

# **Wealth creation through green economy in urban areas –**

**A case study of poor urban women's use of environmental services to generate income in Msunduzi Municipality, South Africa.**

**by  
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## Abstract

Urbanisation is an inevitable process that creates opportunities for economic growth and development, however, it can come at the cost of urban poverty and environmental degradation - two of the greatest challenges facing policy-makers. The global failure to develop in a sustainable manner has led to the adoption of green economy in the context of poverty alleviation and sustainable development. Given South Africa's high rates of urbanisation, the nation's government, in partnership with civil society and the private sector, is taking steps to green its economy, with the transition ranging from large-scale solar installation projects to small-scale grassroots level projects where the green jobs are created for the poor, predominantly women, by paying them for environmental services. This research investigates how urban poor women in Pietermaritzburg, South Africa, under the management of a local environmental non-governmental organisation (ENGO), Wildlands Conservation Trust (WCT), are using the green economy concept to generate income and contribute to environmental sustainability. Using a case study approach, three areas were selected in which semi-structured questionnaires were administered to women who are involved in a 'green-preneurship' initiative, consisting of three project nodes, namely, waste-, tree-, and food-preneurship. The women registered under the project collect and segregate waste for sale to the ENGO (waste-preneurs), while others grow indigenous trees for sale to the ENGO (tree-preneurs), and some grow food crops for subsistence and sale of any excess to community members (food-preneurs). The project is reducing poverty levels and empowering the women both economically and socially. Furthermore, while the primary incentive for participating in the green economy initiative was found to be financial, the project has helped to raise environmental awareness and is a mechanism through which women can contribute to environmental sustainability. Their voluntary participation in the project indicates the importance of urban poor women to green economy. This role stems from understanding the importance of the environment to their livelihood, and in this regard, green economy can be said to be addressing the social and environmental externalities of urbanisation, with women at the forefront.

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## Declaration

I, Sithabile Hlahla, student number 211550446, hereby declare that the dissertation entitled, 'Wealth creation through green economy in urban areas –A case study of poor urban women's use of environmental services to generate income in Msunduzi Municipality, South Africa' is the work of my own research investigations, and that it has not been submitted in part or in full for any other degree, to any other University. Where the work of others has been used, it has been duly acknowledged in the text.

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***“Ephesians 3:20- Now to him who is able to do exceedingly abundantly above all we ask or imagine, according to the power that works in us”***

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## Table of Contents

Abstract.....	i
Declaration.....	ii
Acknowledgments.....	iii
<b>Chapter One.....</b>	<b>1</b>
<b>Introduction.....</b>	<b>1</b>
1.1 Introduction .....	1
1.2 Aim and objectives .....	4
1.3 Rationale.....	5
1.4 Structure of the dissertation.....	6
<b>Chapter Two.....</b>	<b>7</b>
<b>Literature Review .....</b>	<b>7</b>
2.1 Introduction .....	7
2.2 Urban Poverty.....	7
2.2.1 What is urban poverty? .....	7
2.2.2 Urban poverty in South Africa .....	10
2.2.3 Urban poverty and the environment .....	12
2.3 Sustainable development .....	15
2.3.1 History .....	15
2.3.2 The United Nations Conference on Environment and Development (UNCED).....	16
2.3.3 World Summit on Sustainable Development (WSSD).....	17
2.3.4 Failure of sustainable development .....	19
2.4 Green Economy .....	21
2.4.1 Transition from Sustainable Development to Green Economy.....	21
2.4.2 Green economy in South Africa .....	25
2.5 Women and the Environment .....	29
2.5.1 History of Women and the Environment.....	32
2.5.2 Women and environment in S.A .....	33
2.5.3 Women and Green Economy.....	35
2.6 NGOs and the environment .....	37
2.6.1 The role of NGOs .....	38
2.6.2 Criticisms of NGOs .....	39
2.6.3 Environmental non-governmental organizations (ENGOs) .....	41
2.7 Conclusion.....	43
<b>Chapter Three.....</b>	<b>45</b>
<b>Methods.....</b>	<b>45</b>

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3.1	Introduction .....	45
3.2	Research strategies .....	45
3.2.1	Mixed Methods Research .....	45
3.2.2	Case studies .....	45
3.3	Wildlands Conservation Trust ('A sustainable future for all').....	46
3.3.1	Green-preneurship activities .....	47
3.4	Study sites.....	51
3.4.1	Sampling .....	51
3.4.2	Study areas .....	52
3.4.3	Data Collection .....	55
3.4.4	Analysis and interpretation .....	57
3.5	Limitations.....	57
<b>Chapter Four.....</b>		<b>59</b>
<b>Results.....</b>		<b>59</b>
4.1	Socio-economic characteristics of respondents.....	59
4.2	Green-preneurship activities.....	61
4.2.1	Reasons for participating in green-preneurship.....	61
4.2.2	What have you done with the income from green-preneurship?.....	63
4.2.3	Importance of green-preneurship activities .....	65
4.2.4	Has green-preneurship changed your role in the household?.....	66
4.2.5	Have you faced any challenges in carrying out green-preneurship activities?.....	66
4.2.6	Has Wildlands Conservation Trust met its goals?.....	67
4.2.7	Future participation in the green-preneurship project .....	70
4.3	Environmental awareness .....	70
4.3.1	Environmental knowledge and values .....	70
4.3.2	Environmental attitudes and willingness to act .....	83
4.4	Responses from key informants .....	86
4.4.1	The role of women in green-preneurship and South Africa's green economy.....	86
4.5	Summary of results.....	88
<b>Chapter Five.....</b>		<b>90</b>
<b>Discussion.....</b>		<b>90</b>
5.1	Introduction .....	90
5.2	Socio-economic data.....	90
5.3	WCT's Green-economy initiative .....	91
5.4	Environmental awareness .....	98
5.5	Contribution to conceptual and theoretical development of the green economy concept.	102

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5.6 Conclusion.....	103
<b>Chapter Six.....</b>	<b>105</b>
<b>Conclusions.....</b>	<b>105</b>
6.1 Main findings.....	105
6.1.1 To examine literature on urban poverty, its impact on the environment, and the role of the informal economy in alleviating poverty.....	105
6.1.2 To critically review literature on the green economy discourse and assess its application in poverty alleviation in developing countries, particularly South Africa.....	106
6.1.3 To examine women’s involvement in a community-based green economy project organised by a local ENGO in three communities, and to establish reasons for their involvement and factors that may promote or hinder their participation in such grassroots-based green economy initiatives. ....	106
6.1.4 To investigate the impact of the green economy project on the livelihoods of the marginalised urban women.....	108
6.1.5 To ascertain the level of environmental awareness and involvement in environmental management of the women in the case studies through their participation in the community-based green economy project.....	108
<b>References.....</b>	<b>110</b>
<b>Appendices.....</b>	<b>xi</b>
Appendix 1 Questionnaire administered to women from SWAPO, Sweetwaters, and Willowfontein.....	xii
Appendix 2 Interview schedule for project facilitators.....	xxiv
Appendix 3 Interview schedule for official from WCT.....	xxviii
Appendix 4 Interview schedule for Manager of Environmental Management Unit, Msunduzi Municipality .....	xxxii
Appendix 5 Informed consent WCT.....	xxxiii
Appendix 6 Informed Consent Msunduzi.....	xxxvi
Appendix 7 Ethical clearance .....	xxxviii

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## List of Tables

Table 4.1 Socio-economic characteristics of respondents .....	60
Table 4.2: Purchases and payments made by the women using income gained from green-preneurship.....	64

## List of Figures

Figure 2.1: Summary of the environmental mega-conferences on road from sustainable development to green economy .....	21
Figure 3.1: The study areas, SWAPO, Sweetwaters and Willowfontein situated within the Msunduzi Municipality as part of the uMgungundlovu district municipality .....	52
Figure 3.2: Employment and Unemployment rates in the study areas (Adapted from Statistics South Africa- Census 2011) .....	54
Figure 3.3: Annual household income of the study areas (Adapted from Statistic South Africa-Census 2011).....	54
Figure 4.1: Sources of income for the women .....	61
Figure 4.2: Green-preneurship activities for which the respondents are registered .....	61
Figure 4.3: Reasons for the respondents' participation in green-preneurship activities.....	63
Figure 4.4: Respondents' monthly income from green-preneurship .....	64
Figure 4.5: Importance of recycling and tree-planting .....	66
Figure 4.6: Women's opinion on whether WCT has met its goals? .....	69
Figure 4.7: Responses to the question: Is the environment in trouble? .....	72
Figure 4.8: Responses to the question: Do these activities contribute to environmental degradation?75	
Figure 4.9: Severity of environmental degradation in the study areas .....	76
Figure 4.10: Who is responsible for the environmental issues in your area? .....	79
Figure 4.11: Who should tackle environmental issues that are prevalent in your area?.....	80
Figure 4.12: Do environmental problems impact one's health?.....	82
Figure 4.13: Does environmental degradation impact future generations? .....	83
Figure 4.14: What determines the women's purchasing choices?.....	85
Figure 4.15: Women's engagement in environmentally-conscious activities .....	86

## List of Plates

Plate 3.1: Examples of waste-preneurship in Willowfontein.....	48
Plate 3.2: Example of tree-preneurship.....	49
Plate 3.3: Examples of food-preneurship.....	50

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## Acronyms

CBD	Convention on Biological Diversity
CC DARE	Climate Change and Development Programme- Adapting by Reducing Vulnerability
CEBA	Community Ecosystem Based Adaptation
CAP	Climate Action Partnership
COP	Conference of Parties
DBSA	Development Bank of Southern Africa
DDT	Dichlorodiphenyltrichloroethane
DEA	Department of Environmental Affairs
EBA	Ecosystem-Based Adaptation
ENGO	Environmental non-governmental Organisation
FAO	Food and Agriculture Organisation
FHI	Family Health International
GEO	Global environmental Outlook
GBM	The Green Belt Movement
GDP	Gross Domestic Product
GHG	Greenhouse gases
GPS	Global Positioning System
GROOTS	Grassroots Organizations Operating Together in Sisterhood
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IDS	Institute of Development Studies
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
IISD	International Institute for Sustainable Development
ILO	International Labour Organisation
INSTRAW	United Nations International Research and Training Institute for the Advancement of Women
IRC	International Water and Sanitation Centre

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IUCN	International Union for Conservation of Nature and Natural Resources
MDGs	Millennium Development Goals
NEMA	National Environmental Management Act
NFLS	Nairobi Forward-Looking Strategies
NGO	Non-governmental organisation
OSCE	Organisation for Security and Co-operation in Europe
PEP	Poverty-Environment Partnership
RDP	Reconstruction and Development Programme
SACN	South African Cities Network
SAEP	South African Education and Environment Project
SALGA	South African Local Government Association
SAIRR	South African Institute of Race Relations
Sapa	South African Press Association
SERI	South African Rights Institute of South Africa
TIPS	Trade and Industrial Policy Strategies
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNCSD	United Nations Commission for Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDESA	United Nations Division for Sustainable Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
UNRISD	United Nations Research Institute for Social Development

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UNITAR	United Nations Institute for Training and Research
WCED	World Commission on Environment and Development
WCT	Wildlands Conservation Trust
WEDO	Women's Environment and Development Organization
WESC	Women's Economic Security Campaign
WfW	Working for Water programme
WIEGO	Women in Informal Employment: Globalizing and Organizing
WRI	World Resources Institute
WOW	Wider Opportunities for Women
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature

# Chapter One

## Introduction

### 1.1 Introduction

By 2030, it is expected that more than one-half of the world's poor will reside in urban areas, facing poor living conditions, high rates of unemployment and a lack of access to basic services, making urbanisation one of the greatest challenges facing policymakers (Ravallion *et al.*, 2007). The environmental and social impacts associated with the increase in number and size of urban areas include; uncontrolled resource depletion, degradation of natural systems, and pollution, which serve to exacerbate poverty and inequality, keeping the poor in a 'downward spiral', where they are forced to degrade the environment to meet their short-term needs (UN Women, 1995; FAO, 1997; UN-HABITAT, 2003; Satterthwaite, 2004; Cities Alliance, 2006; Kimemia. 2007; IFAD, ud). Though attempts have been made to address these issues through sustainable development processes, unsustainable, resource-intensive economic growth patterns have continued to prevail (UNEP, 2011). Thus, in response to this failure, the global community (i.e. the governments and peoples of the world) has put forth the concept of green economy in the hopes of alleviating poverty and finally putting the world on a sustainable and socially equitable path (Stevens, 2010; UNEP, 2011; UNEP, 2012).

The green economy initiative or the green growth model is the newest environmental discourse that began as a pilot project idea initiated by the United Nations Environment Programme (UNEP) in 2008. Currently, it is the subject of global policy discourse and debate as humankind continues to seek a solution to the environmental and social externalities of economic development, in particular, in the face of the global financial crisis that began in 2008 (Stevens, 2010; IBON International, 2011; Musyoki, 2012; UNRISD, 2012a). UNEP (2011) argues that while sustainability is a long-term goal, it would be impossible to achieve without "getting the economy right" (p.19) both nationally and globally, and addressing the social dimensions of sustainable development, particularly poverty alleviation, the participation of women, and gender inequality (UNRISD, 2012a). The concept of green economy attempts this by promoting a people-centred approach to sustainable development which aims to alleviate poverty and improve the livelihoods of those who are unemployed by creating jobs and encouraging livelihood sustained economic development, while safeguarding environmental resources (Shanahan, 2010; UN Environmental Management Group, 2011; UNEP, 2011). Against this backdrop, many countries are taking steps to integrate the principles of green economy into different policy areas and are implementing

initiatives within the different economic sectors that drive it. These sectors include, *inter alia*, water; renewable energy; low carbon transport; energy efficient buildings; clean technologies; agriculture; manufacturing; fisheries; forestry; waste; and tourism (UNEP, 2010). However, while there have been some green economy success stories, the focus has predominantly been on its economic and environmental dimensions, with little or no consideration for the social aspects (Hezri and Ghazali, 2011). Most importantly, there has been limited participation of women, particularly the urban poor, in green economy discussions and decision-making (UNEP, 2004; Stevens, 2010; PEP, 2012). Stevens (2010) asserts that this is a grave mistake as history has proved that ignoring the unique relationship that women have with the environment will only hinder any efforts to solve the present environmental crisis. While women bear the brunt of the environmental crisis, they have, through their close relationship with the environment and indigenous knowledge gained as a result of this relationship, the potential to contribute to a solution (Braidotti *et al.*, 1994; INSTRAW, 2003; Labaris, 2009; OSCE, 2009; Stevens, 2010).

Internationally, environmental issues were predominantly considered to be gender neutral until 1984 when the International Union for Conservation of Nature and Natural Resources (IUCN) recognised a link between women and conservation, prompting them to promote the involvement of women at all levels within the organisation, including decision-making (UNEP, ud). This, in conjunction with several women's environmental movements (for example, Wangari Maathai's grassroots Green Belt Movement (GBM) in Kenya and the Chipko's 'tree-huggers' movement in India) and the numerous studies carried out on ecofeminism and women's roles in different environmental sectors, led to the growing realisation that "the growth of women's power and sustainability of development are ecologically tied" (ELC, 1987 cited in Dankelman, 2005, p. 6). This important role that women can, and do, play in environmental sustainability was made explicit at the Third United Nations (UN) Women's Conference in Nairobi in 1985, where emphasis was placed on women's empowerment and involvement in sustainable development, in addition to gender equality and equity. Moreover, the environment was listed as "an area of concern for women" in the Nairobi Forward Looking Strategies (INSTRAW, 2003; Dankelman, 2005; OSCE, 2009, p. 14).

This concern was accentuated during the preparatory process to the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro where, according to the OSCE (2009, p. 14), not only was a "reasonably engendered Agenda 21" developed but women were identified as one of the nine major groups to help achieve sustainable development (Hemmati and Gardiner, 2002; OSCE, 2009). Furthermore, a separate chapter, Chapter 24, titled 'Global

Action for Women towards Sustainable and Equitable Development' was included in Agenda 21 which emphasized the need for a broad participation of women at all levels of governance, and in all sustainable development-related UN activities, and the need to take a gendered approach to sustainable development planning and implementation (INSTRAW, 2003; Dankelman, 2005; OSCE, 2009). The Third UN Women's conference, the UNCED and, more recently, the annual Women and Environment conferences which began in 2006, are examples of the international forums where women have been linked to the environment and these have been followed by numerous related discussions, studies, workshops and publications on the topic. The focus, however, has since shifted from women and the environment in the 1980s to gender and sustainable development in the 1990s (INSTRAW, 2003), and now as the world is transitioning towards a green economy, women are advocating for gender equality and leadership in this imagined low carbon, resource efficient economy. The inclusion of women in the green economy framework is imperative as this will not only empower them but also contribute to poverty alleviation, environmental sustainability and gender equality (Stevens, 2010). It is suggested that the antidote to the current environmental crisis will not be found in science and technology but in women's knowledge. Such knowledge can contribute more to the solution and they can lead the way to a clean and sustainable green economy. Learned (2011, p.26) argues that the "competitive, stereotypically, masculine approach" to development culminated in the present environmental crisis but "encouraging the relational and empathetic aspects of human thinking- and better balancing that which has been perceived as masculine and feminine- will lead us to a more sustainable, enduring, and productive global community".

While the green economy discourse is relatively new, the issues being addressed; poverty alleviation, gender inequality, and environmental degradation, have been on the international agenda for decades, leaving the global community hard-pressed for solutions. Of the aforementioned issues, poverty reduction is proving to be the most challenging (UNDP, 2012). This situation is compounded by the failure to address urban poverty as poverty has been primarily considered to be a rural phenomenon, resulting in the majority of poverty reduction strategies and policy interventions having a rural bias (Hezri and Ghazali, 2011). In the 2005 World Resources Report, *The Wealth of the Poor*, the United Nations Development Programme *et al.* (2005) pose the question- '*Why focus on rural poverty rather than urban poverty?*' (p.12) - a question that advocates rural as opposed to urban poverty alleviation. The report asserts that the source of urban poverty is the exportation of rural poverty into urban areas, hence, any successful attempt to alleviate poverty would have to deal with poverty at its source and this will indirectly lead to a

reduction of urban poverty (UNDP *et al.*, 2005). While such an approach sounds promising, it neglects the fact that the urban poor are already increasing due to high birth rates among the poor, and that urban and rural poverty are different in many ways and approaches that can work for rural poverty alleviation will not necessarily work for urban poverty (UN Economic and Social Council, 2007; South African Cities Network, ud). Mitlin (2004) notes that much emphasis is placed on rural poverty despite the number of cases that have proven that urban poverty needs must be addressed, and states that the significantly higher proportion of rural poor compared to urban poor does not translate to the absence of a poverty problem in the urban context. Therefore, urban and rural poverty need to be addressed simultaneously as one is no more important than the other (South African Cities Network, ud).

This lack of recognition of urban poverty does not bode well for urban poor women who form the majority of the urban poor (Jahan, 2008). Moreover, little research has been undertaken on the role of urban poor women in environmental management issues as greater emphasis has been placed on the role rural women can play because of the perceived close relationship they have with the environment through their dependence on natural resources for survival and livelihoods. This relationship has led to women accumulating valuable, extensive information on the sustainable use of natural resources (Dankelman, 2005; Labaris, 2009). While women in cities do not possess the same close relationship with the environment, they can still contribute to environmental knowledge as the majority originate from rural areas or they have gained some knowledge from their parents and grandparents. Furthermore, just like rural women, urban women are disproportionately affected by changes in the environment such as impacts on their health, livelihood and overall well-being which are a result of urbanisation (Jahan, 2008). It would, thus, be beneficial for urban women to help protect the environment and contribute to environmental management. This research, therefore, investigates how urban poor women in Pietermaritzburg, South Africa, are creating livelihoods and managing the environment through their participation in a community-based green economy project that is organised by a local environmental non-governmental organisation (ENGO).

## **1.2 Aim and objectives**

To investigate, through a local case study, how marginalised urban women are using green economy as a tool to alleviate poverty and contribute to environmental sustainability in South Africa. This aim will be achieved through the following objectives:

- To critically review literature on urban poverty, its impact on the environment, and the role of the informal economy in alleviating poverty
- To critically review literature on the green economy discourse and assess its application in poverty alleviation in developing countries, particularly South Africa
- To examine women's involvement in a community-based green economy project organised by a local ENGO in three communities, and to establish reasons for their involvement and factors that may promote or hinder their participation in such grassroots-based green economy initiatives.
- To investigate the impact of the green economy project on the livelihoods of the marginalised urban women
- To ascertain the level of environmental awareness and involvement in environmental management of the women in the case studies through their participation in the community-based green economy initiative.

### **1.3 Rationale**

Green economy is a relatively new and highly debated concept that still lacks a formal definition but is known as a two-pronged approach that aims to alleviate poverty and protect the environment (UNDESA *et al.*, 2011; UNRISD, 2012). Many countries are attempting to find ways to integrate the concept into policy and in addition to this, women are seeking opportunities to make a contribution to the attainment of a sustainable low carbon, resource- efficient economy. These women are usually non-poor urban women who are well educated and are seeking leadership positions in the green economy as illustrated by the launch of the Women and the Green Economy (WAGE) campaign at the 16<sup>th</sup> United Nations Framework Convention on Climate Change (UNFCCC) in December 2010 which aims to promote female leadership in discussions regarding the shift from a brown to a green economy (Earth Day Network, ud). However, less attention has been paid to how marginalised urban women in developing countries fit into the discourse. Against this backdrop, this research aims to provide information and an example of how this can be achieved by exploring how urban poor women in South Africa are contributing to the green economy and how they are using it to create employment and generate income. The value of this research is in its contribution to two under-studied research areas, namely how urban poverty can be alleviated through the green economy and how urban poor women can play a role in the relatively new discourse of green economy. This research draws attention to the social dimension of

sustainable development and green economy which tends to be neglected in discussions, with the economic and environmental pillars taking priority (UNRISD. 2012b).

#### **1.4 Structure of the dissertation**

**Chapter One** (Introduction) provides a background to urban poverty, green economy and women and the environment. The chapter also presents the aims and objectives and the rationale of the research.

**Chapter Two** (Literature Review) provides a conceptual framework for the study by reviewing literature on urban poverty, green economy, and the role of women and non-governmental organisations in environmental management.

**Chapter Three** (Methods) outlines the methods employed in the research, namely mixed methods and case study, and highlights the limitations of the methods used. Moreover, a detailed description of the case studies used in the research is provided.

**Chapter Four** (Results) reports the research findings of the three case studies and interviews held with key informants.

**Chapter Five** (Discussion) discusses the research findings in relation to relevant literature and similar studies that have been carried out.

**Chapter Six** (Conclusion) summarizes the findings and concludes the research.

## **Chapter Two**

### **Literature Review**

#### **2.1 Introduction**

This chapter develops a theoretical framework for the research by reviewing literature on the key aspects of the research problems. Five key themes are explored and discussed and these include urban poverty globally and within South Africa, the use of the informal economy to escape the poverty trap, and how urban poverty impacts the environment. Second, the notion of sustainable development is discussed in relation to how it can be used to address global environmental concerns and why it has failed in this regard. The environmental mega-conferences are described in this section. Third, the current and highly debated environmental discourse of green economy which has been adopted internationally in response to the failures of sustainable development is examined. Green economy is viewed as a more people-centred approach to sustainable development and its integration into environmental programmes and policies, and its implementation globally and within South Africa is revealed. Next, women's contributions to the environmental movement and green economy are discussed. Finally, given the importance of environmental non-governmental organisations (ENGOS) in community-based projects such as those investigated in the research, the roles of ENGOS in environmental protection and poverty alleviation are addressed.

#### **2.2 Urban Poverty**

Urbanisation is an inevitable process that provides numerous opportunities for economic growth and the reduction of global poverty, particularly rural poverty, but is faced with increasing challenges (Cities Alliance, 2006; Linn, 2010). These challenges arise as urban areas tend to bear the brunt of the world's social, economic and environmental problems which include increases in urban poverty, congestion, and environmental deterioration (Yousif, 2005; Ravallion *et al.*, 2007; Linn, 2010). As the number and size of cities continues to increase, so does pollution and environmental degradation, exacerbating urban poverty and inequality, making urban growth one of the greatest challenges facing humankind today (UN-HABITAT, 2003; Satterthwaite, 2004; Cities Alliance, 2006; Kimemia, 2007; UN Economic and Social Council, 2007). This is the result of the inability of policy-makers and urban managers, particularly in developing nations, to meet the demands of urban growth or address the increasing environmental pressures (Cities Alliance, 2006).

##### **2.2.1 What is urban poverty?**

“Poverty is more than a lack of income. Poverty exists when an individual or a household's access to income, jobs and/or infrastructure is inadequate or sufficiently unequal to prohibit

full access to opportunities in society. The condition of poverty is caused by a combination of social, economic, spatial, environmental and political factors” (South African Cities Network, ud, p. 1)

Poverty is multi-dimensional in nature as it not only entails a lack of regular income and employment but a lack of the basic necessities required for survival such as access to water, education, waste disposal, housing, medical services and security. Furthermore, it refers to a lack of well-being or living below an acceptable living standard within a community, *i.e.*, living below the poverty line, and the absence of political power (Wratten, 1995; Kanté, 2004; UNEP, 2004; UN Economic and Social Council, 2007). The majority of the poor are found in rural areas, however, as urban development continues to increase, the number of poor in cities is increasing at unprecedented levels, especially in Sub-Saharan Africa (World Bank, 1997; UN-HABITAT, 2003; Living Earth Foundation, ud). UN-HABITAT (2003) notes that the urbanized population in developing countries is projected to increase by 2.67 percent per annum, with African countries having the highest annual urbanisation rate of four percent, twice that of Asia and Latin America. It is estimated that in Sub-Saharan Africa, two-thirds of the population will be urban dwellers by 2030 (Crush and Frayne, 2010) as rapid urbanisation prompts the migration of people from rural to urban areas in search of employment and other socio-economic opportunities, thereby increasing the urban poor population (Wratten, 1995; Yousif, 2005; Goldstein, 2008; PEP, 2012).

