was conducted for approximately fifty minutes. During the in-depth interviews, the dialogue progressed in a conversational way that allowed respondents to express issues they felt were important (Gerring, 2007; Tongco, 2007; Sithole, 2008).

3. 2. 2. Focus Group Discussions

Focus group discussions (FGDs) were conducted with project members using a semi-structured guide. The discussion occurred in an informal and open-ended manner. The flexibility and informality of the focus groups allowed the participants to explore topics in a way that progressed naturally. Focus groups generate pathways to understanding numerous structural features. As the participants could also interact amongst themselves, more information emerged from the discussion to

allow the researcher to understand the issues under discussion more comprehensively. The FGDs were conducted after in-depth sessions, so as not to allow group dynamics to influence individual opinion. The use of this approach provided a more representative picture of farmer experiences as well as reducing the perception of the researcher in the subsequent results. Moreover, sessions reveal commonalities, as well as the aggregate ideas shared and negotiated by the group (Berg, 2001; Sithole, 2008).

For the focus group sessions, the researcher endeavoured to include at least half of the project members in order to gain a strong knowledge base of the project, however due to scheduling conflicts about one-third of the total number of farmers were available for interviews. Nonetheless there were recurrent themes in the discussions that would suggest that the sample size was sufficient. The subjects were divided into two groups based on the length of their membership to the project, with regard to whether they had joined the project from its inception or after its establishment. Random selection was used to generate three focus group sessions consisting of eight project members. Each of the groups separately included individuals who had been members from establishment, members who joined after and a mixed group.. Each session ran for approximately forty-five minutes and the main role was to establish any collective processes or dynamics related to the project. The FGDs also sought information on the reasons for starting the community gardening project, its continued success, challenges, opportunities as well as how the gardens have changed or reshaped their lives. This procedure was useful for gathering information, which also acts as a mechanism for assessing the efficiency of the way in which a question is framed. Group dynamics were also useful in discovering recurrent themes and possible issues that may have previously been neglected (Longhurst, 2003; Sithole, 2008).

3.2.3. Justification of Methodological Approach

The study employed qualitative methods for data collection. In qualitative research, each approach illustrates variations of the same symbolic reality. Every method

precludes a certain perspective and by combining numerous pathways to observations, a more representative and richer set of information can be obtained. The process of pursuing a more extensive range of symbols and theoretical concepts is referred to as triangulation. Triangulation consisted of employing direct observation, interviewing and document analysis as part of meeting the research objectives. The value of methodological triangulation is in the process of refining and expanding on conceptual relationships, which can result in a deeper level of understanding. The use of this technique is to link the different kinds of information as a means of corroboration and validation in order to strengthen the findings (Berg, 2001). The various methodological techniques provided more perspective in the study, thus reducing the likelihood of bias during data analysis and interpretation (Sithole, 2008). The range of sources also reduced the likelihood of selecting interviewees that could offer biased responses in favour of local leaders.

3.3. Theoretical Framework and Data Analysis

The study employed the capability approach, which is a comprehensive outline for evaluating the individual well-being and social structures, the design of policies, and suggestions about social change. It was useful in assessing numerous facets of welfare such as inequality, poverty, the well-being of a person and that of the members of a group, which were integral in evaluating the themes in this study. The principal theories in this framework are functionings and capabilities. According to Sen (1999), functionings are accomplishments of an individual taking into account what they can manage to do. Functionings are what make life valuable - the activities and the state of being. These involve being healthy, respected, educated, freedom of mobility, involvement in politics and having access to resources. Capabilities are the freedoms or options a person has for attaining various lifestyles. Analytically the framework was used to determine how community gardening has provided the farmers with capabilities they can use to improve their health. In this case the garden was regarded as an advantageous element that facilitates accomplishments of certain capabilities that participants use to attain

developmental goals in the community. The characteristics of a good are what foster functioning, and the association between the two is affected by two relevant conversion factors. Personal conversion factors such as physical status affect how an individual can change the features of a good into a functioning. Social conversion factors affect how the individual can use the good because of societal conventions such as gender roles (Robeyns, 2005; Sithole, 2008). The basic framework shown below, which has been adopted from a study conducted by Sithole (2008), formed the basis on which data was collected and analyzed. Instead of capabilities such as political participation and food security, themes such as dietary literacy, nutrition, social inclusion and cohesion were central.