Left unchecked, rapid urban growth can threaten the socio-economic conditions of the impoverished, restricting urban productivity and economic growth, and potentially giving rise to conflicts between different economic groups. This is usually the case in developing countries where growth exceeds the rate at which the local government can provide jobs, shelter, basic services and infrastructure for the increasing population (World Bank, 1997; UN-HABITAT, 2007). These declining socio-economic conditions negatively impact the living conditions of the poor as they are forced to live in overcrowded poorly serviced housing, squatter settlements or makeshift housing which is in close proximity to their place of employment (Dhemba, 1999). These areas are usually industrial areas where pollution rates are high with very few effective planning controls in place, or located close to riverbanks, railway tracks (unsafe for children), or landfill sites or on steep hillsides. These poor living conditions expose urban dwellers to numerous environmental and health problems which stem from poor access to clean and safe water supplies, a lack of sanitation and drainage, indoor air pollution due to poor ventilation within the households, and limited waste disposal services due to poor accessibility (Wratten, 1995; Perlman *et al.*, 1998; UN-HABITAT,

2003; Satterthwaite, 2004; Jahan, 2008). Overall, the factors that are characteristic of urban poverty include;

- Decreased employment opportunities and increasing inequalities
- A lack of adequate income which hampers the poor's ability to meet their minimum nutritional needs
- Food insecurity
- Inadequate housing (usually overcrowding) or homelessness
- Poor access to public infrastructure such as roads, drainage
- Inadequate asset base and tenure
- Absence of a safety net (e.g. food for work schemes)
- Poor provision of basic services such as potable water, sanitation, drainage, solid waste management, health care and public transport. This is due to the lack of finances and the fact that demand far exceeds institutional capacity
- Lack of access to energy
- High transport costs
- Increases exposure to environmental hazards and natural disasters
- Increased vulnerability to diseases
- A lack of rights which limits participation in decision- making processes, and implantation activities (women, children and youth tend to be more vulnerable)
- High proportion of female-headed households- higher than those found in rural areas
- The poor are powerless and voiceless within political systems
- Increase in crime rates
- Increase in traffic accidents due to increased traffic congestion

(Wratten, 1995; World Bank, 1997; Dhemba, 1999; UN-HABITAT, 2003; Baker and Schuler, 2004; Mitlin, 2004; Satterthwaite, 2004; UNEP, 2004; Jahan, 2008; Crush and Frayne, 2010; UNEP, 2011a; PEP, 2012)

Approaches to reduce urban poverty need to take all these factors into account, in addition to understanding its causes, conditions and dynamics (UN Economic and Social Council, 2007). Unlike rural households where people depend on their land to meet some of their basic needs such as fuel, water and building materials, urban households “are affected by the highly monetized nature of urban living” which forces them to gain some form of income to pay for basic goods and services such as transport, water, food and rent, in addition to their use of natural resources (Wratten, 1995; Mitlin, 2004; UN Economic and Social Council, 2007, p. 1; Crush and Frayne, 2010). This makes urban poverty more crippling than rural poverty (Crush and Frayne, 2010). UNEP (2004) notes that the heavy reliance of the urban poor on natural resources occurs when urbanisation processes are not followed by a commensurate level of industrialization, which is not uncommon. One way to earn money is to sell their labour, however, their employment choices are limited by a lack of education, especially amongst women (Wratten, 1995; Mitlin, 2004; Banerjee *et al.*, 2008). This is because education is viewed as a household expenditure which some households view as unnecessary. Consequently, the children, especially the female child, stay home to assist in income-earning activities or in caring for the family as their parents work. Such action only serves to perpetuate the poverty cycle and decrease the chances of future generations escaping poverty (Perlman *et al.*, 1998; Wratten, 1995).

Given this lack of formal training, the “low absorptive capacity of the formal sector” (Rogerson, 1996, p. 175), housing shortages, and the failure of wealth from economic development to trickle down to the poor (Wratten, 1995; Dhemba, 1999; Giddings *et al.*, 2002; Lawanson, 2012 ), the urban poor are entering the informal economic sector for survival (Dhemba, 1999; Giddings, *et al.*, 2002; UN Economic and Social Council, 2007; WIEGO, ud). Viewed as “buffers between employment and unemployment” (SALGA, 2012, no page number), informal jobs (for example, street vendors, child care providers, taxi drivers, waste collectors) provide a steady flow of income for the poor even though they lack skills and qualifications, making it a suitable option for the poor, especially women (Giddings *et al.*, 2002; UN Economic and Social Council, 2007). In the absence of the informal economy, the UN Economic and Social Council (2007) asserts that urban poverty would be more severe.

### **2.2.2 Urban poverty in South Africa**

‘There is no South African City that is free of poverty’ - South African Cities Network (ud, p. 1)

The African continent is undergoing intense, rapid urban growth and it is estimated that by 2030, more than two-thirds of the Sub-Saharan African population will be urban inhabitants (Yousif,

2005; Crush and Frayne, 2010). South Africa, the most economically developed nation on the continent, has the highest urbanisation rate in Sub-Saharan Africa (Turok, 2012; UNICEF South Africa, 2012). Sixty-two percent of the nation's population (50 million) is residing in urban areas, up from 52 percent in 1990 and it is estimated that by 2030, 71.3% of the country will be urbanized (Crush and Frayne, 2010; SAIRR, 2011; Turok, 2012). Similar to many developing countries, this rapid growth has resulted in the 'urbanisation of poverty' (UN-HABITAT, 2007) and is placing increasing pressure on government to provide basic services for the ever-increasing populace (SAIRR, 2011).

Poverty in South Africa was viewed as a purely rural problem rather than an urban one, more so because the country's poverty maps indicate that the population living below the poverty line is greater in rural areas than in urban areas (Kimemia, 2007). However, the South African government is starting to acknowledge that while cities are centres of wealth, the number of people living in poverty in urban areas has increased due to the influx of people in search of economic security and improved livelihoods. This urban population growth has led to an increase in the number of people who are living in dire poverty with no basic necessities, residing in unsanitary informal settlements which increases their vulnerability to disease and 'environmental stressors,' and facing food insecurity (Qase and Annecke, 1999; Yousif, 2005; Kimemia, 2007; Jahan, 2008; Crush and Frayne, 2010). Moreover, the government-instituted social grants for pensioners, child support and disability have done little to reduce poverty as the money is not enough to pay for basic necessities, and millions of people have no social security (Kimemia, 2007; Warshawsky, 2011). Therefore, it has been acknowledged that poverty has ceased to be only a rural problem but simultaneously affects urban areas, and both forms of poverty need to be addressed (South African Cities Network, ud).

Given the high rates of unemployment in the nation and the lack of suitable qualifications required for formal jobs, the urban poor have entered the informal economic sector as a means of survival and an alternative to unemployment. There are two types of informal economy enterprises, namely the "survivalist enterprise and the micro- enterprises or growth enterprises" (Rogerson, 1996, p. 171). Women in South Africa tend to venture into survivalist enterprises, for example, street vending and sewing, as no prior skill training is required. Such endeavours tend to be for subsistence as very little income is earned. On the other hand, micro-enterprises require the owners to have some business skills and they usually consist of micro-businesses that are run by the owner and some family members, employing one to four workers. Examples include the running of a taxi business, or home-based enterprises such as retail shops run from home. Unlike formal businesses,

these informal enterprises do not require any form of registration, business licences or operating permits (Rogerson, 1996).

The informal economy is thus perceived as a means of creating employment, alleviating urban poverty in South Africa, promoting gender equality and self-reliance, and contributing to economic growth (Rogerson, 1996; SALGA, 2012). As of 2012, it is estimated that the informal economy contributes 38% of South Africa's gross domestic product (GDP) and more women than men participate in the economy for survivalist reasons (SALGA, 2012). The majority of urban poor women are undereducated, lacking the skills to enter the formal economy, making the informal economy a viable option for them (Qase and Annecke, 1999). Accordingly, in an effort to address the social externalities of economic growth, government policies should promote and assist the informal economy to ensure sustainable livelihoods and lead the way to the attainment of sustainable development (Lawanson, 2012), a fact that was underscored in the Nairobi Forward-looking Strategies as early as 1985 (UN, 1985). Furthermore, to reduce the number of people living below the poverty line, the environment on which the poor depend needs to be protected for the present and future generations.

## **2.2.3 Urban poverty and the environment**

### **2.2.3.1 The global environmental crisis**

In a bid to improve the quality of life and improve livelihoods, globalisation, urbanisation, innovation and development were the tools adopted, however, this has come at a cost to the environment. The Earth System is changing in a manner that, according to UNEP (2012, p. 6), is “unprecedented in human history”. These factors, in conjunction with population growth and poverty, have resulted in production and consumption patterns that are pushing the Earth towards its ecological limits and threatening natural resource sustainability (INSTRAW, 2003; Yang, 2006; Brueckner and Pforr, 2011; UN, 2012a; Woods, 2012). Any efforts to tackle these environmental issues are constantly being hampered by countries that are not willing to curtail their natural resource-intensive economic development to stave off ecological damage, opting to cure the problems through scientific, technological and political means, rather than prevent them (Drexhage and Murphy, 2010; Cox, 2012). While these remedies have been successful in reducing some of the negative impacts of environmental degradation, much still needs to be done as some of the environmental changes have the potential to cross irreversible thresholds (Martine, 1997; Smith *et al.*, 2010; UNEP, 2012). In the meantime, environmental integrity continues to be compromised by various environmental pressures which include the over-consumption of natural resources coupled with the exhaustion of environmental sinks, environmental pollution (land, water, air),

desertification, ozone depletion, biodiversity loss and extinction of species, and chemical and nuclear waste accumulation (Martine, 1997; Smith *et al.*, 2010; Brito and Stafford Smith, 2012). In some cases these pressures have been known to interact and intensify their impacts. Therefore, it is of the utmost importance that the global community finds a way of “decoupling” economic growth from its accompanying environmental harm, in a manner that allows for the sustainable improvement of human lives (Smith *et al.*, 2010, p. 3; UNEP, 2012).

### **2.2.3.2 The urban poor and the environment**

There is a complex and dynamic relationship that exists between poverty and the environment (World Bank, 1997, Lusigi, ud). First, the environment provides the poor with resources such as land, clean air and water on which they depend for their livelihoods and basic needs. In addition, these resources enable them to earn an income, in the formal and informal sectors, through a diversity of economic activities such as forestry, agriculture and tourism (Cities Alliance, 2006; Lusigi, ud). Therefore, any form of environmental degradation could equate to both a financial and livelihood loss for the poor, both urban and rural (Kanté, 2004; UNDESA *et al.*, 2011).

Second, while the environment provides the poor with goods and services, it can have a negative impact on their livelihoods. For example, unsanitary living conditions expose populations to environmental hazards that can culminate in health problems (such as diarrhoea, cholera, malaria) and premature death (World Bank, 1997; Satterthwaite, 2003; Cities Alliance, 2006; Kimemia, 2007; UN Economic and Social Council, 2007; Lusigi, ud). Kimemia (2007) points out that approximately 1.6 million people die in urban areas every year due to a lack of basic necessities and living in unsanitary conditions and this further exacerbates poverty. Conversely, this increase in poverty leads to further environmental degradation (Lawanson, 2012), as “poverty and environmental degradation are closely interrelated” (UN, 1992c, no page number). Despite the fact that the unsustainable production and consumption patterns of the rich are primarily responsible for environmental degradation, poverty does contribute to environmental stress as the poor are forced to overuse environmental resources to meet their short-term needs (UN, 1992c; INSTRAW, 2003; Satterthwaite, 2004; Goldstein, 2008; UNDESA *et al.*, 2011; IFAD, ud). However, Satterthwaite (2003) and Goldstein (2008) point out that the environmental degradation caused by this low-income group is minimal compared to that caused by the middle to high income groups, and Satterthwaite (2003, p. 3) finds irony in the fact that, “at a continental or global level, high levels of urban poverty in Africa, Asia and Latin America (which equates to low levels of consumption, resource use, and waste generation) have helped to keep down environmental degradation”.

The environmental issues that affect the urban poor are not only as a result of a lack of finances and slow economic growth, but a result of a failure of governance which is indicated by:

- The lack of infrastructure and services
- The failure to implement policies and procedures
- The powerlessness and voicelessness of the poor in political decisions
- Discrimination, and
- Corruption

(World Bank, 1997; Satterthwaite, 2003; Yousif, 2005; Cities Alliance, 2006; UN-HABITAT, 2007).

Therefore, addressing the absence of adequate urban governance should be a top priority of any nation that intends to tackle urban environmental issues (Satterthwaite, 2003; UN Economic and Social Council 2007). Cities Alliance (2012, p. 4) adds that policy-makers “need to design development strategies that target the linkages between urban poverty, urban environmental degradation, and poor policy frameworks”. The poor face a double injustice in that while they are the least responsible for environmental degradation and climate change, they are the ones who are most affected by poor coping strategies and adaptive capacity in the face of climate change and environmental disasters such as floods and earthquakes (INSTRAW, 2003; ActionAid International, 2006; UNDESA *et al.*, 2011; UNRISD, 2012a; IFAD, ud; Lusigi, ud). Moreover, the poor tend to reside in already environmentally fragile areas making them even more vulnerable (Satterthwaite, 2003; INSTRAW, 2003; UN Economic and Social Council, 2007; Lusigi, ud). Global warming and climate change are only going to increase the incidence and severity of environmental disasters in urban areas, leaving the poor more vulnerable and contributing to an increase in poverty and the decline in economic growth (Satterthwaite, 2003, Lusigi, ud). For example, climate change can expose residents to flooding which could result in the spread of diseases, interruption of schooling, loss of houses, income and property, and even death of the poor who usually reside in overcrowded informal settlements that lack adequate risk-reducing infrastructure and services. Consequently, governments need to find strategies to help the poor to cope with the impacts of environmental degradation (ActionAid International, 2006; Satterthwaite, 2013). “The magnitude of poverty is such that its solution is unlikely to involve one agency acting alone” (Wratten, 1995, p. 31), therefore, in addition to policy-making, the government needs to engage with civil society organisations and the private sector to eradicate poverty.

Overall, efforts to alleviate poverty need to uplift vulnerable communities to equip them with skills to find secure, reliable employment and should take into consideration the environment, and ecosystem usage and protection. Failure to do so would result in unfulfilled poverty alleviation strategies and the continued failure to achieve sustainable development (World Bank, 1997; Kanté, 2004; UNDESA *et al.*, 2011).

## **2.3 Sustainable development**

### **2.3.1 History**

Environmental issues only received international recognition in 1972 at the first ever environmental mega-conference, the United Nations Conference on the Human Environment (UNCHE), also known as the UN Stockholm environmental conference, held in Stockholm, Sweden, “symbolizing the universal awakening of environmental consciousness worldwide” (Seyfang and Jordan, 2002; Yang, 2006, p. 25). This landmark event, which founded the United Nations Environmental Programme (UNEP) in Kenya, was attended by 113 nations and stakeholders and provided a foundation on which numerous international environmental treaties, national environmental policies, and environmental ministries and institutions were established. In addition, it initiated the global debate on environment and development (UNEP, 2002; Seyfang and Jordan, 2002; Scherr and Gregg, 2006; Yang, 2006; Drexhage and Murphy, 2010) from which the concept of sustainable development was born- a discourse that dominated the 1990s (Goebel, 2003). This major environmental conference has been followed by four environmental mega-conferences, with sustainable development at the forefront of discussions.

Attempts by the Group of 77 (G77) developing nations (established in 1964) at the UNCHE to discuss environmental issues in conjunction with human development issues were ignored as there was no “conceptual rationale” for linking the two (Seyfang and Jordan, 2002, p. 20). This rationale was later found to be the multidisciplinary concept of sustainable development, a term made popular by the World Commission on Environment and Development (WCED) (also known as the *Brundtland Commission*) (Seyfang, 2003; INSTRAW, 2003; Drexhage and Murphy, 2010). In their 1987 report, *Our Common Future*, WCED defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 45). The report states that not only are environmental and economic issues linked, they are underpinned by social and political issues. Consequently, the Commission challenged policymakers to examine these complex interrelationships to help solve global problems (UNEP, 2007).

### **2.3.2 The United Nations Conference on Environment and Development (UNCED)**

Given the evidence presented in the Brundtland report of the relationship between development and the environment, the UN was forced to convene an environmental mega-conference in 1992- the UNCED (also called the Rio Summit or Earth Summit) held in Rio de Janeiro, Brazil (Seyfang and Jordan, 2002) which underscored “international commitment to providing public and political support for addressing environment and development issues in a holistic and integrated manner” (UN Department of Economic and Social Affairs, UNEP and UNDP, ud, p.2). This meeting which brought together “108 government leaders, more than 2400 representatives from non-governmental organisations (NGOs)” (UNEP, 2007, p. 7) set out the principles for sustainable development, thus, unlike its predecessor, acknowledging the unique development-environment link. Moreover, it took a step forward by encompassing social issues (Seyfang, 2003).

Five key agreements were reached at the conference- the major ones being Agenda 21 and the Rio Declaration on Environment and Development. The other three were the UN Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and the Statement on Forest Principles (Drexhage and Murphy, 2010; Brueckner and Pforr , 2011). The Rio Declaration on Environment and Development contains 27 principles which nations agreed to follow to meet the goals of sustainable development. Examples of such principles include the commitment to integrate environmental protection with development in decision- and policy-making (Principle 4) (UN, 1992a; UNEP, 2007; Drexhage and Murphy, 2010) and Principles 20 and 22 which advocate for the participation of women and local communities in sustainable development. Principle 20 asserts that:

“women have a vital role to play in environmental management and development. Their full participation is therefore essential to sustainable development” (UN, 1992a, principle 20);

while Principle 22 states that:

“Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development” (UN, 1992a, principle 22)

Agenda 21 is an action plan that serves as a “blueprint for the implementation of the principles of sustainable development” at national and local level (Seyfang and Jordan, 2002, p. 21; Seyfang, 2003; Brueckner and Pforr, 2011). The 300-page blueprint was divided into 40 chapters which address the economic and social pillars of sustainable development, namely poverty, population

growth and health, natural resource management and conservation, the roles that government, civil society (women, children, indigenous people, NGOs, trade unions), and the private sector can play in achieving sustainable development. The document highlights the different ways in which sustainable development can be achieved, for example, through technological and scientific means or the dissemination of information to the public (Seyfang, 2003; UNEP, 2007; Drexhage and Murphy, 2010). Though non- legally binding, UNEP (2007, p.8) asserts that Agenda 21 is “the most powerful instrument in the environmental field”.

### **2.3.3 World Summit on Sustainable Development (WSSD)**

Ten years after the UNCED, the UN was prompted to convene another environmental mega-conference because of the poor progress made in implementing the sustainability goals set at the previous conference. This was evidenced by the increase in poverty, lack of access to basic necessities such as sanitation, increasing rate of environmental degradation, and the unchanging consumption and production patterns (Shah, 2002; UN, 2002; UNEP, 2002; UN, 2006; Drexhage and Murphy, 2010; UN Department of Economic and Social Affairs, UNEP, UNDP, ud). In addition, the poor performance of the United Nations General Assembly Special Session (UNGASS) on Sustainable Development held in New York in 1997 to review sustainability progress five years after Rio only served to indicate how little progress had been made in implementing the goals of sustainable development (Seyfang, 2003). Hence, the international community anticipated that at the 2002 conference, the WSSD (commonly dubbed the Rio +10 conference), nations would reaffirm their commitment to implementing the goals of sustainable development aforementioned in the Rio Declaration and Agenda 21 (UN, 2002; La Vina *et al.*, 2003). These renewed promises were presented in the Johannesburg Declaration on Sustainable Development in which governments agreed that poverty alleviation, a change in the unsustainable rates of consumption and production, and natural resource management are crucial if sustainable development is to be achieved (UN, 2002). Moreover, it was acknowledged that despite the benefits accrued by globalization and the opportunities it provides to meet the goals of sustainable development, it does incur costs that are detrimental to the attainment of the latter (UN, 2002; La Vina *et al.*, 2003). In accordance with this realisation, the Declaration called for the involvement of civil society in sustainable development policy formulation, decision-making and implementation at all levels, particularly in developing countries (UN, 2002).

The second resolution from the WSSD was the non-legally binding 54-page Johannesburg Plan of Implementation which acted as a guide for development and advocated for voluntary public-private partnerships (PPP) (third outcome) between governments, NGOs, the private sector and civil

society as these are crucial to advancing the goals of sustainable development (UN, 2002; La Vina *et al.*, 2003; Scherr and Gregg, 2006). This is predominantly due to the fact that while the negotiation of an international treaty is quite a feat, implementing it on the ground is a difficult and complex process which adds an extra burden to the existing realities, such as attempts to alleviate poverty (La Vina *et al.*, 2003; Scherr and Gregg, 2006; Drexhage and Murphy, 2010). However, it was believed partnerships would assist in filling this implementation gap and it was against this backdrop that over 220 partnerships were launched at the conference. Some critics felt that these partnerships would undermine the WSSD and lead to conflict between profit-driven private corporations and public bodies who advocate for social and environmental justice. Moreover, when regulatory bodies such as the United Nations (UN) enter into partnerships with the private sector, they are less inclined to regulate the social and environmental impacts of their ‘partner’s’ business operations even though some of these corporations have played leading roles in degrading the environment and violating human rights (Paul, 2000; Corporate Europe Observer, 2002; Shah, 2002; Reimann, 2005; Wang, 2006).

The core theme of the WSSD was poverty alleviation through sustainable development and the overarching question that loomed over the conference was: *“can the international community find a common agenda and vision for sustainable development to truly deal with the challenges of poverty and the environment?”* (La Vina *et al.*, 2003, p.8). In response, many topics were discussed including: water and sanitation, cleaner energy, health, agriculture, biodiversity, good governance, and production and consumption (Shah, 2002; Seyfang, 2003; UNEP, 2007), illustrating the evolution of sustainable development discourse- from environmentally focussed at the UNCED to more social and economy-based at the WSSD, which is a feat in itself (Seyfang, 2003; Drexhage and Murphy, 2010). In spite of this, development and citizen groups viewed the conference as an overly ambitious failure for social and environmental justice and insisted that governments lacked the political will to act (Bond, 2002; Corporate Europe Observer, 2002; Shah, 2002). Shah (2002) adds that the creation of partnerships was used to draw attention away from the absence of legally binding commitments, targets or action plans at the summit. These views are not far from the truth as at present sustainability still seems to be an unattainable goal and the issues that existed during the WSSD and UNCED still exist or have worsened, as the international community constantly seeks new ways to solve them. UNEP (2012) advocates for innovation at local, national, and international levels in achieving sustainability as copying and upgrading policies has proven to be insufficient. Currently, the highly debated concept of green economy is the newest addition to the

environmental discourse and many hope that it may provide the long-awaited solution to the sustainability question (UNEP, 2011).

#### **2.3.4 Failure of sustainable development**

Attaining sustainability requires that its economic, environmental and social pillars be addressed equally (Stevens, 2010). Despite the global acceptance of sustainable development as a concept, its implementation has proved to be a difficult task. Drexhage and Murphy (2010) assert that part of the reason for the failure to achieve sustainable development is that efforts to do so tend to address the symptoms of the problem while ignoring the source (usually government policies and corporations) of environmental degradation and such ‘band-aid’ solutions will do little to achieve the goals of sustainable development. Other reasons for the implementation gap in sustainable development include:

- The increase of natural resource exploitation for developmental purposes: Drexhage and Murphy (2010) note that this pattern will continue to increase in the future, especially with developing countries’ desire to grow their economies using the same “resource intensive model” (p.3) that developed countries used. In their defence, developing nations argue that if they can develop the same way developed countries did, they will develop the capacity (financial, institutional and technological) to tackle environmental issues (Scherr and Gregg, 2006; SAEP, ud).
- Policy-makers’ failure to integrate the economic, environmental and social pillars of sustainable development as the agenda is too broad for governments to tackle on their own. This is why they have opted to create policies that address each of the pillars individually (UNEP, 2007; Drexhage and Murphy, 2010), however, greater emphasis tends to be placed on economic growth than on the other two to the point where development is viewed as synonymous with economic growth, neglecting environmental and social progress. This has served to hinder any implementation efforts (Bond, 2002; Drexhage and Murphy, 2010). In view of this, AtKisson (2009, p.7) asserts that, for the practice of sustainable development to be successful:

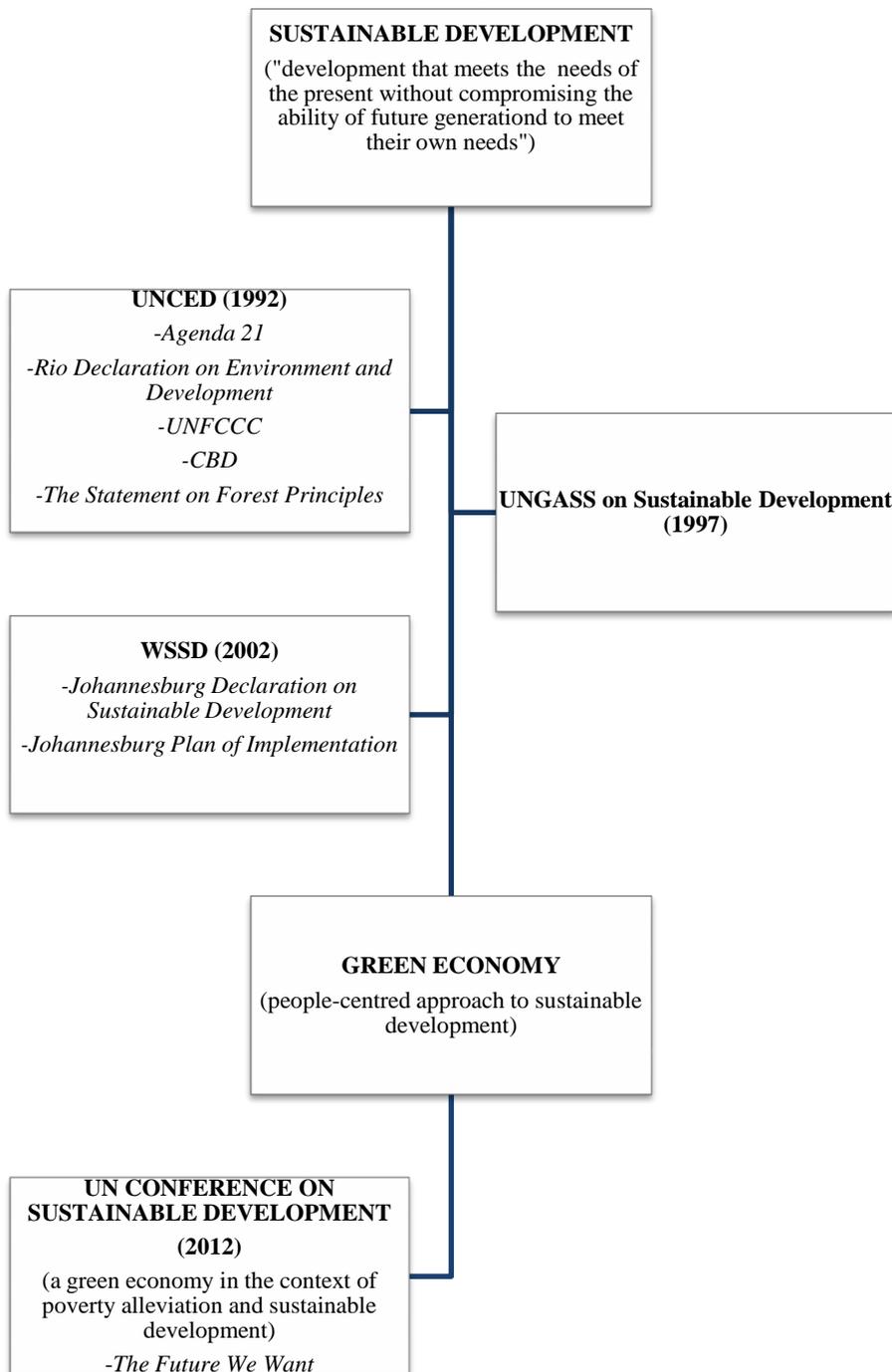
“the solo voice of economic must be joined by the strong voices of social and natural science, principled political leadership, idealistic citizen activism, cultural questioning of consumerist habits and value”

- The subsumption of sustainable development: One result of the failure to integrate economic growth, environmental sustainability, and social equality is that sustainable development has

become subsumed within the currently more pressing climate change discussions (Drexhage and Murphy, 2010, p. 19). Drexhage and Murphy (2010, p. 13) assert that “with no strong entry point for sustainable development, climate change has emerged as the *de facto* proxy for addressing the issues” despite the fact that climate change is an environmental problem. However, this subsumption has done little to drive the sustainable development agenda as the current climate change negotiations are in a fragile state (Drexhage and Murphy, 2010).

- Extreme poverty and increasing population (expected to reach 9 billion by 2050) especially in developing countries of Africa: These are continuing to be barriers to sustainable development as the poor depend on natural resources for their livelihoods and survival (UNEP, 2007; Africare, 2008; Goldstein, 2008; Jahan, 2008; Mahapatra, 2012). Given the increasing poverty rates and the widening gap between the rich and poor, we are no closer to halving poverty by 2015. In the meantime, the poor are the most affected by environmental degradation (ActionAid International, 2006; UNEP, 2007; Stevens, 2010; UNEP, 2011a; UN, 2012a). Consequently, poverty reduction is one of the key items that are being addressed by developing countries and it has been suggested that environmental sustainability is the key to solving this issue (UNEP, 2007).
- The view that sustainable development is solely an environmental issue: Initially, sustainable development was viewed as a purely environmental or developmental issue which only drew the attention of the environmental sectors or ministries (Drexhage and Murphy, 2010). Therefore, other sectors which have more traction both nationally and internationally, such as the economic sectors, tended not to be included in the global environmental discussions. This presented a barrier to sustainable development implementation as environmental ministers tend to be less influential in policy discussions compared to finance or trade ministers (Drexhage and Murphy, 2010). Thus, to ensure effective implementation, participation from all sectors is mandatory.

Given these failures, the global community needs to revise the sustainable development framework and develop a solution that is not only economically sound but environmentally sustainable and socially just (Aguiar, 2012). Such a development model may exist in the concept of green economy which takes a people-centred approach to sustainable development (UNEP, 2011a). Though still widely debated, this concept appears to be a viable catalyst for sustainable development implementation, especially, as we approach the Earth’s ecological limits (UNEP, 2012).



**Figure 2.1: Summary of the environmental mega-conferences on road from sustainable development to green economy**

## **2.4 Green Economy**

### **2.4.1 Transition from Sustainable Development to Green Economy**

The environment is worse today than it was 20 years ago and in the face of the 2008 global financial crisis, the environmental crisis and the failure to implement the broad concept of sustainable development, the UNEP put forth the alternative paradigm of green economy in the

hope that this tool can finally place the world on a sustainable and socially equitable path (Stevens, 2010; UNEP, 2011; UNEP, 2012) While the concept itself is not new, having received some recognition at the Rio Summit, it has recently gained traction in the hope that it will solve the global financial and environmental woes (Stevens, 2010; UNEP, 2011; Musyoki, 2012; UNDESA, 2012).

Green economy is defined by UNEP (2011a, p.9) as:

“an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient and socially inclusive”.

In other words, the paradigm aims to produce a new economic growth model that is environmentally friendly, can contribute to poverty alleviation efforts through job creation and by protecting ecosystem goods and services that the poor depend on for their livelihoods, reduces the cost of manufacturing goods, and enhances competitiveness (UNEP, 2012; UNDESA *et al.*, 2011). According to the UN Environment Management Group (2011, p.39), the green economy is expected to:

- Provide new sources of income and employment in the form of green jobs
- Create a “low carbon emission” economy, reduce the use of (finite) resources, and reduce the generation of waste and pollution by managing consumption and production patterns
- Contribute to the social development goals of sustainable development which include social equity and inclusion, and poverty alleviation

Green economy is not meant to supplant sustainable development- rather it is an approach that recognises that the latter cannot be achieved without “getting the economy right” (UNEP, 2011a, p. 9). Furthermore, this approach is not meant to be a “one-size-fits-all path towards sustainable development” (UN Environment Management Group, 2011, p. 9) as approaches will vary according to a nation’s level of development and its human and natural capital. The approaches will differ according to the different roles and responsibilities of the government, the private sector, civil society, market and institutions. Therefore, there is a need for policy- and decision-makers to align the ideas with their sustainable development objectives (UN Environment Management Group, 2011; UNEP, 2011a; UNRISD, 2012a). UNEP (2012) adds that green economy measures can only succeed if the previous resource-intensive, unsustainable policies are amended.

Against this backdrop, some countries have begun to successfully transition to a green economy. Examples of initiatives in developing countries include:

- Uganda’s shift from traditional agricultural practices to organic agricultural practices- organic farming is a more sustainable source of income and it provides livelihood security for smallholder farmers. In addition to contributing to economic development through exports of organic products, organic farming contributes to climate change mitigation by emitting fewer greenhouse gases (64%) into the atmosphere than conventional agriculture and by sequestering more carbon (UNEP, 2010). Employment levels have increased in the agricultural sector as the number of farmers has increased by 359% since 2003 (UNEP, 2010).
- In Seychelles, the UNEP and UNDP, in their joint programme, the Climate Change and Development- Adapting by Reducing Vulnerability (CC DARE) funded by the Danish Ministry of Foreign Affairs, contributed to a rainwater harvesting project which is providing water in schools which face severe shortages as most of the rain is lost through run-off. This project has not only allowed for the schools to save US\$250 on water bills, but also demonstrates a form of climate change adaptation (UNEP and UNDP, ud).
- In Tunisia, in 2009, the government put forth a Solar Energy Plan to reduce the country’s over-dependence on oil and gas and increase its use of renewable energy from 1% to 4.3% by 2014. The plan, which entails the use of solar energy, includes solar water heating systems, solar voltaic systems and solar concentrated power units to generate electricity. Funding for the project will come from the government’s National Fund, the public and private sectors, and the international community. It is estimated that energy savings could reach 22% by 2016 and a reduction of greenhouse gas emissions is expected (UNEP, 2010).

UNEP (2010, p.4) asserts that such examples prove that “green economy strategies can take root wherever there is a vision and leadership to make the transformation- it is not limited to national or government policy levels”. Furthermore, when fully integrated into comprehensive strategies, such initiatives present “an alternative development pathway that is pro-growth, pro-jobs and pro-poor” (UNEP, 2010, p. 4).

With this in mind, the fourth environmental mega-conference, the UN Conference on Sustainable Development (commonly dubbed the Rio +20 conference) was held in June 2012 in Rio de Janeiro, with the main theme being “a green economy in the context of sustainable development and poverty alleviation” (UNDESA, 2012, p. 8; UNDESA *et al*, 2011). UNRISD (2012a) asserts that this coupling of green economy with sustainable development and poverty eradication draws attention to the social aspects of development which have been ignored.

### 2.4.1.1 The UN Conference on Sustainable Development (Rio+20 Conference)

The Rio +20 conference was held over a three-day period from 20-22 June 2012, under the themes:

- “A green economy in the context of poverty alleviation and sustainable development” (UN Department for Economic and Social Affairs *et al.*, ud, p. 3).
- “The institutional framework for sustainable development” (UN Department for Economic and Social Affairs *et al.*, ud, p. 3).

The conference was attended by more than 100 heads of states (more heads of states attended this one than the original) and 50 000 other people including organizations, civil society, civil society groups and academics (Vaughan, 2012; Walsh, 2012). This attendance record, which surpassed that of previous conferences, was one of the only successes of the summit as it illustrates that people are committed to a sustainable future and are willing to take action at grassroots level to accomplish this goal (Vaughan, 2012). The final outcome of the conference was a political non-binding, 283-paragraphs-long document called *The Future We Want* which re-confirmed promises made in Agenda 21 and underscored the need to implement the goals of sustainable development through the integration of the three pillars (Mahapatra, 2012; Monbiot, 2012; UN, 2012b). The document has been criticized for being lacklustre and being a copy of previous outcome documents. IDS (2012, no page number) asserts that the document “does little to achieve what is needed in order to protect our planet from the negative effects of globalisation and climate change”. Monbiot (2012, no page number) also states that:

“190 governments spent 20 years bracing themselves to ‘acknowledge’, ‘recognise’ and express ‘deep concern’ about the world’s environmental crises but not to do anything about them”.

Dankelman (2012) adds that *The Future We Want* failed to provide a guideline promoting a low carbon green economy in the context of sustainable development and poverty eradication. Moreover, the document has been criticised for failing to link gender issues with climate change and other environmental issues. On a positive note, however, the nations in attendance agreed to create a list of sustainable Development Goals (SDGs) to replace the Millennium Development Goals (MDGs) when their target date is reached in 2015 (Mahapatra, 2012; Vaughan, 2012).

The overall failure of this conference has only made people sceptical as to whether environmental mega-conferences are necessary. Mahapatra (2012, no page number) asserts that these conferences fail to secure the future we want because “the world’s leadership is divided too geographically, politically, and economically to reach an unanimous decision about the safety of the planet and

future generations”. Conversely, Musyoki (2012) argues that the failure of international agreements should not prevent the preservation of environmental resources for future generations. As it is becoming increasingly obvious that these summits cannot save the planet, it is important that civil society groups and individuals unite in local level initiatives to green the brown economy, thereby, placing the world on a sustainable path. Top- down development approaches are not working, but bottom-up, holistic approaches can contribute to socially-just green economy solutions (Hezri and Ghazali, 2011; UNEP, 2011a; Vaughan, 2012; Walsh, 2012).

#### **2.4.2 Green economy in South Africa**

South Africa is an upper middle-income nation (based on Gross National Income per capita) whose economy is highly-dependant on mineral resources such as coal for electricity, contributing to the nation’s high carbon footprint (Bond, 2002; Maia *et al.*, 2011; Urban Earth, 2012). Furthermore, the country is facing the challenges of water scarcity, soil degradation, and poor waste management, high levels of unemployment and extreme poverty, and inequality as the gap between the rich and the poor continues to widen (Bond, 2002; Maia *et al.*, 2011; Musyoki, 2012). Women form the majority of the poor and the country has one of the highest rates of HIV/AIDS infection in the Sub-Saharan region (Musyoki, 2012; UNAIDS, 2012). These social conditions and the fact that South Africa has the highest GHG emissions in Africa, initiated the search towards strategies that could create employment, alleviate poverty, provide educational opportunities, and lower carbon emissions (Musyoki, 2012; Urban Earth, 2012). One such strategy is green economy which was first identified as an important economic development driver and a mechanism to address sustainability in South Africa’s 2009-2014 Medium Term Strategic Framework (DEA, 2010). Following this, government responded to a call from the UNEP for a Global Green New Deal (GGND) that encouraged nations to transition to a resource efficient, low carbon and sustainable economy by convening a Green Economy Strategy Summit in May 2010. The summit was used as a forum to discuss strategies to pursue green economy under the theme: “*Towards a resource efficient, low carbon and pro-employment growth path*” (DEA, 2010, p. 6). The summit was attended by participants from national, provincial and local government, the business sector, civil society, and NGOs with the aim of producing a green economy plan by the end of July 2010. It was concluded that given South Africa’s heavy reliance on natural resources for economic development and its widespread poverty, a transition is imperative to secure the resources for future development and to create green jobs. Moreover, greening is accompanied by increases in wealth, both financially and ecologically, as a result of its positive impact on the ecosystem (DBSA, 2011; Maia *et al.*, 2011). It was acknowledged that for the change to be just and successful and for South Africa

to meet its goal of reducing greenhouse gas emissions by 37% by 2020, 42% by 2025, and 100% by 2050, government needs assistance from the private sector and civil society. Moreover, government and the private sector need to work together to make sure the views of all stakeholders are addressed and represented in legislation and resultant policies (DEA, 2010; DBSA, 2011; Maia *et al.*, 2011). The government is working with international organizations such as UNEP to meet its goals and has signed numerous treaties regarding the shift to a low carbon, environmentally sustainable and socially just economy (Musyoki, 2012). To initiate the process, several sectors have been identified to drive a South African Green Economy. These include:

- Policy and Regulatory Framework
- Innovation and Technology
- Sustainable Consumption and Production
- Green Buildings and Built Environment
- Sustainable Transport and Infrastructure
- Clean Energy and Energy Efficiency
- Green Cities and Towns
- Resource Conservation and management
- Sustainable Waste Management Practices
- Water Management
- Agriculture and Food Security and Forestry

(DEA, 2010; DBSA, 2011).

To make green economy a reality, the government has been working on policies and plans regarding the nation's transition to a green economy with the aim of becoming carbon neutral by 2050 (DBSA, 2011; Musyoki, 2012). An example is the South African Green Economy Accord which forms the fourth accord in South Africa's New Growth Path of 2010 which identifies green economy as one of the ten key job drivers (Maia *et al.*, 2011).

#### **2.4.2.1 The South African Green Economy Accord (2011) (New Growth Path 2010 Accord 4)-mainstreaming of green economy objectives into national policy**

The Green Economy Accord was introduced in May 2011 and signed in Durban in November 2011 at the 17<sup>th</sup> annual Climate Change Conference of Parties (COP 17) by representatives from South

Africa's national, provincial and local government, civil society and representatives from labour and the business sector. These groups committed to greening the economy with an emphasis on poverty alleviation and improving the livelihoods of the poor through job creation (Economic Development Department South Africa, 2011). The commitment made with 12 government departments, businesses and the 3 labour federations, representing 2.5 million workers who were in attendance, include:

- The installation of 1 million solar-water heating systems by 2014/15
- The creation of 300 000 green and formal jobs in South Africa by 2020 in contribution to the goal set by the New Growth Path to create five million jobs by 2020.
- The investment in biofuels for vehicles as this can create employment opportunities for small-scale farmers and commercial farmers and reduce carbon emissions
- The establishment of finance facilities for green projects
- Supporting school programmes on the environment
- The establishment of a green economy fund
- The implementation of clean-coal initiatives to offset carbon emissions from the use of coal-based technologies
- The promotion of energy efficiency
- Retrofitting of domestic, industrial and commercial buildings to promote energy efficiency
- The promotion of waste-recycling, re-use and recovery (3R's)
- The electrification of impoverished communities and reduction of fossil fuel open fire cooking and heating
- Economic development in the green economy through promotion of localisation, youth development, cooperatives and skills development
- Increasing investments in the green economy, including through the Industrial Development Corporation (IDC), private investors and retirement funds
- The appropriation of renewable energy as part of the energy generation plan

(Economic Development Department, South Africa, 2011; PEP, 2012)

South Africa has started fulfilling some of these commitments as is illustrated by the following examples:

- South Africa's Economic Development Department in partnership with the International Development Corporation (IDC) has installed approximately 25 000 units of solar water geysers in poor urban and rural households (Musyoki, 2012)
- Working for Water programme (WfW): the State in partnership with local authorities, environmental organizations, NGOs, and conservation groups are generating green jobs in the rural economy and protecting the environment by employing people from local communities (women forming the majority) to remove alien plants and trees. So far, the initiative has created employment for, and trains, approximately 20 000 people per year, rural women comprising 52% of the total (Maia *et al.*, 2011; Musyoki, 2012; PEP, 2012). Maia *et al.* (2011) add that such initiatives are important for job creation, biodiversity conservation, the restoration of ecosystems, and the supply of raw materials in the short to medium term. Moreover, this flagship project reflects international best practice.
- The government in partnership with a small-scale recycling co-operation called the Hout Bay Recycling Co-op and an organisation called Thrive which is funding the co-op, have generated recycling jobs for the poor from the Imizamo Yethu informal settlement Cape Town, South Africa. The members of the co-op separate the waste then weigh and sell the recyclable material, such as, cardboard, metal, glass, paper, to packaging manufacturers. The members of the co-op make an average of R2 000 per month (ZAR 1=USD 0.108 16 September 2013) from their work (Sapa, 2012).

These examples illustrate how South Africa is transitioning to a green economy that does not only contribute to economic development and provide a competitive advantage, but also improves the livelihoods of the rural and urban poor through green job creation. Such strategies can only work when government works in partnership with the private sector, civil society organisations, trade unions or NGOs, as was initially stated at the WSSD in 2002. Musyoki (2012, p. 3) argues that the only problem lies in “bridging the gap between green economy plans and policies, bringing about actual changes in behaviour, and including responses of all people from the national, provincial, municipal, community and individual levels”. Maia *et al.* (2011) contends by adding that green job creation requires funding, supportive policies and regulatory frameworks that need to be implemented. Institutional skills and capabilities, research and technology are also key requirements. Moreover, success hinges on the commitment, participation and collaboration of the

key role players to address any implementation challenges. South Africa has an opportunity here, not only to turn these micro-level green economy successes into global ones, but to act as an example for other African countries on how to green their economies.

## **2.5 Women and the Environment**

Women comprise half of the world's population and form more than seventy per cent of the people living in dire poverty, *i.e.*, living on less than US\$1.25 per day (UNEP, 2004; Stevens, 2010; PEP, 2012). Similar to the complex relationship that the urban poor have with the environment described in earlier sections, women are trapped in a 'vicious cycle' where they utilize and manage natural resources but often fall victim of any form of environmental pressure (Goebel, 2002; IFAD, *ud*). Women's reliance on natural resources for their survival, coupled with poverty, makes them more vulnerable to environmental changes as they cannot afford adequate environmental protection. For example, a livelihood crisis can arise when the impacts of climate change, such as drought, affects the crop yield of women who rely solely on agriculture for income, increasing poverty levels (Leach, 1992; OSCE, 2009; Cunico, 2011). In spite of this, women have not only been instrumental in creating worldwide environmental awareness but have unique and important roles to play in environmental sustainability. They came into these roles through their relationship with the environment, a relationship which stems from two factors:

- their dependence on the environment for their livelihoods- they use the environment, *inter alia*, for agricultural purposes, as a source of firewood or medicine, and
- their extensive knowledge of natural resources that was gained through their dependence on environmental resources (Leach, 1992; UNEP, 2004; Dankelman, 2005; Labaris, 2009). This knowledge is essential as it can inform policies thereby facilitating the transition to sustainability (UNRISD, 2012a).

These roles, coupled with women's reproductive tasks, enhance their commitment to the welfare of their children and future generations. Therefore, while any form of environmental deterioration will burden women, affecting their health and livelihoods, it will "intrinsically motivate them to act" (Dankelman, 2005; Davey, 2009, p. 1). For example, as water stress is increasing due to the impacts of climate change, women need to be put in charge of planning and management of water supply to ensure sustainability of the resource as was evidenced by a study carried out by the International Water and Sanitation Centre (IRC) of community water and sanitation projects in 88 communities in 15 countries. It was found that projects that were implemented with assistance from women proved to be more effective and sustainable than those without women's participation as women,

particularly in rural areas, tend to be responsible for the collection and storage of water, and the management of its use and sanitation to ensure that the water is clean and available for their daily needs (Tandon, 2012a). Thus, SWAN (2011) asserts that women's knowledge and skills can contribute more to environmental sustainability than technology and science.

The unique relationship between women and the environment was realised in the 1970s but only received international recognition in 1985 at the Third United Nations Women's Conference in Nairobi (OSCE, 2009), thirteen years after the UNCED had established a gender-neutral connection between society and their physical environment. Therefore, prior to 1985, all environmental programmes and policies were gender neutral (INSTRAW, 2003; Dankelman, 2005; UNEP, ud). In the resultant Nairobi Forward-Looking Strategies (NFLS) for the Advancement of Women, the environment was noted to be an "area of concern for women" (OSCE, 2009, p. 14; UNEP, ud) and in 1992 the importance of women in sustainable development was underscored in Principle 20 of the Rio Declaration and in Agenda 21 which made 145 references to the fact. In addition to identifying women as one of the nine social stakeholder groups that have specific roles in sustainable development, Agenda 21 included a separate Chapter (24) with the title, "Global action for women towards sustainable development" (UN,1992a; INSTRAW, 2003, p.11; OSCE, 2009) which advocates for the participation of women in all local, national and international environmental governance and sustainable developments efforts, and provides a framework on how to transition to a gender-based sustainable development (UN, 1992a; INSTRAW, 2003; OSCE, 2009). The other outcome document of the conference, the CBD, acknowledged "the role that women can play in the conservation and sustainable use of biological diversity" (UN, 1992b, no page number). Thus, by the end of the first Rio Summit it was widely accepted that while women are more vulnerable to the impacts of environmental change, they have great potential to contribute to a solution for sustainable development and this potential should be harnessed.

At the UN Fourth Women's Conference in Beijing in 1995 the integration of women into environmental issues was again addressed as the environment was listed as one of the twelve critical areas of concern for women (OSCE, 2009; UNEP, ud).This served to provide further credence to the integration of gender perspectives in environmental programmes and policies and the participation of women in decision-making. However, despite the early international recognition of the link between women and the environment and the reaffirming of this link in the international conference and summits that followed, governments and intergovernmental institutions only started to mainstream gender in their policies almost a decade later, in the late 1990s (INSTRAW, 2003).

In 2002, a review was undertaken by a group of women at the WSSD to assess progress made in mainstreaming gender into environmental and sustainable development initiatives, policies and programmes (UNEP, ud). The results indicated that while some efforts had been made to engender environmental and sustainable development policies, not much has been done in the way of fully integrating a gender perspective into the issues. Rather than address the lack of implementation efforts, more commitments were made at the conference (UNEP, ud). For example, Principle 20 of the Johannesburg Declaration of the World Summit on Sustainable Development affirms the global commitment to “ensuring that women’s empowerment, emancipation and gender equality are integrated in all activities encompassed in Agenda 21” (UN, 2002, p.4). Ten years after this affirmation, no improvements had been made in implementing the commitment as was indicated by the outcome document of the Rio +20 conference in 2012. Many had wondered what the conference would mean for “the millions of poor women across the world struggling with the effects of poverty, climate change and environmental degradation” (Tandon, 2012b, no page number), only to be disappointed as *The Future We Want* served only to reaffirm previous commitments and made even more references to the participation of women in sustainable development efforts, without addressing the gap between policy and implementation. For example, paragraph 45 underscores that:

“Women have a vital role to play in achieving sustainable development. We recognize the leadership role of women and we resolve to promote gender equality and women’s empowerment and to ensure their full and effective participation in sustainable development policies, programmes and decision-making at all levels” (UN, 2012b, no page number).

Aboud (2012) argues that the above statement is vague and shows no real commitment or intent to empower women. Moreover, numerous women’s organisations and NGOs were appalled by the failure of the outcome document to reaffirm women’s reproductive rights despite being negotiated at the initial Rio conference. This has been deemed a major disappointment of the conference as reproductive rights are central to gender equality and the attainment of sustainable development (Aboud, 2012). Furthermore, the *Future We Want* did not make mention of women’s role in climate change and food security, thereby, indicating the lack of progress and understanding of the issues despite the emphasis that the UNCED placed on the importance of gender equality and equity and women’s rights as pre-conditions for sustainable development in 1992 (INSTRAW, 2003; UNEP, 2004; Aboud, 2012). Such setbacks are among the many that women have had to endure over the years, however, this has not hindered women’s activism in environmental issues as they fight for their right to a healthy environment.

### 2.5.1 History of Women and the Environment

As early as the 1960s, Rachel Carson noticed that humankind's over-dependence on natural resources had a negative impact on the environment and posed a danger for future generations of human and non-human life. In an effort to prove this she researched the impact of pesticide use on the environment and published her results in her book, *Silent Spring* (1962) which initiated the global environmental debate and led to the banning of certain pesticides such as DDT. Ten years later, two women, Barbara Ward and Rene Dubois co-authored a publication called *Only One Earth: The care and maintenance of a small planet* (1972) which set the foundation for the UNCED by claiming that international development practices were unsustainable. Donella Meadows was a principal author of *Limits to Growth* (1972), another controversial publication, which stated that pollution, population growth and over-utilization of natural resources were negatively affecting the environment and were leading to unsustainable practices (INSTRAW, 2003). These examples demonstrate how women have brought environmental issues to the forefront, but female activism did not end there; women have been the agents of numerous environmental conflicts and movements. Examples include:

- a) In the 1950s in Japan, the Nakabaru Women's Society and the Sanroku Women's Society protested against pollution caused by industries and power plants in the Tobata regions. In addition to protesting, the women spent years conducting field surveys, adding to scientific knowledge, and held frequent meetings. Given the irrefutable evidence presented, the local government and corporations were forced to adopt pollution prevention measures so as not to deny people their right to "a safe and healthy environment" (INSTRAW, 2003, p.31; Dankelman, 2005)

- b) Chipko (tree-huggers) Protest Movement in India:

In India, in 1974, a 50 year old illiterate female activist called Gaura Devi led the women of Reni Village in a movement to prevent the commercial tree felling near their village by hugging the trees. After a four-day standoff, commercial logging was banned and the women were victorious in protecting their source of livelihood (Dankelman, 2005; Davey, 2009).