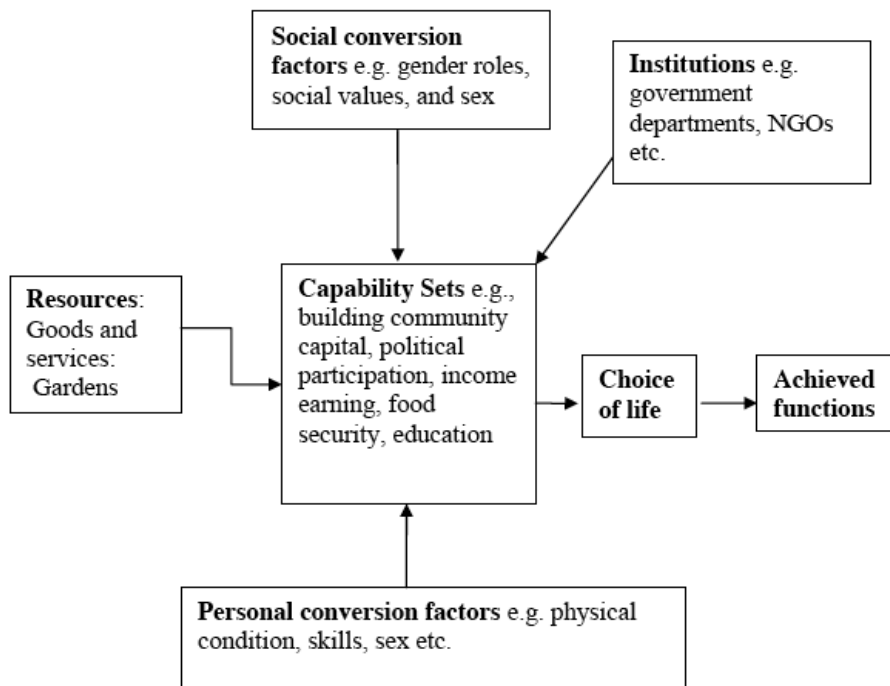


Figure 2: Capabilities approach framework (Sithole, 2008; Robeyns, 2005).

3.4. Limitations of this Study

The limitations associated with this research are that the amount of literature on the positive effects of community gardening is little, as the subject has only recently begun to emerge. A lot of the research on the psychosocial benefits of gardening is correlational and does not establish causality. In addition, the experimental literature sometimes comprises methodological weaknesses such as a lack of a control group, which limits the conclusions that can be drawn (Okvat and Zautra, 2011). Majority of the respondents were more comfortable with communicating in the Zimbabwean language Shona, hence the interviews were conducted with a translator. Having to translate the interviews may have lost some nuances of participant responses. Another possible constraint was that because interviews and site visits were scheduled, this reduced the amount of exposure to spontaneous interactions amongst garden members (Snowdon, 2010). Moreover due to time constraints, the methodological approach of direct observation was carried out briefly before and after interviews were conducted, and thus supplemented by farmer's accounts. The potential limitation of self-report data was reduced by obtaining a wide range of perspectives from the people involved with the community gardening project as well as document analysis. The extent to which some of the information acquired for this study is representative of a wide range of experiences regarding urban agriculture in Harare is limited. The principal role of the farmer's interviews was to gain a rich and contextual account of communal gardening in a high-density suburb such as Tafara. This limitation was also accounted for by conducting a document analysis of existing literature however there are points of departure for further research that one must bear in mind whilst evaluating the analysis of the results, which have been presented.

3.5. Ethical Considerations

Studies that involve engaging with individuals about their lives, comes with a responsibility of the researcher to account for ethical issues. These issues primarily have to do with confidentiality and anonymity. Ethical clearance was obtained from the University of Cape Town's Faculty of Science and the standards adhered to.

Research subjects were provided with a consent form outlining the study and requesting their permission to participate. They were informed that they had the right to withdraw from the process at any point without explanation. Respondents were also informed that the information gathered would remain confidential, only to be used for academic purposes of the researcher and supervisor. In the focus group discussions, participants were advised to only reveal information they felt comfortable sharing with other group participants, and emphasis was placed on the confidentiality of the discussions (Longhurst, 2003).

4. Findings

4.1. Introduction

The following chapter presents the key findings in tabulated form, highlighting the recurring themes with the different entities involved with community gardening. Based on the Capabilities Approach framework, there are four overarching themes namely resources, institutions, social conversion factors and personal conversion factors that channel into capability sets, and result in achieved outcomes. Using the theoretical framework as a foundation, the structure is repurposed to illustrate the interrelatedness of these various components as well as elucidate how they relate to the research objectives.

4.2. Key Findings