- c) The Green Belt Movement (GBM) in Kenya:

"Implicit in the act of planting trees is a civic education, a strategy to empower people and give them a sense of taking their destiny into their own hands, removing their fear..." – (Maathai, 2003 cited in UNEP, 2004, p. 13)

The GBM is an environmental organization in Kenya that in 1977, under the direction of Wangari Maathai, launched a grassroots environmental campaign to uplift rural women by addressing gender disparities and alleviate poverty. This was done by providing a means of livelihood for rural women and simultaneously safeguarding the environment by “combating desertification, improving soil fertility and protecting water catchment areas” (Maathai, 2003; UNEP, 2004; Dankelman 2005, p. 2; Davey, 2009; GBM, 2011). To meet this goal, women were encouraged to plant indigenous trees for which they would receive an income. To date, the campaign has over 50 000 female members who have planted over 51 million trees (GBM, 2011). The GBM was one of the initial attempts to address the gender link to the environment at a grassroots level and has succeeded in empowering women, improving their livelihoods and providing them with invaluable skills that will help them to manage the environment (UNEP, 2004). To diversify their income sources, they receive training in bee-keeping and food-processing. The Movement has since spread to other countries in Africa (UNEP, 2004; Dankelman, 2005).

These are only a few examples of the numerous actions women have taken to tackle environmental issues. There are many women’s groups and environmental organisations that are fighting and lobbying against environmental degradation and unsustainable practices. Examples include the Women’s Environment and Development Organization (WEDO) which is a global women’s advocacy organization that aims to promote gender equality, protect women’s rights and environmental resources to ensure that the goals of sustainable development are met (WEDO, ud); the Grassroots Organizations Operating Together in Sisterhood (GROOTS) is a movement that aims to empower women at the grassroots level (rural and urban) and to encourage their participation in decision-making in community development (GROOTS International, 2012); and more recently, in 2010, the Earth Day Network launched a Women and the Green Economy (WAGE) campaign at the 16<sup>th</sup> UNFCCC to promote an engendered green economy. The main focus of the campaign is to promote women’s leadership in transitioning to a sustainable green economy by securing educational and job skills training opportunities for women, opening a market for them to enter the green economy, and creating leadership opportunities for them, while addressing climate change (Earth Day Network, ud).

### **2.5.2 Women and environment in S.A**

South Africa faces numerous environmental crises which include, *inter alia*, deforestation, soil erosion, destruction of wetlands, introduction of alien invasive species, and natural resource depletion (Maia, *et al.*, 2011; WWF, ud). In an effort to address these issues the country is a

signatory to numerous global environmental agreements (such as Agenda 21 and the CBD) and has developed its own policies and legislation. The National Environmental Management Act (NEMA) No. 107 of 1998 is one of the major environmental policy documents which provides principles for sound environmental governance. The government is required to ensure that the people, particularly the vulnerable and disadvantaged, have access to basic goods and services such as food, water, education and health facilities and that they are living in a safe and healthy environment, which is their fundamental right (Republic of South Africa, 1998; Darkey, 2012). Furthermore, the Act advocates for the participation of women, the youth, and the vulnerable and disadvantaged groups in environmental management. For example, section 2(4)(f) stipulates that:

“The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured” (Republic of South Africa, 1998, section 2(4)(f))

and section 2(4)(q) in the Act states:

“the vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted” (Republic of South Africa, 1998, section 2(4)(q)).

However, Kotzé (2008, p. 2) asserts that the appearance of these roles in legal frameworks does “not necessarily mean it transpires into action”. Despite having one of the most well-developed environmental policies and legislative frameworks in the world, South Africa is finding it difficult to implement, with researchers questioning whether the poor, the majority being women, and the marginalised have actually been equipped with the skills to participate and are given an opportunity to participate in environmental management. Have they been empowered and are their voices being heard? (Darkey, 2012). UNEP (2004) concurs, noting that despite all the efforts by women, especially poor women, in managing the environment, they receive very little recognition for their potential to contribute to development and are under-represented in decision-making. Instead they continue to face gender inequality and socio-economic issues such as poor living conditions (Darkey, 2012)

To ensure the participation of women in the pursuit of South Africa’s environmental sustainability, the government needs to address gender inequality and cultural issues. As gender issues are influenced by politics and power, gender equality requires “transformative change” (Pietilä, 2002 cited in Dankelman, 2005, p. 6). Furthermore, a “cultural attitudinal overhaul” that acknowledges

the contribution of women to environmental management is mandatory and these changes, coupled with the implementation of environmental management policies and regulations, will place South Africa on the road to sustainability (Darkey, 2012, p. 218).

### **2.5.3 Women and Green Economy**

Though women bear the brunt of any environmental changes, their environmental knowledge and their concern for the well-being of current and future generations enables them to make an important contribution to green economy and overall sustainable development (Dankelman, 2005; Davey, 2009; SWAN, 2011; Stevens, 2012). Furthermore, women are responsible for creating sustainable households as they make more than 80% of consumer choices and are more environmentally-conscious than men in their purchasing choices. However, they face the challenge of limited purchasing power (Stevens, 2012). A sustainable green economy must entail development that is within the Earth's ecological limits (*i.e.*, zero-waste and a low carbon economy) and should ensure equitable distribution of resources, not only between nations and social groups but also between men and women (Women's Major Group, 2011; Becher, 2012). Therefore, to lift low-income women out of poverty, and ensure their economic security, they should be afforded the same secure employment and entrepreneurship opportunities as men (WESC and WOW, 2009; Women's Major Group, 2011;). However, they still face barriers in attempting to participate in the global green economy. These include:

- Structural gender inequality: women face discriminatory laws and employment patterns that favour men- for example, they are paid less than men for the same job and this gender-based income gap is increasing (WESC and WOW, 2009; Stevens, 2010; Stevens, 2012; UNRISD, 2012a)
- Lack of time and opportunity to enter the green economy market: Women do not have time or opportunity to participate in green economy ventures as they often have to juggle childcare and household activities which impacts upon their mobility and limits their career prospects. As a result they tend to find employment in jobs of inferior and poor conditions (WEDO, 2001; WESC and WOW, 2009; Stevens, 2012; UNRISD, 2012a).
- Lack of access to information and decision-making bodies (WEDO, 2001; Tandon, 2012a)
- Lack of exposure to new technologies and training services (WESC and WOW, 2009; Tandon, 2012a). Such training is vital to entry into the green job market as almost all green jobs require some form of post-secondary training, even if the jobs are low-skill and low-

wage. In the absence of such training, they are unable to participate in the green economy and thus continue to live in poverty (WESC and WOW, 2009).

These barriers tend to be highly political and need to be addressed by government through social policies that will ensure the well-being of women and promote gender equality, thus enabling a successful transition to green economy and fulfilling the sustainability goal (Stevens, 2010; Stevens, 2012; Tandon, 2012a). Green jobs present an opportunity to lift women, their children and their communities out of poverty and provide them with a place in economic growth and development, while protecting the environment for future generations. It is important to note, however, that the creation of green jobs for women is more than just alleviating poverty and securing social welfare for them, it is about making sure that women and men are equal participants in the shift from a brown to a green economy (Tandon, 2012a). Hence, the social policies need to address the traditions of discrimination that have economically disadvantaged women and their empowerment. Women's empowerment should be the main goal of all development assistance programmes which aim to promote green economy in developing nations (Stevens, 2012). In addition, it is important to create awareness about green economy and provide women with suitable training to enable them to participate in "green-collar" opportunities (WESC and WOW, 2009, p. 13). Addressing these social aspects of sustainability can, therefore, spearhead efforts to transition to a low-carbon green economy.

At a grassroots micro- level, women are lifting themselves out of poverty while simultaneously contributing to the goals of sustainable development. Examples of such actions include:

- In Pune, India, women are dominating the waste collection sector through their affiliation with the Waste Collector's union KKPKP. Women comprise 90% of the waste collectors. These waste collectors can collect waste from the streets or public bins, or they buy waste from households, *i.e.*, waste that people do not normally throw into the bin such as bottles or paper, or they work in landfills. This has provided the waste collectors with employment that can help lift them out of poverty (Steven, 2010).

In addition, the union, with government assistance, is promoting the segregation of waste within households into biodegradable and non-biodegradable. Following this, the waste is collected by the waste collectors who then sell what can be sold. Any waste that is not re-useable is sent to a landfill while the biodegradable waste is composted at the source. This 'unionized' initiative generates economic savings as it reduces the amount of money and resources required to use waste collection trucks. Ninety percent of the unsegregated waste

was shown to be biodegradable and when this is removed the trucks only have to carry the non-biodegradable waste (10%), thereby reducing costs. Thus, the initiative addresses the environmental and social factors that are embedded in sustainable development (Stevens, 2010).

- In Malaysia, in another waste-to wealth initiative, rural women on Tuba Island are recycling waste to produce handicrafts such as baskets and other souvenirs. This small-scale informal project provides additional income for women and empowers them, while safeguarding the environment (Henry and Ghazhali, 2011).
- In Burkina Faso, a community-based initiative called, *Recycling Centre for Used Plastic Bags*, promotes the weaving of city clothing, fashion accessories and decorative objects using old plastic bags. This initiative, run by a women's environmental group, trains underprivileged and impoverished women, and provides them with an income while clearing the streets of Burkina Faso of plastic bags which are harmful to the environment (UNEP, 2011b).

These examples show how women at the grassroots, rather than waiting for economic benefits to trickle down, have taken matters into their own hands and their livelihoods are improving. Hezri and Ghazali (2011, p. 14) commend this economic strategy and advocate for its replication on a larger scale, with more resources and better co-ordination, as an example of "encouraging economic growth from pro-poor and pro-disadvantaged investments". Stevens (2012, no page number) applauds such initiatives and states that "green economy approaches that emphasize women as workers in green jobs, consumers of green products and citizens for green governance will provide for long-term sustainability". Moreover, such community projects contribute to women's empowerment by providing them with leadership and networking opportunities (Tandon, 2012a).

## **2.6 NGOs and the environment**

The intensification of globalisation and urbanisation has resulted in environmental and developmental issues that have increased the gap between the rich and the poor, as national governments are failing to meet the needs of the latter. Non-governmental organisations (NGOs) (also known as civil society organisations (CSOs) or private voluntary organisations (PVOs)) have emerged to address these issues and attempt to fill this developmental gap (Paul, 2000; Sustainability *et al.*, 2003; Reimann, 2005; Shah, 2005; Wang, 2006; Dempsey, 2009; Banks and Hulme, 2012).

### 2.6.1 The role of NGOs

Non-governmental organisations are politically independent, “self-governing, private, non-profit organisations geared towards improving the quality of life of disadvantaged people” (Vakil, 1997, p. 2060), namely, the poor, women, children and the disabled, through service delivery and “channelling billions of dollars in development assistance, humanitarian aid, and technical support” (Paul, 1996, p. 3; Paul, 2000; Banks and Hulme, 2012). SustainAbility *et al.* (2003, p. 11) assert that “NGOs prioritize ethical, social or environmental issues in different ways and feel a stronger sense of outrage when these values are offended”. Accordingly, these organisations adopt a bottom-up, people-centred approach to address these issues and ensure a thriving civil society (Reimann, 2005). Though NGOs or CSOs date back to 1863 (the International Committee of the Red Cross), there was a boom in the sector in the 1970s in response to developmental and social issues, and international relief (Paul, 2000; Forman and Stoddard, 2002; SustainAbility *et al.*, 2003; Shah, 2005; Holmén and Jirström, 2009; Banks and Hulme, 2012). There was also an increase in funding for NGOs during this time period which facilitated the proliferation of these organisations (Reimann, 2005). Banks and Hulme (2012) note that NGOs have sometimes been known to receive more funding than government. Currently, the sector ranks eighth in the global economic sectors with a turnover of over US\$1 trillion and creates millions of job opportunities (Paul, 2000; Forman and Stoddard, 2002; SustainAbility *et al.*, 2003; Shah, 2005; Banks and Hulme, 2012). Paul (2000) and Shah (2005), however, argue that such a proliferation in the NGO sector is worrisome as it serves to indicate the failures of governments to meet the increasing needs of the people.

NGOs have a strong presence in the global community and are predominantly active at the local or grassroots level (giving a voice to civil society) but some can be found at international level (Paul, 2000). Their work covers many social and development aspects, *inter alia*, women’s rights, humanitarian relief, emergency response, environmental protection, security issues, conflict resolution, human rights, economic development, political rights, policy analysis, and provision of health care and education (Paul, 1996; Reimann, 2005; Holmén and Jirström, 2009). To fulfil these roles, NGOs employ diverse methods which include lobbying; advocacy; campaigning; activism (which can include ‘naming and shaming’ those public leaders who abuse human rights); networking; behind the scenes, quiet diplomacy (where some can specialize in research that informs policies); service delivery; or consciousness raising (or community education) (Jasonoff, 1997; Paul, 2000; SustainAbility *et al.*, 2003; Holmén and Jirström, 2009; Banks and Hulme, 2012). Regardless of the approach used, these activities require funding and these not-for-profit organisations, despite their increased professionalism, have to rely on external funding to enable

them to fill the delivery gap in society. In most cases they receive funding from government grants or contracts (as is the case with disaster relief of development NGOs such as CARE or Oxfam), or international donor organisations, wealthy individuals, profits from the sale of goods, or they are dependent on money invested in the stock market. The latter can prove to be an unreliable source of income especially with the uncertainty and losses that can occur in the stock market (Paul, 2000; Sustainability *et al.*, 2003; Shah, 2005). In recent years, however, there has been a decline in the funding given to NGOs and some of them, especially in southern Africa, have been forced to cut back on cost and projects or they have shut down, much to the detriment of the poor that rely on them (Forman and Stoddard, 2002; Coalition on Civil Society Resource Mobilisation, 2012). To stay afloat and continue with their humanitarian efforts, some NGOs are forced to forge partnerships with the private sector and governments, however, such alliances have proven to be problematic as the NGOs struggle to maintain their autonomy and independence (Forman and Stoddard, 2002; Reimann, 2004; Shah, 2005; Wang, 2006; Banks and Hulme, 2012).

NGOs have proved to be crucial to development aid, poverty reduction, and safeguarding the environment. This was recognised in 1992 where Agenda 21 set the pace for their participation (Paul, 1996) and implores governments to encourage their participation in these issues. Chapter 3.7 states that:

“Sustainable development must be achieved at every level of society. People’s organizations, women’s groups and non-governmental organizations are important sources of innovation and action at the local level and have a strong interest and proven ability to promote sustainable movement. Governments, in co-operation with appropriate international and non-governmental organizations, should support a community-driven approach to sustainability” (UN, 1999c, chapter 3.7).

Despite their numerous successes, NGOs have come under much scrutiny, with corporate bodies heading the campaign against NGOs.

### **2.6.2 Criticisms of NGOs**

NGOs have been criticised for their lack of financial independence and their resulting dependence on the state and private donors has led many to question whether NGOs are not politically influenced by the two in their decisions (Reimann, 2005; Shah, 2005; Banks and Hulme, 2012). Paul (2000, no page number) concurs by suggesting that accepting large grants from the government or wealthy individuals or corporations can “create relations of influence that can lead NGOs away from their mandate to serve the public” in order to meet the goals of the donors. Reimann (2005, p. 43) adds that such scenarios influence NGOs to initiate projects because of a

“top down supply of resources” rather than to meet the “bottom-up demand”. In addition to losing their autonomy and independence due to their heavy reliance on external funding, particularly from governments, the question arises as to whether NGOs are really non-governmental in nature? (Reimann, 2005).

Some northern NGOs have been criticized for playing the role of modern-day missionaries in developing countries in that rather than equipping the poor in these countries with survival skills, they are making them increasingly dependent on the aid they provide, and thus keeping the poor within the poverty trap. In this regard, aid becomes more about the donor and less about the recipient (Shah, 2005). In addition, a high dependence on foreign aid calls into question the sustainability of the receiving nation’s development policies. What would happen if the aid suddenly ceases to exist? (Shah, 2005).

NGOs have been criticised for their lack of transparency and accountability. Given their lobbying for corporate accountability, one would expect they would not have any problem with accounting for their actions. Many disgruntled corporate bodies that have fallen prey to NGO campaigns are now questioning the latter’s financial accountability, transparency, and representativeness. Some feel the NGOs are actually spending very little of their funding on aid projects and are spending the money on their administrative costs and to ‘line their pockets’ (Reimann, 2005; Holmén and Jirström, 2009).

Furthermore, NGOs have been accused of becoming more professionalized and commercialised due to increased funding which has led to bureaucracy and market-orientation. NGOs are now often profit-driven, adopting a more corporate-like model, which has seen them use questionable and unethical fundraising and marketing schemes in some cases (Reimann, 2005; Wang, 2006; Holmén and Jirström, 2009). For example, some relief NGOs have used images of starving children or refugees to raise funds. In this way, Reimann (2005) argues that NGOs have lost their spirit of voluntarism and their unique link to people at the grassroots level, *i.e.*, they have lost their community focus, leading to distrust of the non-profit sector. Holmén and Jirström (2009) add that this increased level of professionalism makes NGOs highly competitive and hostile towards each other, and unwilling to share information as they compete for funding from donors, market shares and clients.

Lastly, NGOs have been accused of unwittingly “doing more harm than good” (Shah, 2005, no page number). For example, a scenario can arise with food aid whereby the provision of free food to poor countries affects local farmers’ livelihoods as people are likely to stop purchasing food in

favour of free food. Another example is presented by Dempsey (2009) who acknowledges that NGOs unintentionally marginalize the people they intend to help as NGO campaigns tend to exclude the poor. Such campaigns tend to be spearheaded by professionals who lack common experiences with the marginalized (Dempsey, 2009).

Such critiques demonstrate the power and influence that the NGO sector possesses and as long as there is social inequality and environmental degradation, NGOs are here to stay. They are the mouthpiece for civil society and the public often trusts NGOs more than they do their own governments or political parties (Paul 2000; Holmén and Jirström, 2009; Banks and Hulme, 2012). Therefore, governments would be wise to partner with them and use them as a conduit between themselves and their people, and to fill the gap that they do not have the financial or institutional capacity to fill (Paul, 1996; Mate, 2001; Sustainability *et al.*, 2003).

### **2.6.3 Environmental non-governmental organizations (ENGOS)**

“The place of NGOs in international governance seems nowhere more securely established than in the field of environmental action” (Jasonoff, 1997, p.579)

ENGOS are NGOs that have an environmental focus and they serve as “watchdogs for the global commons”, *i.e.*, the oceans, lands and the atmosphere” (Mate, 2001, p. 190). They solidified their place as environmental advocates in 1992 at the Rio summit where they outnumbered government attendees and demonstrated superior scientific and technical knowledge concerning environmental management, and policy-making and implementation (Jasonoff, 1997). ENGOS can range from small grassroots affiliations to multinational specialised organisations and have become highly influential. They have been particularly active in creating awareness on the negative impacts that corporations have on the environment and as such, they hold governments and companies accountable for their environmental impacts (Mate, 2001). They have been instrumental in the implementation and enforcement of environmental legislation and are known for criticising and influencing the policies of national and international regimes, in some cases triggering a policy change (Jasonoff, 1997). This kind of action is usually carried out by the larger multinational ENGOS such as Greenpeace and Friends of the Earth. In addition, ENGOS disseminate information or transfer skills and technology to places where they are not available. This is usually the role of the smaller grassroots level NGOs that attempt to simplify technical information for the people at the grassroots level. Moreover, they have been known to mobilise civil society action against polluters, and to make emergency response measures specific to smaller areas (Jasonoff, 1997). At the community level, ENGOS have attempted to merge environmental concerns with aspects of the

civil society's development such as poverty and gender equality, and to empower the poor to help themselves rather than just provide them with aid (Jasonoff 1997; Shah, 2005).

### **2.6.3.1 ENGOs in South Africa**

South Africa is a medium income economy nation (based on Gross National Income per capita) that is faced with high rates of unemployment, poverty (54% of the nation is living in dire poverty), and inequality, as is reflected by the poor living conditions of the poor compared to the rich (Coalition on Civil Society Resource Mobilisation, 2012). Therefore, it is unsurprising that since the country's independence in 1994, the NGO or non-profit organisations (NPOs) sector has grown significantly. This was the result of increased funding as "international donors lined up to assist in restoring the injustices of the previous regime" (Chauke, 2013, no page number). The NPO sector grows at a rate of 14% per annum and to date there are over 100 000 NPOs, 85 000 of which are registered under the NPO Act of 1997, the majority of whom are community-based and concerned with service delivery as opposed to advocacy or promoting participatory democracy. A NPO study carried out in 2001 revealed that 3% of registered NPOs in South Africa are environmental (Coalition on Civil Society Resource Mobilisation, 2012; Khumalo, 2012).

The first-ever South African ENGO, the Natal Game Protection Association, was established in 1883, however, the sector only started to make significant growth in 1965 after the public took an interest in environmental issues. The country's first ENGOs were conservation-based and apolitical as both ENGOs and governments were reluctant to acknowledge the link between conservation and political issues, despite global acknowledgement of the link (McCormick, 1995; Wessels and Steyn, 1999). Three NGOs dominated at this point and these were Wildlife Society (1926), the South African Nature Foundation (1968), and the Endangered Wildlife Trust (1973) (Steyn, 2002). From the early 1970s, there was a shift in the interest of ENGOs from conservation of wildlife and flora to conservation of all environmental resources (such as soil, air, water), environmental education (formal and informal), and anti-pollution campaigns that focussed on litter (Wessels and Steyn, 1999; Steyn, 2002). As the environmental revolution continued ENGOs realised that the primary cause of South Africa's environmental problems was economic development and they started taking the government to task regarding development that might degrade the environment such as the building of roads, or buildings or mining in protected areas, and the use of nuclear energy (Steyn and Wessels, 2000).

The 1980s saw the growth of community-based NGOs which were concerned with meeting the needs of the poor. Prior to this, the needs of the poor, whose environmental issues stemmed from a lack of development, were largely ignored. The first-ever community-based ENGO action was

carried out in an environmental awareness campaign in 1982 in Soweto. After this, more ‘greening of communities’ campaigns were initiated in the form of tree-planting projects or the growing of organic food gardens. These campaigns were aimed at developing the communities and providing job opportunities (Steyn and Wessels, 2000; Steyn, 2002). There have been numerous similar community-based initiatives since then as the NGOs, post-UNCED, have one goal in mind-working towards achieving the goals of sustainable development.

Overall, the environmental movement in South Africa has evolved since it began in the 1960s, from a conservation-based movement to a development and community-based movement. ENGOs in South Africa, in partnership with trade unions and private organisations and other environmentalists, were highly influential in this evolution and in the greening of the politics of South Africa, addressing the injustices of the Apartheid regime, and in meeting the needs of the poor where government is unable to do so. However, like so many other NGOs in the country, the sector relies heavily on funding from government, international or individual donors, the corporate or private sector, and self-generated income (Coalition on Civil Society Resource Mobilisation, 2012). As such, with the advent of the global financial crisis of 2008, the sector is facing a financial sustainability crisis due to a lack of funding. This has led to a high staff turnover or the closing down of some NGOs, compromising the livelihoods of so many who depend on them, and the ability of NGOs to meet the developmental challenges of the nation (Coalition on Civil Society Resource Mobilisation, 2012).

## **2.7 Conclusion**

The globally dominant resource-intensive economic growth strategy has resulted in environmental and social externalities which have left almost half the global population poor, with a widening gap between the rich and the poor, and the environment in a degraded state where it is approaching its limits (INSTRAW, 2003; Yang, 2006; Goldstein, 2008; Brueckner and Pforr, 2011; UNDESA *et al.*, 2011; UN, 2012a; UNEP, 2012; Woods, 2012). The majority of the poor are women, who, not only are the most vulnerable to any changes brought about by environmental degradation, but through their close relationship and dependence on the environment can contribute to alleviating the environmental crisis (Leach, 1992; OSCE, 2009; UNRISD, 2012a).

To address these issues, the concept sustainable development was put forth by the Brundtland Commission in 1987 with the aim of achieving development that is not only economically sound but environmentally sustainable and socially just to ensure that the future generations have access to resources that they can utilize for their own development (WCED, 1987; Aguiar, 2012). While the

concept has been widely received on a global level and has formed the foundation of many environmental programmes and policies, bridging the gap between policy and implementation has proved to be a difficult task as poverty levels are increasing, the environment continues to deteriorate, and there is increased gender inequality (Musyoki, 2012). These factors coupled with the 2008 global financial crises saw the world looking for an innovative way of addressing the numerous issues (Stevens, 2010; UNEP, 2011; Musyoki, 2012; UNDESA, 2012). The concept of green economy is humankind's newest hope in tackling the issues.

The highly debated concept of green economy was put forth not to replace sustainable development but as a means of achieving it. Green economy is socially-based as it takes a people-centred approach to sustainable development (UNEP, 2011a). Many countries, including developing nations such as South Africa, have since adopted green economy strategies at the micro-level. With assistance from NGOs, trade unions and the private sector (Economic Development Department South Africa, 2011), these have been successful in generating an income for the poor by creating green jobs while safeguarding the environment and in helping the poor to make a contribution to economic growth. In alleviating poverty, solutions can be found for tackling gender inequalities and environmental deterioration as “gender inequalities, environmental deterioration, and deepening poverty are mutually self-reinforcing- improvement in any one of the three can leverage in the other two” (UNEP, 2005, p. 18). Thus, such projects should be replicated on a more widespread level and, with assistance from women. If the principles of green economy are implemented globally, the global society can finally be put on the path to sustainable development (Hezri and Ghazali, 2011).

*“The transition to a sustainable future will not occur in one day; nor can it succeed if capacity building efforts focussed only on implementing institutions. Transitions often happen in phases in which different groups (NGOs, local governments, users) may take the lead in turn. The end result has often been complete change in the perspectives of politicians, planners, engineers and experts, and citizens” (UN, 2012a, p. 34).*

# Chapter Three

## Methods

### 3.1 Introduction

This chapter outlines the research strategies that were adopted to fulfill the aim of the study. These entailed the use of mixed methods research within three case studies that are implementing green economy initiatives. With regards to field research, a description of each study site is provided, including a brief history of Wildlands Conservation Trust (WCT), the local ENGO that is facilitating the green initiatives. Information on the research techniques adopted for data collection and analysis are provided, and finally, the limitations of the research methods are raised and addressed.

### 3.2 Research strategies

#### 3.2.1 Mixed Methods Research

An exploratory mixed methods/multi-methods research strategy was adopted in this study, whereby mixed research is an approach to knowledge that attempts to integrate different elements of quantitative and qualitative data in a single study to allow for a deeper understanding of phenomena and data corroboration (Johnson *et al.*, 2007; Bowen, 2009). Brannen (2005) adds that this mode of research provides answers to the numerous questions raised within a study and can facilitate in the adoption of other methods of inquiry. The multi-methods research strategy was utilized within the three case studies that were purposively selected for the study. The case study research method is discussed in the following section.

#### 3.2.2 Case studies

“A case study research method is an empirical enquiry that investigates a contemporary phenomenon within its real-life context especially when boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”- (Yin, 1984, p. 13)

A case study is a research method that aims to investigate, analyse and understand a class of complex social phenomena within its original setting using various sources of data, allowing the researcher to “retain the holistic and meaningful characteristics of real-life events” (Yin, 1994, p.13; Flyvbjerg, 2006; Baxter and Jack, 2008). This guarantees the exploration of the phenomena through multiple lenses as opposed to a single lens, ensuring that different aspects are explored and understood (Baxter and Jack, 2008). This strategy is usually adopted when ‘how’ and ‘why’

questions are being asked (Schell, 1992; Yin, 1994), and qualitative or quantitative or mixed methods can be used in the investigation (Yin, 1994). This mode of research, however, has been criticised for (i) lacking a basis for scientific reliability or generalisability, as one “cannot generalise from a single case” (Flyvbjerg, 2006, p. 2); (ii) being time-consuming leading to the acquisition of numerous unreadable documents; and (iii) lacking rigour and objectivity as continual exposure to the case may lead to researcher bias (Yin, 1994; Rowley, 2002; Flyvbjerg, 2006).

Case studies can apply to single or multiple cases (Schell, 1992; Rowley, 2002). The researcher utilized the latter to allow for the “replication of incidents in different settings” (Schell, 1992, p.6). As per the aim of the study, three peri-urban study sites were selected based on the contribution to environmental sustainability of the women within each study area through their adoption of green economy initiatives, under the guidance of a local environmental non-governmental organisation (ENGO), Wildlands Conservation Trust. These study areas were SWAPO, Sweetwaters and Willowfontein located in Pietermaritzburg, KwaZulu-Natal (KZN), South Africa (Figure 3.1). Within these sites, a social survey technique (Hammersley, 2004) was adopted to collect data from the women who are involved in the initiatives and semi-structured interviews were held with key informants. A brief history of the ENGO and their green-preneurship activities is discussed in the following section.

### **3.3 Wildlands Conservation Trust (‘A sustainable future for all’)**

“There is increasing evidence that our planet can simply not support the vision that developing countries have of enjoying the same quality of life that the citizens of developed countries do. However, civil activism, rather than a global compact, can enable this dream without us reaching an environmental tipping point”-Andrew Venter, CEO, Wildlands Conservation Trust

Wildlands Conservation Trust (WCT) is a registered non-profit, public benefit and welfare organisation based in Hilton, South Africa. It is the country’s third largest environmental NGO (based on income generated). Founded in 2005, its primary goal has been to create a future that is socially just, economically sound and environmentally sustainable (Aguar, 2012), and to make sure that the poor are included in the global drive towards sustainable development (WCT, 2011a). To ensure that the goal is met, the ENGO implements initiatives that are founded on the Community Ecosystem Based Adaptation (CEBA) model which is a modified version of the Ecosystem-Based Adaptation (EBA) framework (UNFCCC, 2012). In the face of the impacts of climate change, the EBA model aims to enhance adaptive capacity and increase resilience while minimizing the vulnerability of ecosystems and people by utilizing methods that enable the conservation and

sustainable use of natural resources while restoring ecosystems (UNFCCC, 2012). Against this backdrop, WCT forged a partnership with the South African government to adopt and implement a CEBA model that mainstreams the aims of green economy with those of the more traditional EBA model. The focus of the resulting CEBA projects is to uplift the poor and marginalised community members through green job creation which, in addition to providing them with a steady and sustainable source of income and livelihood, will enable them to participate in the green economy and overall environmental sustainability. This is accomplished by “highlighting the interconnectivity between local communities and their supporting environment” (WCT, 2012, p.6), and partnering with local communities and teaching how to survive without further detriment to the environment. This joint venture between WCT and communities has resulted in the following activities (WCT, 2012):

- cleaning of rural and urban communities by removing waste and ensuring effective waste management;
- restoration of ecosystems and creation of carbon sinks, for example, through re-forestation of degraded areas;
- facilitating effective conservation management and advocating for the establishment of Climate Change Adaptation corridors;
- “unlocking the green-preneurship potential of the impoverished and unemployed” (WCT, 2012, p.7).

Green-preneurship refers to the green economy-based pro-poor economic development ventures WCT has embarked upon since its inception, with financial assistance from donors. The initiative is highly gendered, with women forming the majority and so far, WCT has launched three types of green-preneurship activities, namely, waste-preneurship, tree-preneurship, and food-preneurship (WCT, 2011a; WCT, 2012). These are discussed in detail in the following section.

### **3.3.1 Green-preneurship activities**

WCT launched green-preneurship activities in the hope of providing poor communities, both rural and urban, and those who lack the skills, training or educational qualifications to enter the formal economy, with a source of income, thereby providing them with necessities and diversifying their livelihoods (WCT, 2011a). These activities include waste-, tree, and food-preneurship and have been established in four provinces in South Africa, namely, KwaZulu-Natal (KZN), Mpumalanga, Gauteng, and the Western Cape, with similar projects in the neighbouring countries of Swaziland

and Mozambique (WCT, 2011a; WCT, 2012). To date, a total of ten initiatives have been launched in the four South African provinces - seven in KZN, and one each in Mpumalanga, Gauteng, and the Western Cape (WCT, 2011a). Any member from the different communities can register for the different initiatives but on a first-come, first-served basis as the number of registrations per area are limited.

This research was undertaken on one of the seven initiatives launched in KZN- the uMgugundlovu initiative in Pietermaritzburg, KZN.

### 3.3.1.1 Waste-preneurship (Recycling for Life projects)

Waste-preneurship is a recycling initiative that encourages community members who are registered with WCT for waste-preneurship activities to collect recyclable waste such as plastic bottles, glass and paper from their surrounding areas for recycling or re-use. WCT weighs and purchases the waste collected from registered members at a rate of R5/kg (ZAR 1=USD 0.108 16 September 2013) of segregated waste (Plate 3.1). However, for safety and to ensure that the basic needs of the community are met, the ENGO does not pay in cash but the waste-preneurs are paid in the form of credit notes (or vouchers) to the value of waste collected. The waste-preneurs are able to trade these credit notes for livelihood goods at the WCT's community 'Green Future Stores'. These stores are commercial stores that sell food, clothes, educational support, agricultural goods, building materials, water tanks, solar water heaters, solar powered lighting, and bicycles (Coan, 2009; WCT, 2011a). The ENGO provides transport for green-preneurs to and from the stores.



**Plate 3.1: Examples of waste-preneurship in Willowfontein.**

Paper (a), cardboard boxes (a), glass (a, b) and plastic (a, b) have been segregated by each household and stored in sacks awaiting collection by WCT. The waste is exchanged for R5/kg equivalent of goods.

### 3.3.1.2 Tree-preneurship (Indigenous Trees for Life projects)

Tree-preneurship is a livelihood and re-afforestation project in which WCT encourages registered members to grow indigenous trees by teaching them how to identify the seeds of indigenous trees and how to grow them (Coan. 2009; CAP, ud, Conservation South Africa, ud). Once the trees have reached a height of 30cm or more, WCT purchases the saplings from the individuals or families at a rate of R5/ tree (ZAR 1=USD 0.108 16 September 2013). Once again, similar to waste-preneurship, a ‘barter’ system is in place that enables tree-preneurs to exchange indigenous trees for livelihood support goods. As part of a recycling effort, the community members are encouraged to use plastic bottles to propagate and nurture the trees (Plate 3.2). The saplings collected by WCT are used to contribute to the creation of carbon sinks, which is important for carbon sequestration. Since 2004, WCT has been planting 300 000 trees per annum through their tree-preneurship initiative (Coan, 2009; WCT, 2009; CAP, ud)



#### Plate 3.2: Example of tree-preneurship

The seeds of indigenous trees are grown in plastic bottles until they reach a height of 30cm or more, at which point they are exchanged for goods from WCT. The ENGO then takes the seedlings to a nursery.

### 3.3.1.3 Food-preneurship (Food for life projects)

To ensure livelihood diversification of the community members and to develop entrepreneurial skills, WCT created the food-preneurship project node in which registered community members are encouraged and taught how to grow vegetables such as carrots, beans, and cabbages (Plate 3.3), for personal consumption and for sale to other members of the community for additional income. The food-preneurs plant these crops in their yards and initially WCT provides them with 30m of chicken mesh fencing to demarcate the gardens, a watering can and vegetable seedlings to facilitate the process (WCT, 2011a).



**Plate 3.3: Examples of food-preneurship**

Cabbages, beans and carrots (a,b,c,d) are grown by women in the communities for subsistence and for sale to other members of the community.

To assist the green-preneurs with the different projects (waste segregation, recycling, tree and crop propagation), WCT has employed project facilitators from within the communities. The project facilitators were employed due to their success in green-preneurship with regards to the amount of waste collected and the number of trees grown, for example, some project facilitators have collected more than one tonne of waste or have grown and traded more than 1 000 trees per year. The project facilitators undergo training and capacity building interventions such as enterprise development, financial literacy, the identification and propagation of indigenous trees, sustainable agriculture, waste management, and first aid training, prior to commencing their duties. These duties include assisting and teaching the green-preneurs to (i) segregate waste collected and store it for collection, (ii) identify the seeds of indigenous trees and grow them, and (iii) grow vegetables and show them how they can make a profit from selling them. On occasion, the top green-preneurs in the different communities are rewarded by attending similar training. Such training sessions, are usually

sponsored by donors and are held every one-to-three months. In this way, WCT is “nurturing green leadership potential,” in addition to equipping the poor with the basic business skills they need to become successful entrepreneurs (WCT, 2011a, p. 7). The study sites are described in the next section.

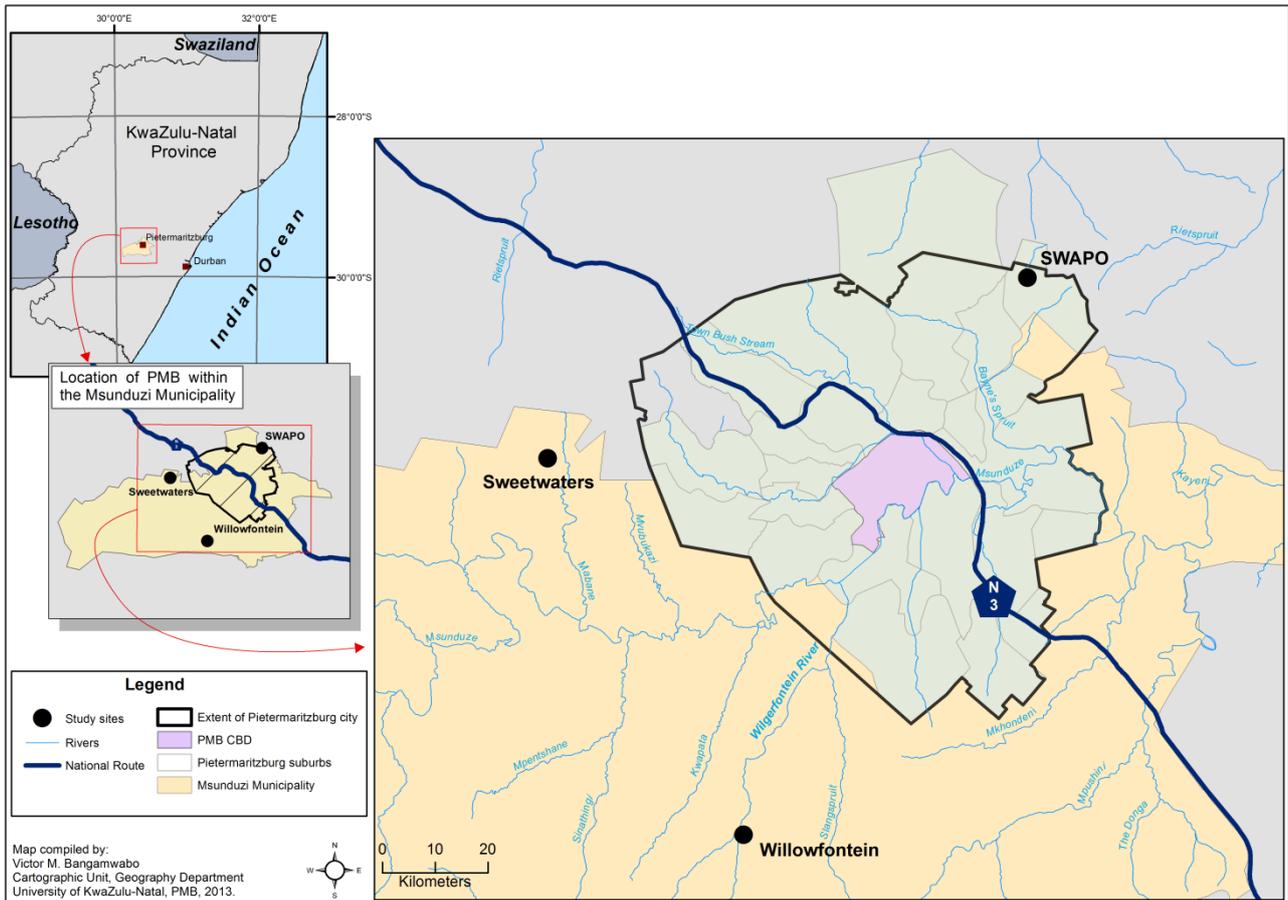
### **3.4 Study sites**

#### **3.4.1 Sampling**

Sampling refers to the process, act or technique of selecting a smaller section of a population that could yield results or characteristics that are representative of the entire population (Ploeg, 1999; Kothari, 2004; Thompson, 2012). Sampling is usually undertaken as collecting data from the entire population is time-consuming, expensive and requires much energy (Kotahri, 2004). To facilitate data collection, a social survey was carried out in three areas in WCT’s uMgugundlovu initiative (KZN) through the use of semi-structured questionnaires. A questionnaire design is a multi-method form of enquiry that allowed for deeper insights into perspectives of the women chosen for the study and produced contextually rich data (Strauss and Corbin, 1990; De Vaus, 2002; Brannen, 2005; Mack *et al.*, 2007). Comparisons can be made between different data sets (Brannen, 2005; McNeill and Chapman, 2005).

##### **3.4.1.1 Wildlands Conservation Trust’s uMgugundlovu initiative**

In 2009, WCT launched green-preneurship project nodes in uMgugundlovu district in the KwaZulu-Natal Province of South Africa. The initiatives have been launched in a total of 13 poverty-stricken neighbourhoods in the medium sized city of Pietermaritzburg and three of these sites were selected as study areas, namely, Sweetwaters, SWAPO, and Willowfontein (Figure 3.1). Purposive sampling was used to select these sites as they are areas within the uMgugundlovu initiative in which WCT has launched the three green-preneurship project nodes (waste-, tree-, and food-preneurship). The projects have progressed significantly in these areas and women form the majority of participants (83%).



**Figure 3.1: The study areas, SWAPO, Sweetwaters and Willowfontein situated within the Msunduzi Municipality as part of the uMgugundlovu district municipality**

### 3.4.2 Study areas

Pietermaritzburg is a city located within the Msunduzi Municipality jurisdiction in the uMgugundlovu district municipality and is the economic hub of the district municipality (Smith and Green, 2005; Msunduzi Municipality, *et al.*, 2012; SACN, 2013). Similar to the rest of South Africa, Pietermaritzburg is confronted with growing rates of poverty and unemployment (Figure 3.2), and unequal development in the city, particularly in the townships and rural settlements (National Treasury Republic of South Africa, 2010; Msunduzi Municipality, *et al.*, 2012; SACN, 2013). This has resulted in numerous households in the study areas living below the poverty line (Figure 3.3), making the call for the creation of employment and economic opportunities even more urgent so as to ensure adequate and sustainable livelihoods for all (National Treasury Republic of South Africa, 2010; SACN, 2013).

Located outside Pietermaritzburg's central business district, SWAPO, Sweetwaters and Willowfontein (Figure 3.1) are considered to be peri-urban, the major population group being black African and their vernacular isiZulu (Statistics South Africa, 2011). These areas are densely

populated and the residents live in either informal or formal settlements (Statistics South Africa 2011; Msunduzi Municipality, *et al.*, 2012). There is a lack of basic waste collection services (Statistics South Africa, 2011) due to the absence of basic infrastructure which makes the areas inaccessible to waste collection trucks, a point that was reiterated by the key informant from the municipality who confirmed that the waste department has insufficient resources to reach all the communities, especially the low-cost houses. These communities face high rates of unemployment as more than half the population are unemployed or economically inactive (Figure 3.2). Further, some households lack access to the water scheme operated by the municipality, forcing the community members to source it elsewhere, such as from springs and boreholes or from water vendors (Statistics South Africa, 2011). The areas are described in greater detail below.

#### **3.4.2.1 SWAPO**

SWAPO is a poor peri-urban community on the outskirts of Pietermaritzburg where 48% of residents live in formal settlements which comprise of bricks/concrete block structures, while 29% of the population live in informal/squatter settlements (Statistics South Africa, 2011; Msunduzi Municipality, *et al.*, 2012). In terms of sanitation, most houses have flush toilets that are connected to the sewerage system while those from informal settlements use pit toilets without ventilation. In addition, while in some areas waste is collected by the municipality, a significant number of residents use their own dumps to dispose of waste (Statistics South Africa, 2011; Tissington, 2011).

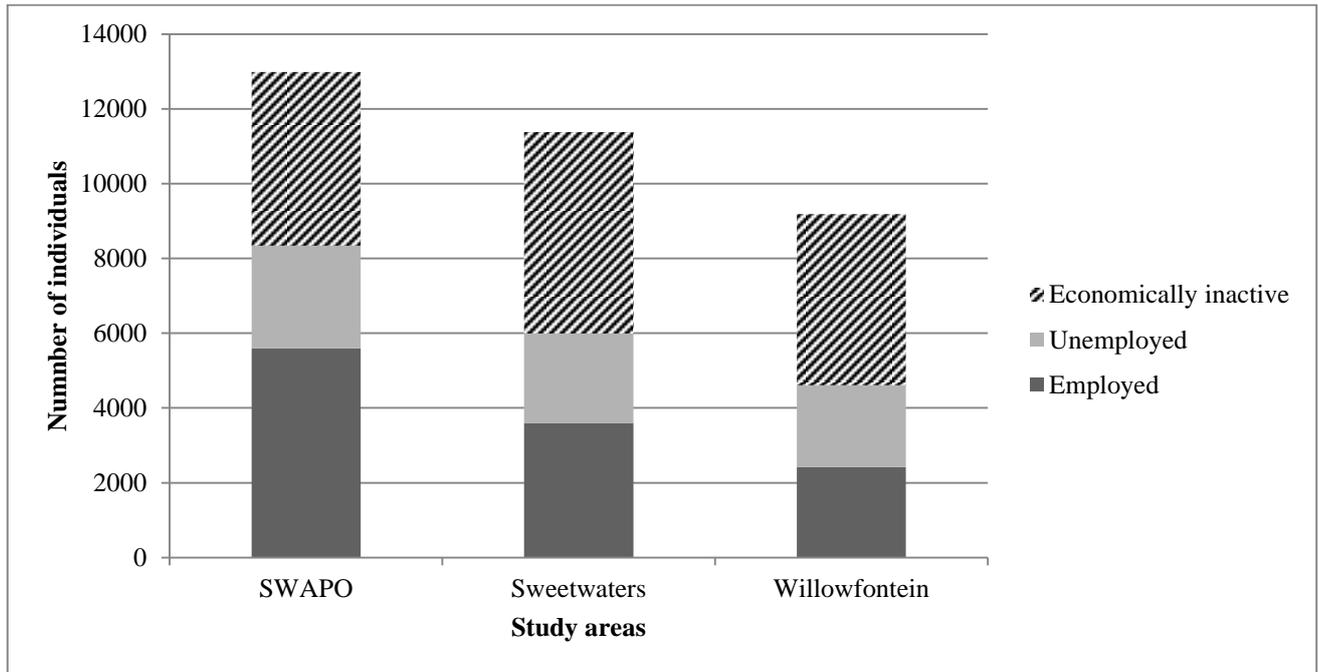
#### **3.4.2.2 Sweetwaters**

Sweetwaters is described as an indigent peri-urban community located in Pietermaritzburg where the majority of community members (56%) live in traditional residential homes, *i.e.*, huts or structures made of traditional materials, and 40% live in formal brick houses (Statistics South Africa, 2011). Sanitation is a major issue in the area as 82% use pit toilets with or without ventilation. Similar results were recorded during the 2001 census, indicating that service delivery has not improved in this area (Tissington, 2011). Residents dispose of their waste in their own dumps (Statistics South Africa, 2003; Statistics South Africa 2011)

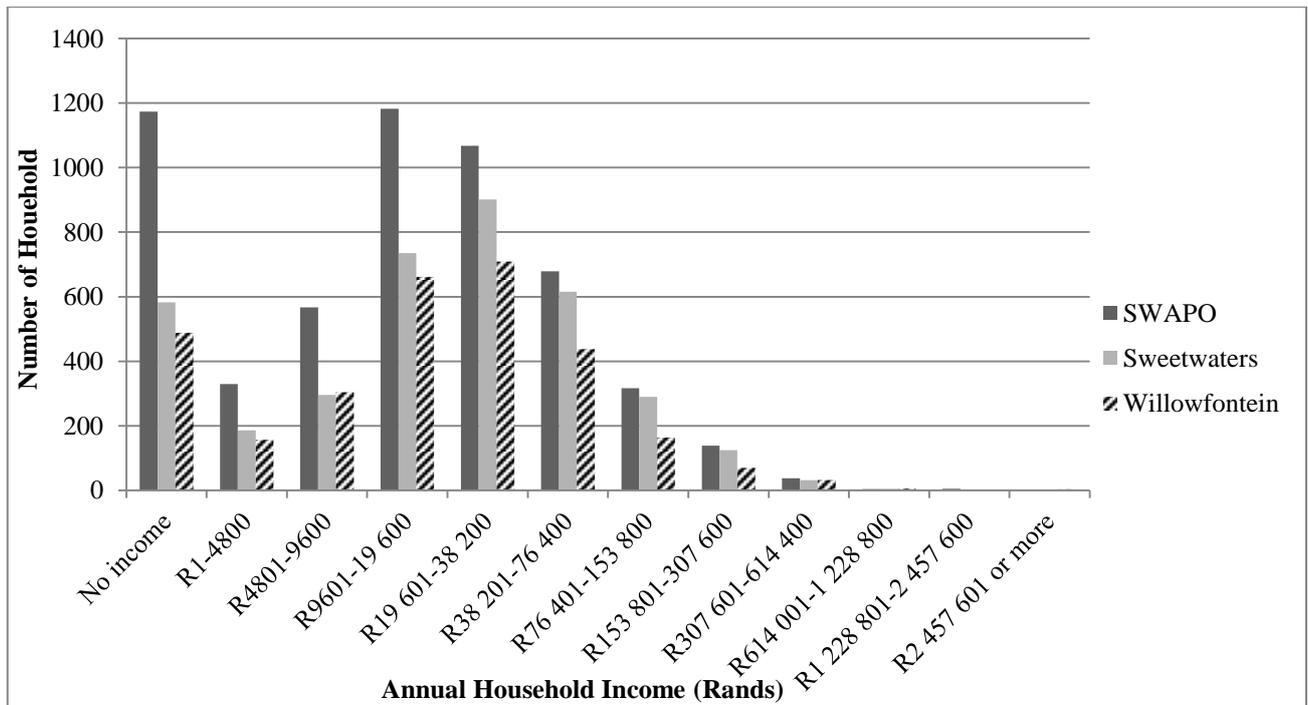
#### **3.4.2.3 Willowfontein**

Willowfontein is a poor peri-urban residential area in Pietermaritzburg where 44% of the population live in formal bricks/concrete block houses, and 34% resides in traditional hut structures. Twenty-three percent of the population have access to flush or chemical toilets while the remaining 77% use pit latrines without ventilation, or bucket toilets, as was reported during the 2001 census. There is poor service delivery in this area as 94% of the residents are forced to dispose of waste themselves (Statistics South Africa, 2003; Statistics South Africa, 2011). This has led to

the pollution of the Wilgerfontein River which flows through the area (Figure 3.1) and is an area of concern for the Msunduzi Municipality.



**Figure 3.2: Employment and Unemployment rates in the study areas (Adapted from Statistics South Africa- Census 2011)**



**Figure 3.3: Annual household income of the study areas (Adapted from Statistic South Africa- Census 2011)**

(ZAR 1=USD 0.10 16 September 2013)

### 3.4.3 Data Collection

#### 3.4.3.1 Primary data collection

Primary data were collected through questionnaire empirical research and direct observation. The semi-structured questionnaires (Appendix 1) were designed to obtain data on the following:

- Demographic information such as age, education, marital status
- The respondents' contribution to environmental sustainability through their participation in WCT's green economy projects
- The respondents' incentive for their involvement in the green economy initiative
- The level of women's environmental awareness (as determined by their environmental knowledge, attitudes, willingness to act and actual action)
- The impact of WCT's green economy initiative on the respondents' livelihoods

Prior to data collection, fourteen isiZulu-speaking field assistants were hired and trained to ensure that the questionnaire was administered in a consistent manner (Creswell and Plano-Clark, 2007) and a pilot study was held with selected women from Willowfontein and third year Bachelor of Science (BSc) Environmental Science students from the University of KwaZulu-Natal. A pilot enquiry is a trial run that tests the credibility, practicality, and effectiveness of the questionnaire before using it on a larger sample (Hoggart *et al.*, 2002). During the debriefing sessions, the researcher discussed the questionnaire with the interviewers and necessary changes were made before administering the questionnaire in SWAPO, Sweetwaters and Willowfontein over a four-day period in June 2012. The questionnaires were administered orally to women in these areas based on their availability and willingness to participate in the study. Before responding to any questions the women were informed about the study and had to verbally consent to their participation. To ensure accurate data collection and to limit interpreter bias, the assistants worked in pairs. Though written in English, the questionnaire was administered in isiZulu and the responses were translated back to English. The final sample size was 120 women, all of whom are registered under WCT's green-preneurship programme.

To supplement the data obtained in the surveys and limit biases in the research process, the researcher conducted semi-structured in-depth interviews with key informants who comprised of two project facilitators at each site, an official from WCT, and the manager of the Environmental Management Unit of the Msunduzi Municipality. The interview schedules are attached as Appendices 2, 3 and 4. Such supplementary information not only allows for different perspectives

of the research problem to be taken into account, but enabled “a greater cross-validation in research interpretations” (Hoggart *et al.*, 2002, p. 71).

### 3.4.3.2 Secondary data collection

Secondary data are data that originates from other sources and are collected to ensure that every aspect of the research problem has been addressed, to provide a richer data set, and increase confidence in the raw findings (McGinn, 2008). The sources of these secondary data were books, journal articles, other students’ dissertations and thesis, publications from governments and organisations, background papers, conference papers, and newspaper articles. These sources informed the study, provided the foundation for the literature review, and complemented and corroborated the primary data (McGinn, 2008; Bowen, 2009). Secondary data collected addressed urban poverty, sustainable development, the role of women in environmental management, the use of green economy as a tool to simultaneously alleviate poverty while preventing further environmental degradation, and how women can assist in this goal. Examples of secondary data used in this research, include, *inter alia*,

- Literature on urban poverty
- WCT’s published handbooks (*Reflections 2011* and *Reflections 2012*)
- Information gathered from WCT’s website- [www.wildlands.co.za/](http://www.wildlands.co.za/).
- Green economy publications, namely *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication- A Synthesis for Policy Makers* (UNEP, 2011a), and *Working towards a Balanced and Inclusive Green Economy: A United Nations System-wide Perspective* (United Nations Environment Management Group, 2011)
- Literature on women and the environment
- UN-Habitat reports
- Reports from intergovernmental agencies
- South African government legislation and publications:
  - National Environmental Management Act 107 of 1998
  - The South African Green Economy Accord (2011) (New Growth Path 2010 Accord 4)
  - Data from the census held in 2001 and 2011 from the Statistics South Africa website

- Data from the National Treasury, South Africa

### **3.4.4 Analysis and interpretation**

#### **3.4.4.1 Interview and questionnaire data analysis**

As the questionnaire comprised of structured and open-ended questions, quantitative data from the closed questions, which had been coded into pre-defined categories (Brannen, 2005), were statistically analysed using the Statistical Package for Social Sciences (SPSS) version 21.0 and Microsoft Excel. Descriptive statistics such as frequency data were incorporated into the results to establish trends or patterns in the data. The qualitative, open-ended responses and the interview questions were analysed using thematic analysis (inductive content analysis). This form of data analysis takes an inductive approach which entails coding the data by arranging them into “patterns, categories and themes from the bottom-up” to provide insight (Marks and Yardley, 2004; Creswell, 2007, p. 38).

#### **3.4.4.2 Documentary analysis**

Documentary analysis is a qualitative research method which involves an in-depth evaluation and review of documents or secondary data in printed or electronic form, with a view to inform the researcher by creating empirical knowledge and providing insight into the research problem (Wharton, 2006; Bowen, 2009). Document analysis produces data such as quotations or excerpts or entire passages from which relationships, themes, categories, patterns, and case examples can be identified. Content and textual analysis of the secondary data was undertaken to build the foundation of the research (Wharton, 2006).

### **3.5 Limitations**

“Every mode of data collection has its built-in biases and limitations” (Hoggart et al., 2002, p. 71).

Though the research was carried out with as little bias as possible on the researcher’s part, the research did have some limitations. These arose, *inter alia*, as a result of the time-consuming nature of qualitative research. The volume of data collected, the fact that “the data cannot be easily reduced to numbers” (Anderson, 2010, p.1) and the rigour required for analysis and interpretation, makes the process time-consuming, labour-intensive and tedious. This is particularly true for data coding for both content and thematic analysis as the data are not arranged into pre-defined, standardised codes (Creswell, 2007; Anderson, 2010,). Moreover, qualitative data methods have been criticized for their lack of generalisability, and their heavy reliance on the subjective interpretations of researchers. Furthermore, questionnaires are subject to respondent bias, more so,

as the questionnaire data were collected by enumerators who were hired by the researcher. Even though they were trained, briefed and debriefed, the researcher cannot control how the questions were interpreted by the enumerators (interpreter bias) or how the different participants responded to the different enumerators (respondent bias). The researcher, however, attempted to reduce any bias by instructing the enumerators to work in pairs and by facilitating feedback sessions post-fieldwork. Furthermore, to limit any bias and increase validity of the research, data was collected from different sources: direct observation, questionnaires and interviews, and secondary data. Lastly, another shortcoming of qualitative research is that other researchers cannot replicate the research, making it difficult to verify a hypothesis or a theory (De Vaus, 2002; Anderson, 2010).

## Chapter Four

### Results

This chapter serves to present the research findings which consist of responses provided by the respondents in the study areas and observations of the researcher. The results are divided into three sections, illustrating the focus of the research, namely, the socio-demographic information of the 120 women who participated in the study, their involvement with Wildlands Conservation Trust's green economy initiative, and their level of environmental awareness as determined by their environmental knowledge, values, attitudes, willingness to act and 'actual' action. Interview responses from the key informants, specifically, an official from WCT and the Msunduzi Municipality, and project facilitators are presented.

#### 4.1 Socio-economic characteristics of respondents

Of the 120 women surveyed, 57.5% were over 50 years of age and 14.1% were between the ages of 16 and 30. The official from WCT speculated that the reason for this is that women in the >50 age group tend to be unemployed and rely on government pension for income. As for the younger generations, there is a '*stigma attached to working with the Earth*' which is hindering their participation in the project. A project facilitator added that '*younger women do not want to use their hands*' to earn income and this has resulted in their subsequent removal from the project, leading to their increased dependence on their mothers for survival. Moreover, there is a high rate of HIV/AIDS infection in the younger generations which makes them less likely to participate in such labour intensive activities (WCT pers comm, 2012).

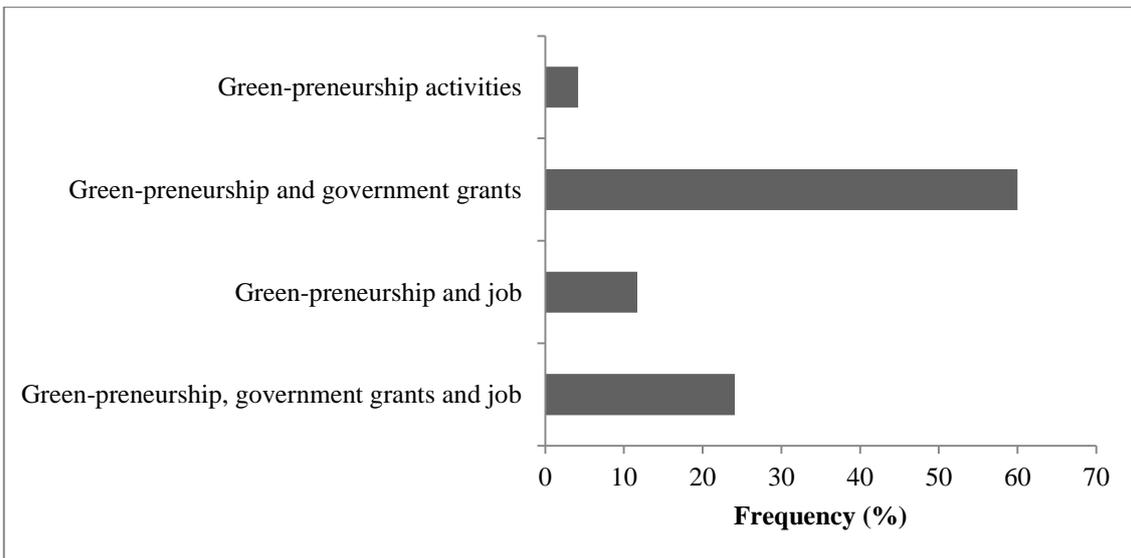
Approximately 26.7% of respondents received no form of formal education (Table 4.1) while 73.3% have received some education. Of these, 40.8% have received some form of primary education, 30% secondary level and 2.5% tertiary education (Table 4.1). However, only 44.2% completed primary school and 12.5% completed secondary school.

Approximately 48.3% of the respondents have never been married and of the 29.2% who are married, 16.7% are living with their spouse while 12.5% are not (Table 4.1). Nearly one percent of the women are divorced while 15.8% are widowed, and 5.8% are living with a partner but not married (Table 4.1). This means that most of the households in the study were female-headed. The study further revealed that 17.5% have 0-2 dependents, 43.3% have 3-5 dependents, 26.7% have 6-8 dependents, and 12.5% have 9 or more dependents (Table 4.1). To support these dependents, at the time of the study, the women had up to three sources of household income, including green-preneurship activities, their employment and government social welfare grants (namely pension,

child support grants, disability grants and other social welfare grants) (Figure 4.1). The majority of respondents (60%) relied on green-preneurship and grants for survival (Figure 4.1). The monthly rate for pension is R1200 (ZAR 1=USD 0.10 16 September 2013) and R280 per month per child under the age of 18 for child support grants.

**Table 4.1 Socio-economic characteristics of respondents**

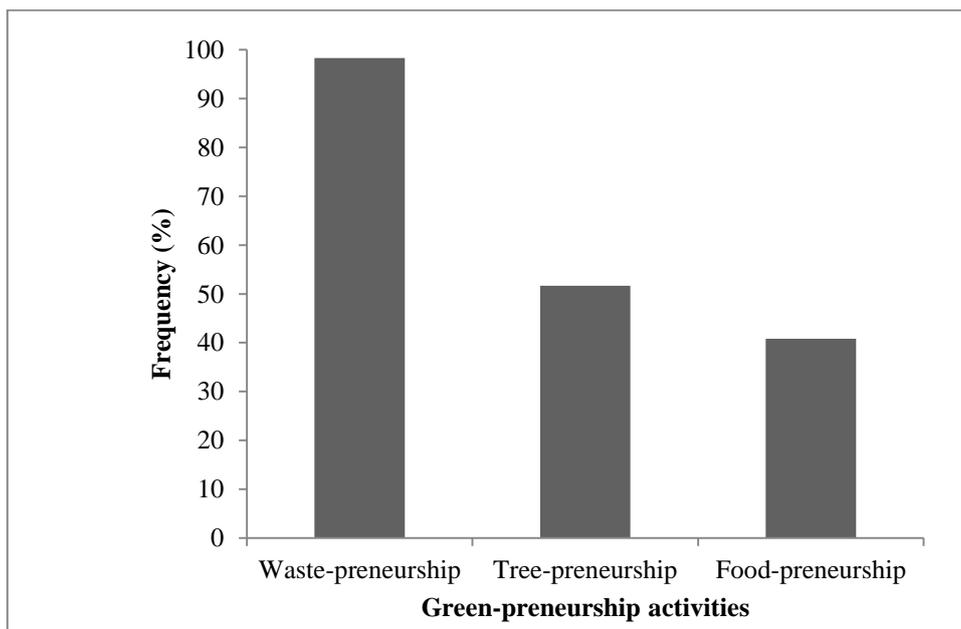
Variable		Frequency	Percentage
Age	16-20	1	0.8
	21-25	7	5.8
	26-30	9	7.5
	31-35	8	6.7
	36-40	7	5.8
	41-45	7	5.8
	46-50	12	10
	>50	69	57.5
	TOTAL	120	100
Level of education	No education	32	26.7
	Primary	49	40.8
	Secondary	36	30
	Tertiary	3	2.5
	TOTAL	120	100
Marital status	Never married	58	48.3
	Marrried and living together	20	16.7
	Married and not living together	15	12.5
	Living together but not married	7	5.8
	Divorced	1	0.8
	Widowed	19	15.8
TOTAL	120	100	
Number of dependents	0-2 dependents	21	17.5
	3-5 dependents	52	43.3
	6-8 dependents	32	26.7
	9-11 dependents	11	9.2
	12-14 dependents	4	3.3
	TOTAL	120	100



**Figure 4.1: Sources of income for the women**

## 4.2 Green-preneurship activities

The majority of women are involved in more than one green-preneurship activity, with 98% participating in waste-preneurship activities, 52% in tree-preneurship and 41% in food-preneurship (Figure 4.2). Most of the respondents, however, expressed a desire to participate in all three forms of green-preneurship



**Figure 4.2: Green-preneurship activities for which the respondents are registered**

### 4.2.1 Reasons for participating in green-preneurship

The respondents expressed several reasons for participating in green-preneurship but the main ones were financial and environmental (Figure 4.3) as many of them stated that the project has provided

them with a means of livelihood, helping them to provide for their children, and significantly changing their lives:

*“It helps me to get food”*

*“It’s a good way to make a living”*

*“It promotes health, environmental awareness and cleanliness”*

*“Green-preneurship means life and it has led to the development of Willowfontein and the fighting of poverty”*

*“I don’t work and I don’t have a pension so I decided to join”*

*“I was unemployed and you get help from the project”*

Many view the project as a job that assists them in meeting their basic needs and supplements their other forms of income. Several women emphasized that the project has promoted environmental awareness and has alerted them to the dangers that environmental degradation poses to future generations:

*“We need to consider our environment first before money. My major concern is the environment and Wildlands’ activities have allowed me to be a part of the environmental management regardless of money”*

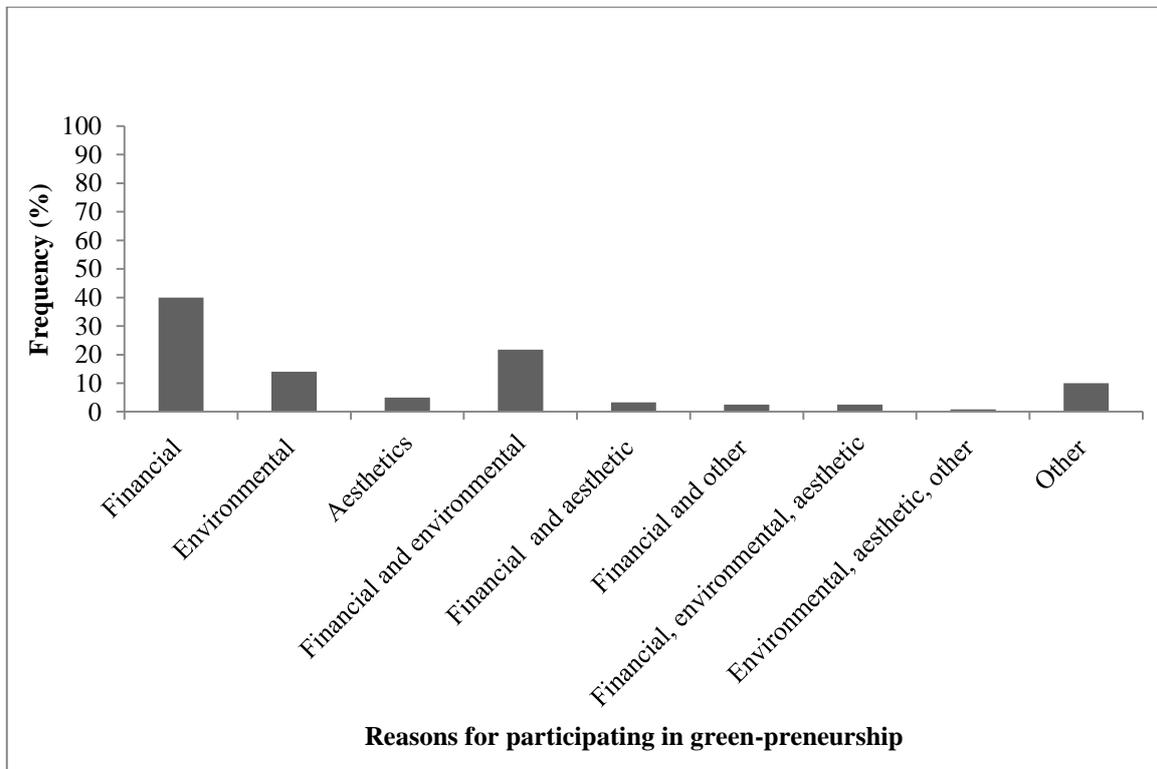
Ten percent of the respondents cited other reasons for participation (Figure 4.3), and these included happiness, a desire to learn more about the environment, and boredom:

*“I didn’t have much to do so I joined to do something with my time”*

Others said that they just have a passion for working with the community, while a few respondents cited health reasons:

*“Green-preneurship keeps me active, women don’t just sit around”*

In addition, some respondents felt that helping to clean the environment would prevent their children from *‘coming into contact with harmful materials’*.



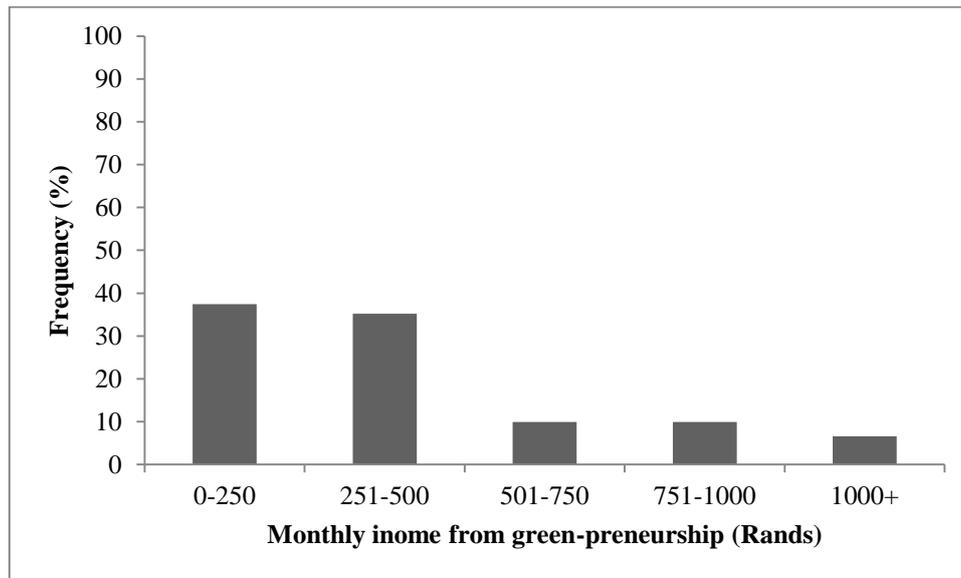
**Figure 4.3: Reasons for the respondents' participation in green-preneurship activities**

#### **4.2.2 What have you done with the income from green-preneurship?**

Income obtained from green-preneurship can range from R15 to R3 000 (ZAR 1=USD 0.10 16 September 2013) per month depending on the amount of waste, or trees grown by the green-preneurs. Thirty-eight percent of respondents earn R0-R250 per month and 35% earn R251-500 (Figure 4.4). Ten percent earn R501-750 and R751-1 000 monthly while 7% have earned more than R1 000 (Figure 4.4). Some respondents were unable to provide an accurate figure, stating that they received food vouchers and did not know how to calculate their value. Other respondents complained that their monthly income levels were decreasing as a result of increasing competition for resources and a decrease in the amount of waste available for collection.

With this income, 88% of the respondents purchased groceries and other household goods such as kettles and clothing (Table 4.2). Approximately 2.6% have used it to pay their children's (and extended family members') school fees and have purchased school uniforms, and 4.2% have used it to purchase building materials. Purchase of the latter usually occurs in areas such as Willowfontein where the project has been implemented for a longer period of time compared to SWAPO and Sweetwaters, allowing the green-preneurs to save money to make the purchase. Approximately 1.8% have used the income to purchase JoJo tanks which are particularly useful as water is scarce

in some of these communities. The water stored in the JoJo tanks is not only used in the household but to water the green-preneurs' trees and gardens.



**Figure 4.4: Respondents' monthly income from green-preneurship**

**Table 4.2: Purchases and payments made by the women using income gained from green-preneurship**

Activity	Frequency (%)
Purchased groceries and other household goods such and kettles, refrigerators, TV and clothing	88.0
Paid for school fees and purchased school uniforms	2.6
Purchased building materials (such as tiles, doors, cement)	1.6
Purchased groceries and building materials	2.6
Purchased groceries, paid school fees and bought school uniforms	3.4
Purchased a JoJo Tank <sup>1</sup>	0.9
Purchased a JoJo tank and groceries and other household essentials	0.9
Total	100

<sup>1</sup>A JoJo tank is a water tank used for water storage

### 4.2.3 Importance of green-preneurship activities

Eighty-eight percent of respondents felt that recycling of waste is important and 95% affirmed that the growing of trees is important (Figure 4.5). The reasons given for these responses were grounded in the fact that the recycling and tree propagation provides the respondents with a form of income to support their families, and an additional benefit is that these activities help to keep the environment clean:

*“Recycling has helped to clear the surrounding areas. Alcoholic bottles, papers and plastics are all clear”*

*“It reduces waste and creates a healthier environment”*

Other respondents understood that recycling is an important contributor to sustainable development:

*“It reduces waste and ensures security for future use by making sure that we do not to run out of the product”*

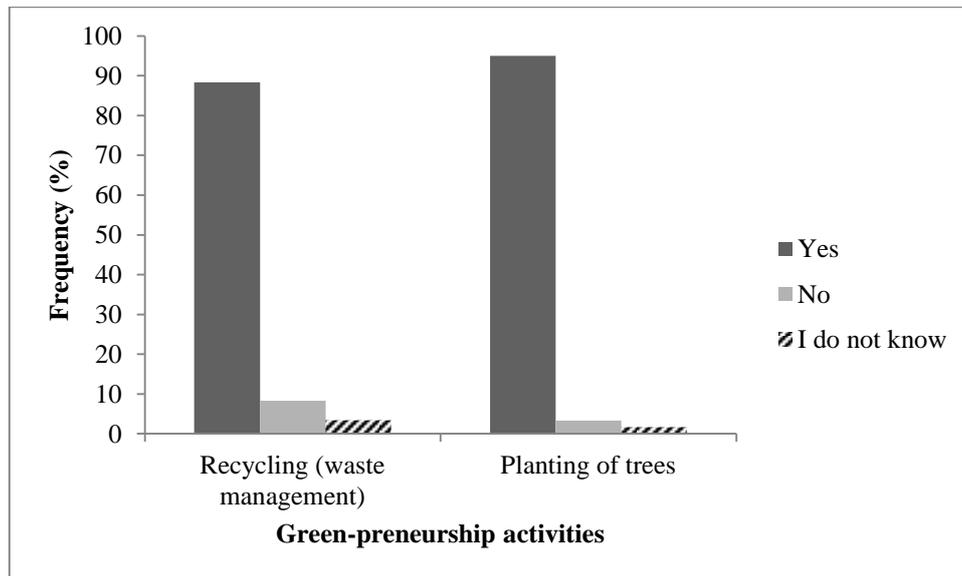
*“Recycling helps to slow down the rate of manufacturing more of the same product as it allows the old ones to be re-used and saves on material”*

With regards to the growing of trees, respondents placed emphasis on the importance of trees for the restoration of nature and the environment as they hold soils in place and are a source of life. In addition to being a source of oxygen, they act as windbreaks to protect crops and houses, and provide shade. Furthermore, they are a source of fruits and building materials. Three respondents added that trees have medicinal value, while another respondent felt that trees are important because the ENGO said that planting of trees is important. Some women were of the opinion that trees have great aesthetic value:

*“Trees are a part of nature and they are beautiful”*

*“Plants give us clean air, therefore, it is our duty to plant”*

*“Trees increase our diversity but we need to remove those that require a lot of water- the alien invasive species”*



**Figure 4.5: Importance of recycling and tree-planting**

#### **4.2.4 Has green-preneurship changed your role in the household?**

Seventy-seven percent of the respondents stated that the green-preneurship initiatives have changed their roles in the household significantly. Their children and relatives are more respectful as they are contributing financially to the household.

*“My children appreciate me more”*

*“People now notice me at home”*

*“I was nothing but now I can provide. It’s not just a game”*

Some of the married women indicated that they are earning more than their husbands, making them the breadwinner of the family, and some women are starting small businesses. Of those who have been receiving income from other sources such as government pension, they are using the extra income to better provide for their families, for example, one woman stated that she uses the extra income to purchase whatever her children want, for example, DVDs, and this has contributed to their happiness. Another said that she can now afford to pay for health services.

*“I am now recognised as a mother who can look after her family”*

#### **4.2.5 Have you faced any challenges in carrying out green-preneurship activities?**

Forty-eight percent of the respondents indicated that they are faced with challenges whilst carrying out these activities while 52% said that they do not face any challenges. The challenges were more to do with the nature of the work and administrative issues. Many respondents emphasized that because of the nature of the waste they collect they need protective clothing. Others argued that

collection of waste requires one to be in good health to walk long distances in search of waste and carry the heavy loads back. A few respondents reported having sustained injuries while collecting waste, including snake bites.

Some women argued that there are far too many people registered for the programme and this has resulted in a reduction of income as there is not enough waste to collect because of increased competition (Woman from study area pers.comm, 2012) Furthermore, some have argued that the amount of money they receive is not commensurate with the amount of waste collected, if one takes into account the amount of labour involved. Therefore, they feel strongly that they should be paid more per unit waste that they collect. One respondent argued that WCT never informs them of any changes they are going to make- a statement fuelled by the belief by many in the project that the scale that WCT uses to weigh the waste has been tampered with, resulting in a fluctuation of their monthly income. However, WCT argued that the cost of waste fluctuates and this results in a variation of income for the same amount of waste collected. Moreover, wastepreneurs have been informed that they are free to sell the waste they collect to any other organisation of their choosing.

A few respondents complained about the lack of water in their areas which is compromising their tree- and food-preneurship activities that heavily rely on water. Moreover, they indicated that they need fencing to demarcate their crops as livestock eat and destroy their trees and crops. The crops are also susceptible to pests and they have not been supplied with any pesticides. The final complaint had to do with the manner in which the women are treated by their fellow community members who are not a part of the project. They commented that their neighbours make fun of them, are rude, and call them municipal workers as they do not understand the nature of the project.

When WCT was asked whether the greenpreneurs face any hindrances in participating in the project, the official stated that any hindrances only arise if the women in question came from '*strongly male dominated households*'. The project facilitators concurred and added that the '*issue of the scale*' is a major challenge. This, again, refers to the fluctuating cost of waste.

## **4.2.6 Has Wildlands Conservation Trust met its goals?**

### **4.2.6.1 Poverty alleviation goal**

The majority of respondents (88%) felt that WCT had achieved its poverty alleviation goal as the project has put food on the table and diversified their livelihoods by providing them with extra income for when their pensions or grants run out (Figure 4.6). Other respondents added that they no longer go to sleep hungry and do not have to wait for pension money to meet their basic needs. Furthermore, the project is educating about the environment, teaching them how to grow trees and

crops, equipping them with business skills, and providing them with opportunities to diversify their income sources, despite their lack of education (for example, they can start their own small businesses).

*“There is greater availability of food-there are longer periods WITH food than WITHOUT food”*

*“Food is provided for us and this means that we can spend money on education, health care, etc, and we can work on a budget”*

*“I have everything I need because of this project”*

*“It provides me with food- even though I am unemployed; this project has taken me out of poverty”*

*“It is good for those who are unemployed and uneducated”*

*“It makes me feel happy”*

*“It helps me a lot because no one can give me that money for doing nothing”*

Conversely, three respondents argued that not everyone has benefitted from the project as they have earned very little income, and they find the tasks to be labour intensive. Moreover, there is little waste in the area that they can collect and sell and they cannot afford to travel to other areas to collect waste. However, one respondent argued that people who have not gained any income from the project are incredibly lazy. WCT added that the projects reward effort and if the women are not willing to work hard they will not reap the rewards that they seek.

#### **4.2.6.2 Environmental safeguarding goal**

When asked whether green-preneurship had improved their environment, the majority of respondents (83%) said that their communities are cleaner than they were before as there is very little waste (bottles, paper, plastics). When asked if this meant that WCT had met its goal of preventing further environmental degradation, 91% of respondents said yes (Figure 4.6). One respondent added that fewer livestock are dying than before as the area is cleaner, and the children are less prone to injuries caused by bottles. Furthermore, people in the community now pick up waste, which is something that they never did before, and they have noticed a decrease of deforestation in the area. One respondent speculated that WCT must be meeting its goal as they come back every month to collect waste.

*“The place is cleaner, and more appealing to the eye. The air is fresher”*

*“There are fewer diseases that are being spread and the people are healthier and well-fed”*

Another respondent emphasized that there has been an improvement in environmental attitudes since WCT started working in the area:

*“The environment is cleaner and people have changed their behaviour towards littering and environmental care, for example, there is less burning of waste”*

*“There is a higher level of awareness and people are living cleaner and healthier lives”*

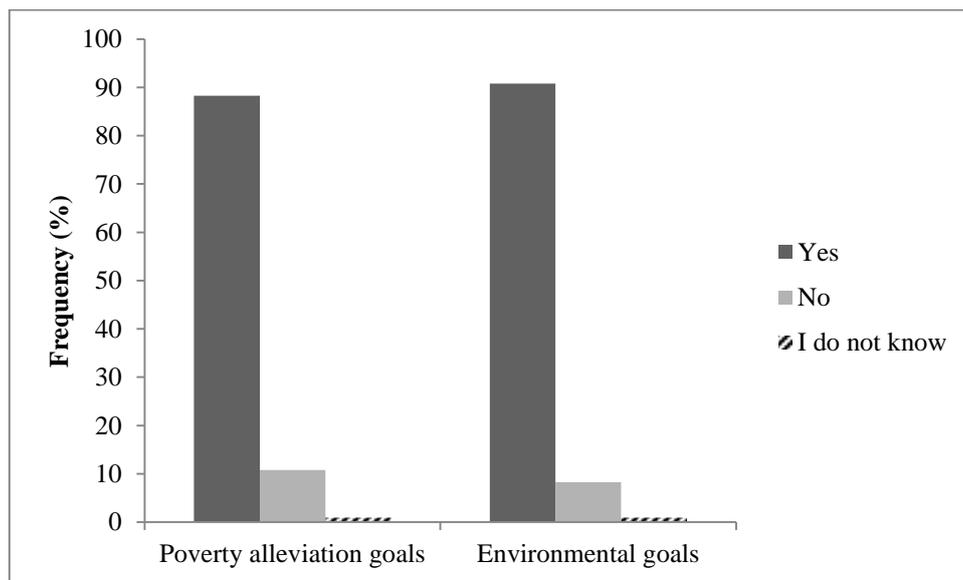
Sixty-five percent of the women noted that green-preneurship has changed their understanding of environmental issues and 76 % stated that they are sharing the environmental knowledge gained with others.

*“People are now more aware of the environment and promote cleanliness”*

*“I now know that we need to plant trees to protect nature”*

*I never knew that products can be recycled and used again, and that deforestation is not good”*

*“I now know that there is change in weather patterns”*



**Figure 4.6: Women’s opinion on whether WCT has met its goals?**

#### **4.2.7 Future participation in the green-preneurship project**

Eighty-eight percent admitted that even though some people have quit the project due to its labour intensive nature, they will continue to participate in the project. The primary reason for this being the economic benefits that the project provides especially since most of the women are not married and unemployed. A few women stated that they enjoy doing the work and like that the environment is looking clean, and is less harmful to the children, and they have learnt a lot from green-preneurship.

*“It gives me life and a few cents”*

*“It helps me a lot and I don’t starve anymore”*

*“It has improved my livelihood and my role in the household”*

*“It’s a source of income and I have learnt a lot about farming and looking after our crops”*

### **4.3 Environmental awareness**

Environmental awareness is a function of environmental knowledge, environmental values, environmental attitudes, willingness to act, and proactive response (Füle and Kenéz, 2005; Zsoka, 2008). Against this backdrop, the questions asked attempted to incorporate these aspects into the investigation of the respondents’ level of environmental awareness.

#### **4.3.1 Environmental knowledge and values**

##### **4.3.1.1 Is the environment in trouble?**

To establish environmental knowledge the respondents were first asked to explain their understanding of the environment. The majority of the respondents expressed knowledge of what constitutes the environment, namely, trees, plants, air, and animals. Following this, the respondents were asked if they thought that the environment was in trouble, to which 66% said yes, 31% said no and 3% said that they did not know (Figure 4.7).

*“The land is not productive. We have to buy food from the shops. There are more natural disasters”*

*“There are fewer trees now than there were when I was growing up”*

When asked why they felt the environment was in trouble, numerous responses were given. Many stated that deforestation is a big contributor to environmental degradation as this leads to an

increase in soil erosion, resulting in the formation of gullies. Pollution, soil infertility, animal poaching, increase in population, and the proliferation of wild fires were other reasons cited for the increase in environmental degradation. Some women asserted that environmental deterioration only began when the younger generation started managing the Earth's resources and that the human race is 'troubling the environment' and fuelling climate change:

*"The change in climate has severely impacted the environment and has made it harmful to us"*

*"The climate is changing as there is less rainfall"*

*"People don't care about the environment and they do not take any measures to protect it"*

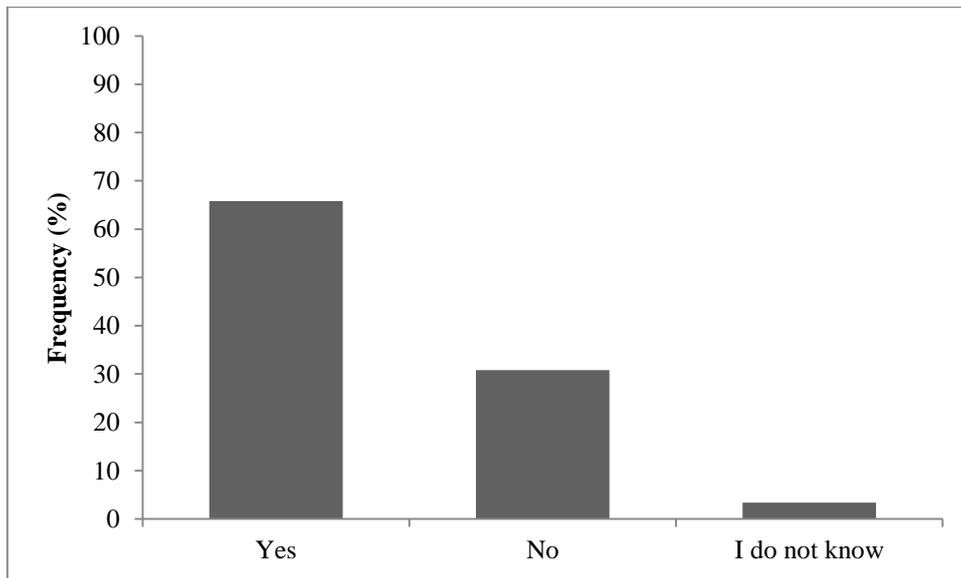
*"The problem with the environmental is of a social nature"*

*"Our living conditions have changed- there is no more farming and the land is now too dry to graze or farm on"*

*"Nature was in a good state and was beautiful and people even named things such as rivers due to the love for the environment, but nowadays- that is no longer the case"*

Those who indicated that the environment is not in trouble believed that the damage is minor and manageable. Another respondent asserted that the environment is not in trouble as the communities' participation in green-preneurship is helping to protect the area.

When asked if they were concerned about the deterioration of the environment, a majority (58%) of the respondents admitted that they were concerned while 28% were mildly concerned and 14% were not concerned at all.



**Figure 4.7: Responses to the question: Is the environment in trouble?**

#### **4.3.1.2 Factors that contribute to environmental degradation and their severity in the study areas**

To establish the level of the respondents' environmental knowledge and awareness, they were presented with a list of eleven common causes of environmental degradation (identified by the researcher through direct observation) that are prevalent in their areas and asked to indicate whether or not they contribute to environmental degradation (see Figure 4.8).

The majority of respondents felt that deforestation (77%), cooking with fire (44%), improper waste disposal (91%), water scarcity (90%), and wild fires (73%) impacted upon the environment. When asked why they thought that deforestation (*i.e.*, the loss of trees because members of the community cut them down) degrades the environment, the respondents listed the functions of the trees that are lost when trees are cut down, for example, loss of fruits, medicines, shade, and windbreaks. Others mentioned that deforestation leads to soil erosion, loss of habitats and food for animals, and a reduction in carbon sequestration (*"It reduces oxygen and increases carbon dioxide"*).

With regards to cooking with gas or fire, respondents understood that the usage of gas or fire leads to air pollution, or a potential fire hazard, and health issues:

*"The smoke produced can cause chest and lung problems when inhaled"*

Interestingly, two respondents noted that an increase in the use of firewood for cooking would result in increased deforestation, while another respondent mentioned that the smoke can destroy the ozone layer.

The presence of waste is viewed by the respondents as a factor that can potentially lead to the death of their livestock should they ingest it. The women concurred that waste decreases the aesthetic value of their land, pollutes the environment, and affects tree growth, however, they did not know how this can lead to environmental degradation

*“It makes our environment dirty, unhygienic and inhabitable, and our livestock die”*

*“The waste is not degradable and it pollutes the environment”*

*“If the waste is not degradable, pollutes the environment”*

*“It pollutes rivers”*

Respondents also acknowledged that improper waste disposal could have a detrimental impact on their health and may pose a danger to them:

*“Diseases can spread and affect the lives of people and many even get hurt”*

*“Increases the spread of disease pathogens”*

One respondent mentioned that the odours released by the waste impacts on her life and daily activities.

When asked how a lack of water can contribute to environmental degradation, the respondents explained how they, and plants and animals, cannot survive without water but failed to discuss how water scarcity impacts the environment:

*“Water is a source of life”*

*“Water is a basic need, we use water for everything, for example, cleaning and watering”*

*“Without water, there will be poor harvests”*

*“Water is important for productivity”*

Wild fires, both accidental and intentional, according to the respondents, destroy the environment and result in the loss of vegetation and habitat for livestock, and even the death of the animals. Furthermore, they expressed concern over uncontrollable fire spreading as this could lead to the loss of homes. Numerous respondents asserted that the smoke can cause air pollution.

*“Vegetation fires can cause air pollution and lead to the loss of important plants and result in a shortage of food for livestock”*

*“It results in the loss of forage resulting in cattle invading and grazing in the gardens”*

*“The smoke causes global climate change”*

Conversely, one respondent emphasized that wild fires are *“good if the place is dirty but bad if the area is used for feeding animals”*. Another respondent added that wild fires are only harmful when they burn *‘important vegetation’*.

Thirty-five percent of respondents felt that the industrial sector contributes to environmental degradation and 32% felt that it does not, while 33 % did not know. Those who agreed stated that the industrial sector is responsible for air and water pollution:

*“Poor disposal of what they produce”*

*“They produce lots of air pollution which causes ozone depletion”*

*“They cut down trees and remove plants to build the industry”*

Forty-four percent of respondents did not know whether over-use of electricity contributed to environmental degradation while 33% agreed that it does and 23% disagreed (Figure 4.8). Of those who did agree, the main complaint was that electricity is an added cost to their already limited financial resources. Some mentioned that electrical poles affected plant and tree growth and two women asserted that there is an over-dependence of coal used to produce electricity. Aside from this, the majority of respondents failed to perceive a link between electricity usage and environmental degradation.

Forty-nine percent of the women disagreed that vehicles can cause environmental degradation while 33% did not know and 18% agreed (Figure 4.8). The respondents who agreed asserted that vehicles cause air pollution and can destroy the natural environment. Interestingly, one respondent mentioned that car accidents have a negative impact on the natural environment.

The majority of respondents (58%) disagreed that agriculture can lead to environmental degradation and 27% agreed (Figure 4.8), stating that livestock damage the environment by overgrazing and trampling on crops and natural vegetation. Some women believed that cow dung pollutes the environment.

The majority (51%) of respondents did not know whether mining activities lead to environmental degradation, while 32% disagreed and only 17% agreed, stating that mining causes air pollution and can lead to gas explosions. Two respondents mentioned the *‘disturbance’* of soil and vegetation that are a result of the mining activities:

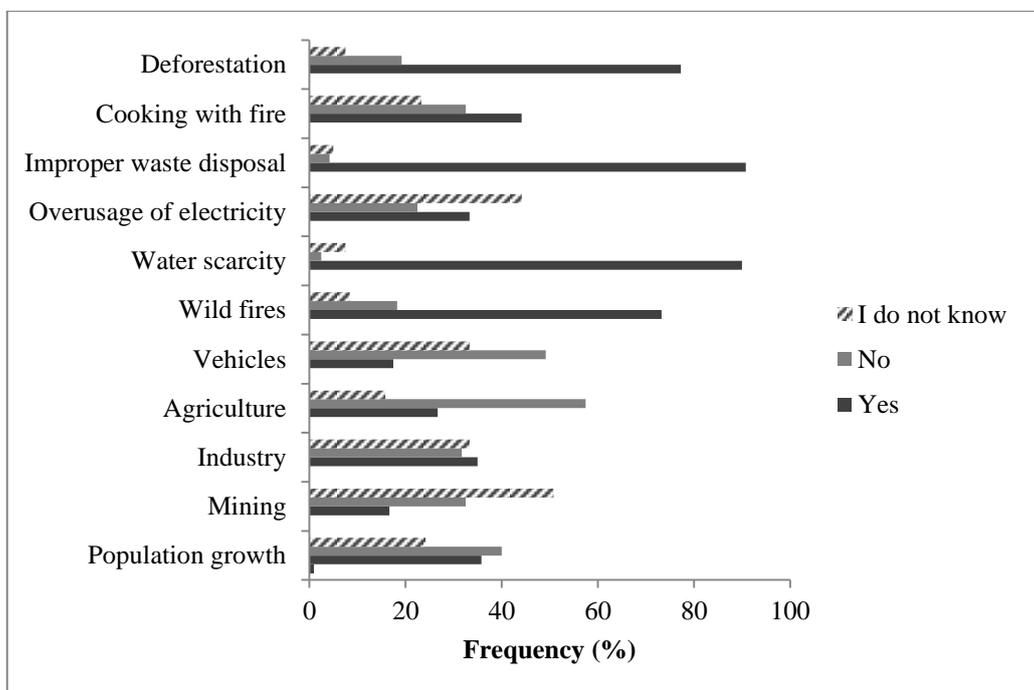
*“They make holes that are unnecessary”*

Forty percent of respondents disagreed that population growth has negative impacts on the environment, while 36% acknowledged that it does and 24% said that they did not know (Figure 4.8). The respondents acknowledged that an increase in population can lead to an increase in deforestation and the removal of vegetation as more land is required to build houses for the people. This leads to a decrease in the ‘space available for wildlife’.

*“Humans invade nature and destroy it”*

*“An increase in population leads to an increase in littering and environmental degradation”*

Three women added that an increase in population results in an increase in poverty levels as more food and space is required to accommodate the increasing population, and as a result of their poverty, people will be forced to degrade the environment. Another woman mentioned that an increase in poverty leads to an increase in crime levels, a lack of unity among the people, and an increase in the amount of waste produced.

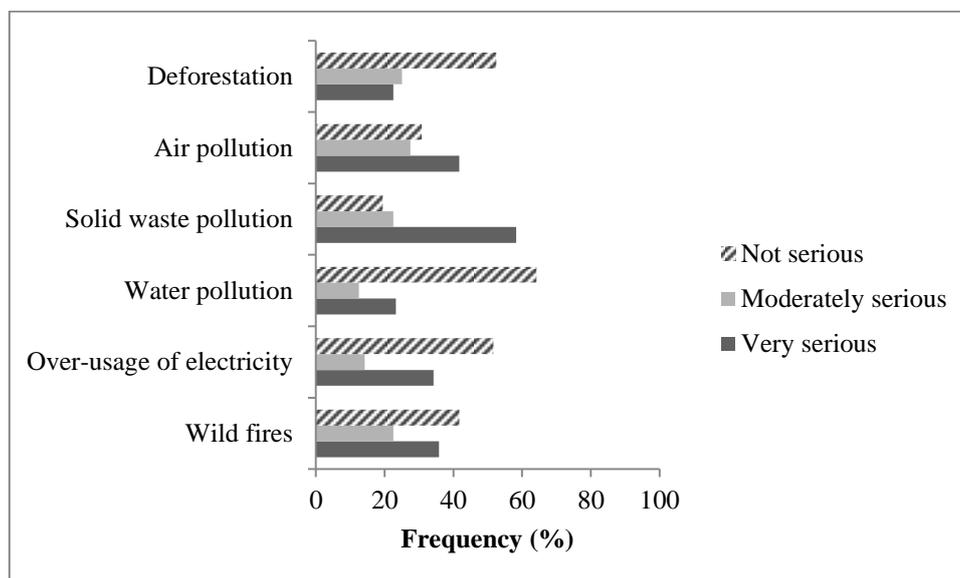


**Figure 4.8: Responses to the question: Do these activities contribute to environmental degradation?**

The respondents were asked to indicate the severity of the main environmental issues that are prevalent in their area. Through direct observation, the researcher noticed that deforestation, pollution (air, solid waste, and water), over-use of electricity and wild fires were the main environmental culprits and these were easily identifiable to the respondents.

The majority of respondent thought that solid waste pollution (58%) and air pollution (42%) were very serious (see Figure 4.9). Conversely, it was found that a large proportion of the respondents felt that deforestation (53%), over-use of electricity (52%), and water pollution (64%) are not serious issues in their communities (see Figure 4.9). Forty-two percent of the women indicated that wild fires are not serious while 36% said that they were a very serious issue.

Following this, the respondents were asked who they felt was responsible for the environmental issues that are prevalent in their area and who should be responsible for solving them.



**Figure 4.9: Severity of environmental degradation in the study areas**

#### 4.3.1.3 Environmental culprits and problem-solving

Forty-seven percent of respondents believed that the community members are responsible for deforestation (Figure 4.10), however, 29% strongly felt that government should address the issues while 27% stated that the community members themselves should solve the issues and 14% felt that ENGOs should address them. The women asserted that the government has the authority to address these issues and they can monitor the areas (Figure 4.11).

*“The government owns the trees hence they must put in place some laws to prevent deforestation”*

*“The government can teach people about the importance of trees and the people will listen to them”*

*“An individual will not be heard, the government must put in laws”*

The women who felt that the community should address the issues asserted that, to be successful, they would need to work in partnership with ENGOs because of the environmental knowledge that ENGOs possess, the financial support that they can provide to drive such initiatives, and the fact that ENGOs are closer to the people. Others believed that the community members should tackle the issues as they know their areas better and are thus better equipped to address the issues. Moreover, they need the trees more than government or ENGOs do, therefore safeguarding them would benefit them in the long-run.

*“ENGOs care more about protecting trees”*

*“ENGOs came up with the idea, so they should avoid deforestation”*

*“Since we are the ones who live in the area, we should work together to find a solution”*

With regards to air pollution, the majority of respondents (52%) felt that the community is responsible (Figure 4.10) and as such, 32% indicated that the community should address while 23% felt that government should address the issues, again, because of the authoritative power they possess (Figure 4.11). Some women stated that the government, in partnership with ENGOs, needs to hire people to solve the air pollution problem. Some respondents placed emphasis on the fact that the industrial sector is the main culprit and they should be tasked with addressing the issues. Others added that the government can instruct the industrial sector not to pollute the air.

*“People should stop starting fires and smoking”*

*“We are the ones affected by our own pollution”*

*“Industries are the main polluters and the need to pay for their pollution”*

Conversely, one respondent argued that no one can solve environmental issues because the environment is self-sustaining:

*“The environment is God’s creation- no one but God can fix it”*

A high percentage of the respondents (81%) asserted that the community is the main culprit of solid waste pollution and 56% agreed that the community should be responsible for tackling the issue. Others asserted that the government should provide them with proper bins to dispose of the waste as there are no bins in the area. A few women stated that they can work in conjunction with ENGOs to prevent solid waste pollution, given the fact that they are already working with WCT to protect the environment and they feel they can trust the ENGO. Another respondent emphasized that government and individuals should work ‘hand-in-hand’ to solve the issues.

*“When throwing away waste we throw it anywhere and the environment gets messed up”*

*“Since we litter, we should assist in managing the problem”*

The majority of respondents did not know who is polluting the water in their areas (57%) (Figure 4.10), while 39% stated that the community is responsible for water pollution. However, 33% stated that government should address the issue, while 28% did not know and 28% indicated that the community has to contribute to a solution as they are responsible for the pollution and are the ones who utilize the water resources. Similar to previous results, the women asserted that government is the only one with the authority and technical know-how to address these issues, and they are the ones in charge of the distribution of water supplies.

*“The government should address these issues since people cannot clean their own water”*

*“We have to take care of the rivers we live next to”*

A few respondents mentioned that the industrial sector is responsible for releasing chemicals into water bodies and they should address the issue. Another respondent believed that industries are in charge of water distribution and should, therefore, address the issue. One respondent emphasized that the government, ENGOs, industry and individuals have to work together to ensure proper usage of the environment.

In relation to the electricity consumption, 49% said that the community utilizes too much electricity while 47% did not know who is responsible for over-use (Figure 4.10). However, 44% stated that individuals should be responsible for addressing the issue as they are the ones who use the electricity, while 26% stated that government should address the issue since they have the power to regulate electricity usage whilst 20% did not know (see Figure 4.11). A few respondents asserted that the industrial sector, in this case the prominent electricity supplier in South Africa, ESKOM, should regulate the amount of electricity supplied to the people to limit usage.

*“We need to teach ourselves to save electricity”*

*“Government must put laws in place to prevent excessive use of electricity and individuals must be taught how to do so”*

*“ENGOs need to educate people about saving electricity”*

*“Individuals need to use less electricity so that more people can receive electricity”*

*“ESKOM knows how to operate the electricity and they should take steps to prevent people from tampering with electricity meters”*

The majority of respondents (68%) (Figure 4.10) concurred that the community is responsible for starting wild fires and 56% asserted that the community should address the issue, while 22% stated that government should address the issue as the government is an authoritative power and people will listen to it (Figure 4.11). A few respondents felt that ENGOs have a role to play as they can help to ‘control’ the spread of fires as they are knowledgeable about environmental issues.

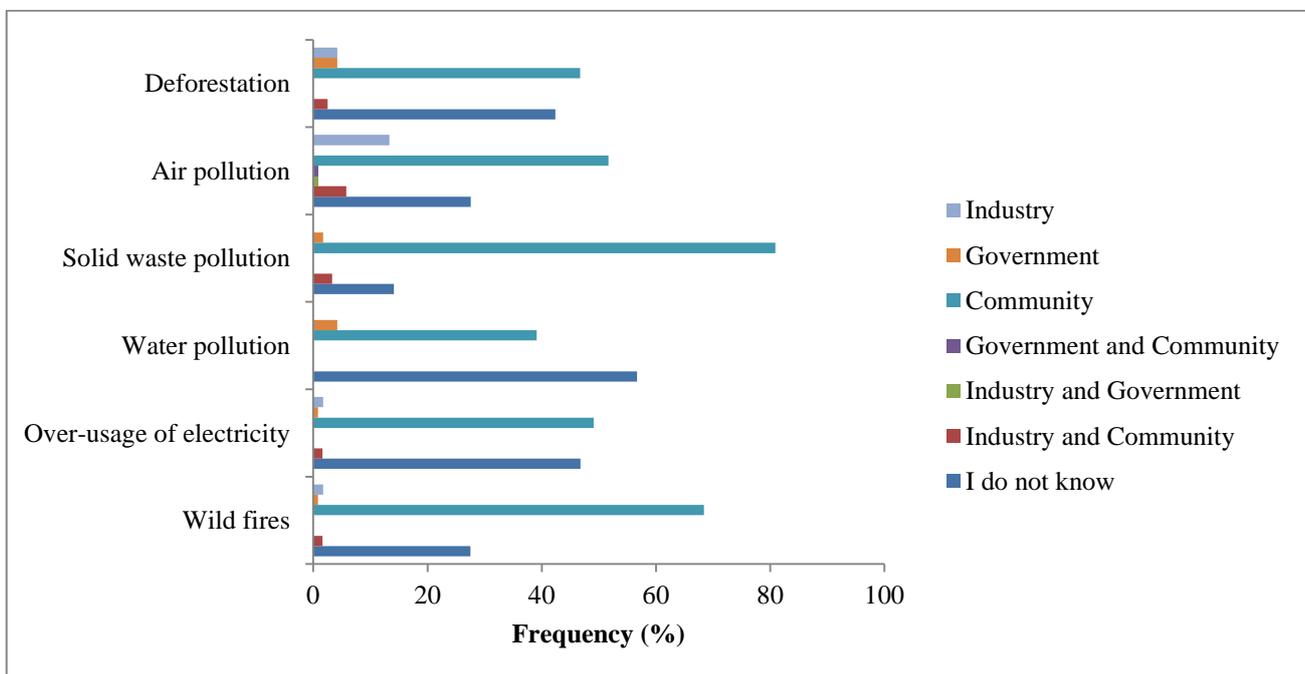
*“The government must create laws to make people pay for fires”*

*“Individuals should stop burning grass as they are the ones who need the forage”*

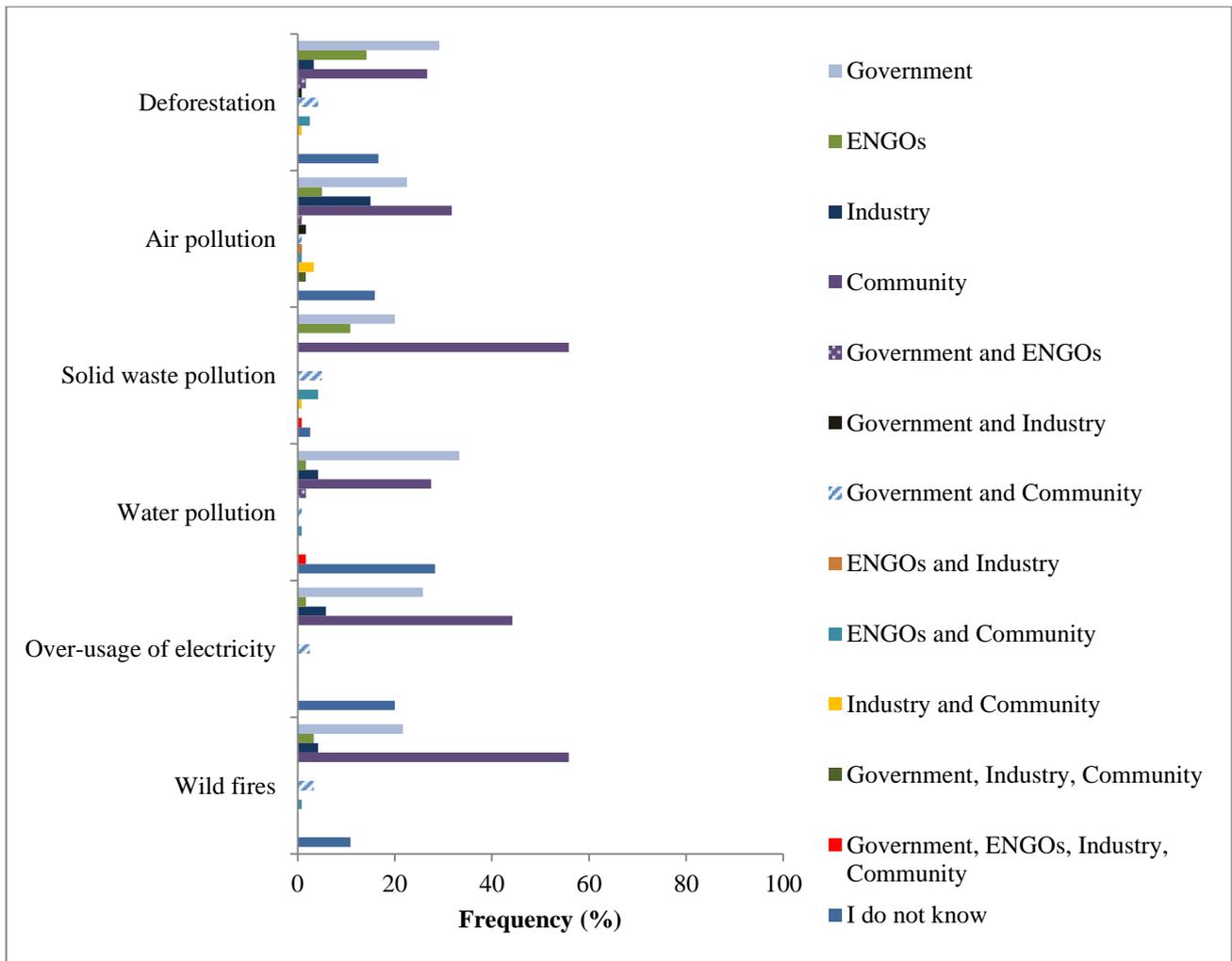
*“People are the ones who start fires with their cigarettes”*

*“The government owns the land so they are in charge”*

*“The government can educate people and give alternatives to the use of wild fires”*



**Figure 4.10: Who is responsible for the environmental issues in your area?**



**Figure 4.11: Who should tackle environmental issues that are prevalent in your area?**

#### 4.3.1.4 Is the local government (Msunduzi Municipality) actively addressing the environmental problems in your area?

Given the respondents' high regard for government action, they were asked if they thought that the government is actively solving the environmental problems in their area, to which the majority (53%) gave a negative response and only 28% said yes. Nineteen percent did not know. The proportion that responded positively was then asked whether the government is doing enough to clean and protect their environment. Seventy-one percent admitted that they did not know, while 18% said no and the remaining 11% said yes. The respondents insisted that the government could do more to provide for them, for example, provide them with houses and infrastructure such as roads, basic services such as waste collection (on a daily or weekly basis), electricity, water, and toilets as the lack of sanitation leads to diseases. These are some of the issues that the respondents mentioned when asked to rank the problem areas in their communities. In addition to this list, they

mentioned crime, unemployment, poverty, a lack of health services in close proximity, alcohol abuse, and teen pregnancy.

Some respondents felt that government should ‘*educate*’ them on environmental issues, help to prevent deforestation, and reduce the incidence of wild fires. Moreover, the women felt that the government should provide them with some form of employment.

*“Without government playing a central role, we cannot, as a community, do anything”*

*“The government should assist in ensuring that our area is clean and remove alien invasive species and replace them with indigenous trees”*

*“The government should initiate a project similar to that of Wildlands to clean the environment”*

#### **4.3.1.5 Do environmental problems impact one’s health?**

The majority of respondents (82%) agreed that environmental degradation does bear negative impacts on one’s health (Figure 4.12). The respondents understood that an increase in environmental pollution is associated with an increase in the incidence of diseases such as asthma, lung cancer, bronchitis, tuberculosis, and cholera- some of which did not affect them in the past. One respondent stated that she is already feeling the effects as her asthma is worsening due to the inhalation of polluted air. Furthermore, a few respondents added that a dirty environment is accompanied by emotional distress.

*“Soil erosion for example, can lead to a lack of fertile land for agricultural purposes and this will result in the less food being available leading to starvation, especially in children”*

*“Flies stay in dirt and cause diseases”*

*“People are violating the environment while some of us still need to use it”*

*“The environment provides for us- if it is completely degraded, what will we use in the future?!”*

*“Waste smells and makes us sick”*

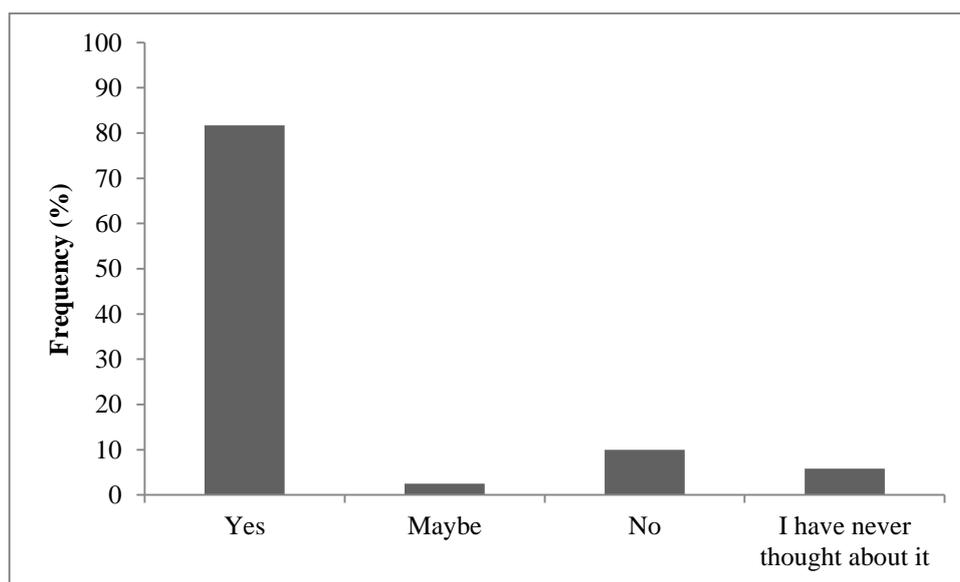
Other respondents pointed out that when the water is polluted, it is unfit for human or livestock consumption as it will make them sick. If their livestock die, they will incur financial and livelihood

losses. Another respondent added that when trees are cut down, valuable medicines are sometimes lost, in addition to the loss of food.

*“Improper waste disposal can lead to water pollution and this causes diseases. Children can also get harmed by waste like broken bottles”*

*“Anything that is beyond the limits is bad. At the end of it all we have no life- the years are decreasing and diseases are increasing”*

*“We need the natural regulation of weather for proper health. Pollution and degradation leads to loss and this upsets the atmosphere and our health”*



**Figure 4.12: Do environmental problems impact one's health?**

#### **4.3.1.6 Does environmental degradation affect future generations?**

The majority of respondents (82%) concurred that environmental degradation has a negative impact on future generations (Figure 4.13) as environmental pollution results in the proliferation of diseases. One respondent noted that the children today are more prone to diseases than previous generations because of increased environmental degradation. Another respondent added that the life expectancy of future generations will be drastically reduced as they will live in a polluted environment.

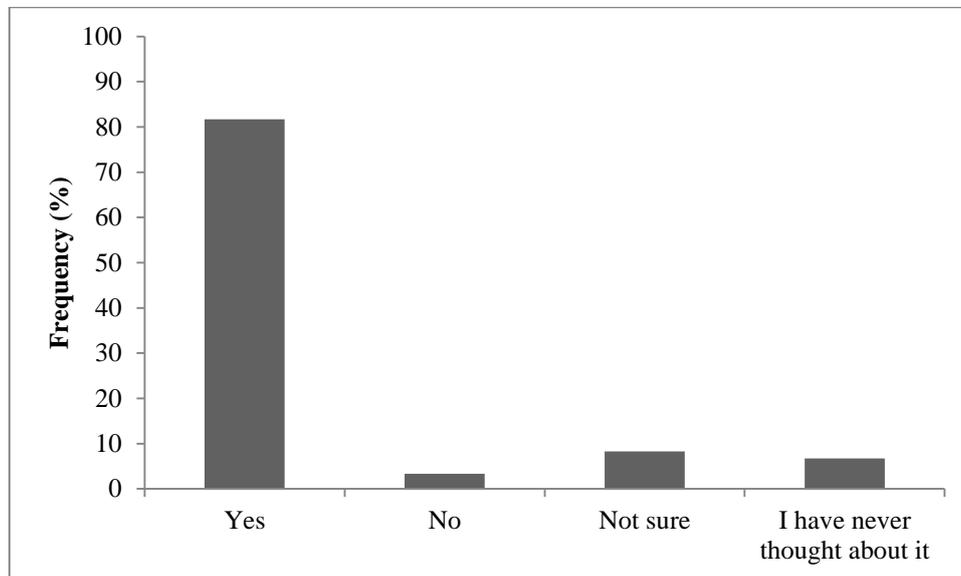
*“The environment will not sustain future generations and they will not enjoy the ecosystem goods and services and the ethnicity and the beauty of the environment”*

The women understood that the associated climate change impacts would negatively impact food production, leading to starvation. Another respondent noted that environmental degradation is

associated with an increase in poverty which will result in more health problems and the spread of diseases.

*“The future generation will not care about the environment and such mismanagement of environmental resources results in the spread of diseases”*

*“Nature provides life for people, when polluted, there is no life”*



**Figure 4.13: Does environmental degradation impact future generations?**

### 4.3.2 Environmental attitudes and willingness to act

In an effort to establish women’s environmental attitudes and willingness to act, they were asked a series of questions. These included questions about their views on the roles that they, as women, can play in environmental management; what determines their purchasing choices; their level of environmental education; and their engagement in environmentally conscious activities prior to the green-preneurship project.

#### 4.3.2.1 Are women important for environmental management?

Seventy-eight percent agreed that women have a role to play in sustainable development in South Africa, while 20% disagreed and 2% had never thought about it.

*“People look up to women and problem solvers”*

*“Women are nature-lovers and can take better care of the environment”*

Many respondents felt that women are better at ‘*taking care of everything*’ and it is beneficial for them and their families to care for their surrounding environment. Furthermore, women have a predisposition towards anything to do with cleanliness. Another respondent stated that while

important to environmental management, it is difficult to make a contribution since as a woman with children, she needs to take care of the household first. A few respondents noted that because of the work that they are undertaking with WCT, they are already playing a role in addressing environmental issues.

*“Protecting the environment provides me with an income that I can use to support my children and that is how I have managed to raise them”*

*“It makes me happy to see the environment in good condition”*

Some mentioned that they possess the key qualities necessary to keep the environment clean and acknowledged that they need to teach their children to care for the environment to ensure that they have a healthy future. Three respondents added that women are future-orientated whereas males tend to be *‘ignorant and carefree’*. As such, women tend to err on the side of caution and opt to protect the environment for their children and grandchildren.

Conversely, two respondents stated that women are no more important than men when it comes to safeguarding the environment:

*“A man and woman both have the capacity to protect the environment”*

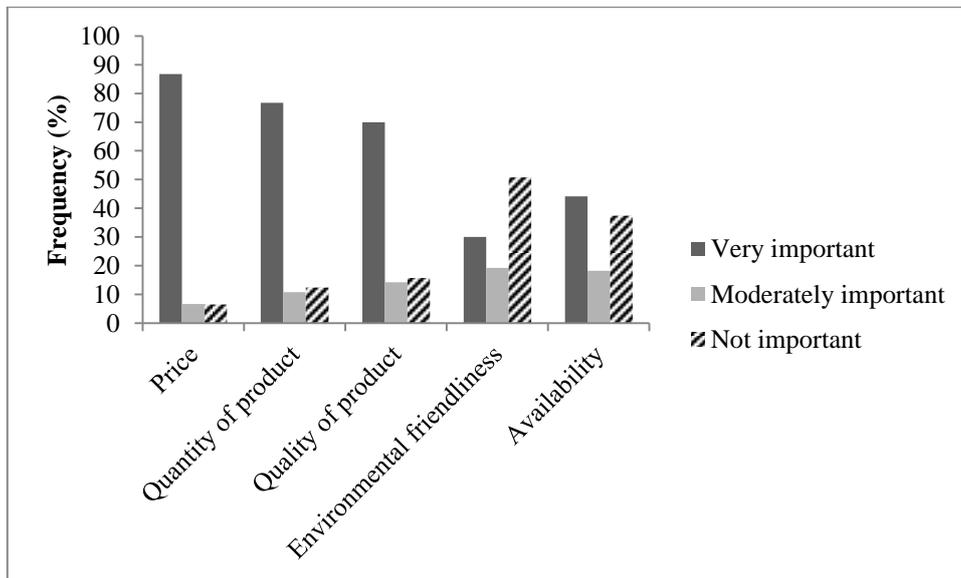
*“We are all important, not just women”*

One of the respondents who stated that women are not important for environmental management noted that women cannot contribute to environmental management as they are *‘too fragile’*. Another woman felt that because she has not travelled around South Africa she could contribute very little to environmental knowledge, and another respondent asserted that women do not have any role to play as nature can take care of itself as it is self-sustaining.

*“I just don’t see how I can make an impact”*

#### **4.3.2.2 Purchasing choices**

To further test their level of environmental awareness, the women were questioned on their purchasing choices. The majority of the respondents conceded that price (87%), quantity (77%) and quality of the product (70%) influenced their purchasing choices (Figure 4.14). Environmental friendliness is not a determining factor as 51% indicated that it is not important, and 44% stated that availability of the product is very important (Figure 4.14).



**Figure 4.14: What determines the women's purchasing choices?**

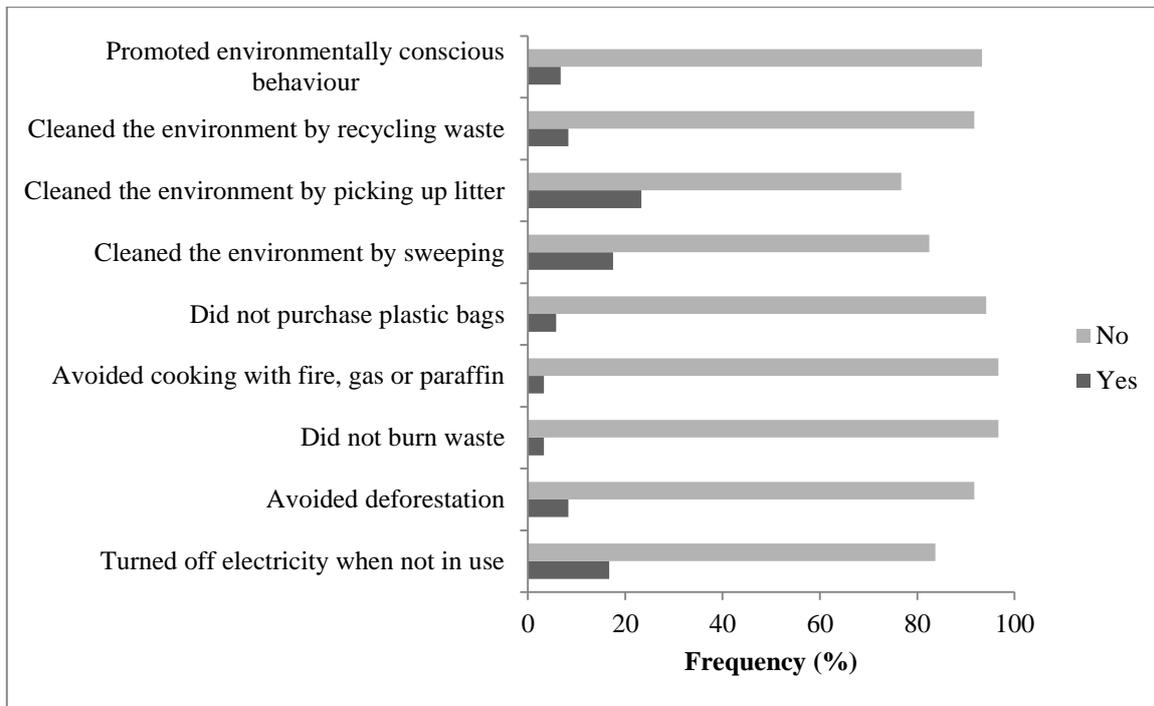
#### 4.3.2.3 Environmental education

Sixty-two percent of respondents indicated that they had not received any form of environmental education. Those who have received some education indicated that they had only received ‘*a moderate amount*’ of education. Most acquired this knowledge through their work with WCT and a few (4%) learnt about the environment at school. However, 85% of respondents stated that they would like to receive some form of formal environmental education.

*“I studied Agriculture, Travel and Environment- this made me realise that I personally need to look after the environment”*

#### 4.3.2.4 Engaged in environmentally friendly activities

The women were asked if they had participated in any environmentally conscious activities prior to WCT’s introduction of green-preneurship, to which 68% said no and 32% said that they had. They were then provided with a list of environmentally conscious activities (compiled by the researcher) to provide them with examples of what constitutes environmentally friendly behaviour and to corroborate the results (Figure 4.15). It was again found that the majority (more than 80%) of the respondents did not engage in environmental conscious behaviour prior to WCT’s entry into the communities.



**Figure 4.15: Women's engagement in environmentally-conscious activities**

#### **4.4 Responses from key informants**

To gain a more informed understanding of WCT's green-preneurship initiative, interviews were held with an official from WCT and project facilitators from each of the three study areas. An official from Msunduzi Municipality was interviewed to establish the level of involvement of the South African local government in enabling women to participate in green economy and overall sustainable development.

##### **4.4.1 The role of women in green-preneurship and South Africa's green economy**

When WCT initiated the green-preneurship initiative, children and poor communities were the targeted population group. However, it has become increasingly evident that women form the majority of participants and when asked why this is the case the official from WCT speculated that it is because women stay at home to look after their children, a fact that is dictated by South African culture. This makes women more inclined to fight for the survival of their families and more receptive to such initiatives than men, a view shared by one of the project facilitators.

*"Women have a humility about them because they need to take care of their families"*- Official from WCT pers comm, 2012

*"Women like to grow and work for survival of their households and they are willing to learn"*- Project facilitator, SWAPO pers comm, 2012

When asked if this meant that women are the key to sustainable development, the WCT official disagreed, asserting that both men and women have equally important roles to play as *'men bring forth characteristics like growth, action, and a certain aggressiveness which is required, while women look deeper into things and are softer'*. The official also felt that the unique contribution that women make is sometimes ignored and this needs to be addressed. This proved to be true as when the same question was posed to the official from the municipality, he disagreed, stating that women are important in the households.

*"In Africa, women are resilient and are strong. They demonstrate how to overcome challenges"* – Official from WCT, 2012.

The official from the municipality revealed that, at local government level, no action is being taken to facilitate the participation of women in sustainable development but indicated that such issues are better addressed at community level. Furthermore, Msunduzi municipality does not participate in any recycling programmes but it does run some greening programme and the government is one of the major donors of the WCT's green economy project (R5.6 million over the last five years (ZAR 1=USD 0.10 16 September 2013)), and it has given WCT permission to use one of its nature reserves for tree rehabilitation. In all their developmental programmes such as housing, the municipality encourages recycling and green building but these initiatives are not specifically aimed at the poor. The reason for this lack of focus on women and the poor is that the municipality lacks resources- human and financial- as at the time of the study only three people were working in the environmental management unit of the municipality, which is below the minimum workforce requirement (Msunduzi Municipality pers comm, 2012). Thus, their primary focus is ensuring sustainable development at a larger scale, and reviewing development plans. The official from WCT added that the government is more focussed on green job creation. The municipality, however, hopes that in the future the municipality will be able to focus on women and environmental management.

When asked whether WCT has met its poverty alleviation and environmental safeguarding goals, the project facilitators, similar to the women in the study, agreed while the official from WCT strongly disagreed. The facilitators noted that;

- the green-preneurs and their families are eating every day and *'eating healthily because of food-preneurship'*
- they are earning an income,
- their surrounding areas are much cleaner than before, and

- the community members, including the facilitators, are more knowledgeable about conserving nature.

While this is deemed a success, WCT asserted that a lot more needs to be done as the goals that WCT has set are ambitious and poverty cannot be alleviated *'in just five years'*. The levels of poverty need to be drastically reduced to protect and manage the environment. The informant asserted that in addition to educating people about the environment, there needs to be a *'reconnection'*- the people need to understand their connection to environmental goods and services, and view it as more than just a source of income (WCT pers comm, 2012).

When asked about the strengths and weakness of the initiative, WCT stated that the strength of the initiative is that it is addressing poverty in South Africa and the need to restore ecosystems. It does the former by providing people the opportunity to take responsibility for their lives by rewarding effort and providing opportunities and a platform for growth for those who want to make a difference in their lives. Hence, the project cannot help those who are *'locked in poverty thinking'* (WCT pers comm, 2012),

*"Wealth is in your hands-if you want to survive, you have to work for your family. You can do something without being employed"*- Project facilitator, Willowfontein pers comm, 2012.

*I didn't know that I need the environment and the environment needs me"*- Project facilitator, Sweetwaters pers comm, 2012

With regards to weaknesses, WCT noted that weighing waste in exchange for income presents a problem as plastic waste is not picked up by the wastepreneurs due to its low weight. Hence, plastic waste management is a major issue in the different communities.

*"Only when people see a value in something, do they begin to look after it or collect it as they are then able to get something in return for that recycling"* -WCT, pers comm, 2012

#### **4.5 Summary of results**

This chapter presented the findings of the study that were derived from semi-structured questionnaires and key informant interviews. The socio-economic characteristics of the women were presented in addition to information regarding their level of participation in a green economy-based project that aims to empower them economically while safeguarding the environment. The level of environmental awareness of the respondents was addressed as was determined by their

environmental knowledge, values, attitudes, willingness to act and proactive response. To supplement the findings, interviews were held with key informants, namely the project facilitators, and officials from WCT and the Msunduzi Municipality.

It was found that the majority of women were over the age of 50, unmarried, possessed a primary level of education, and were unemployed, making them willing participants for WCT's green-preneurship initiative. The women had a minimum of three dependents and in addition to government grants, the initiative is one of their main sources of income. The initiative is not only helping to reduce their poverty levels, but is empowering them socially and is cleaning the environment, which may not have been cleaned otherwise. The women possessed rudimentary level of environmental awareness but expressed a desire to learn more about the environment so that they can help to fulfil their role in managing it.

Local government is yet to recognise the role of women in environmental management, however, to fill this gap there are ENGOs such as WCT that are undertaking initiatives to alleviate urban poverty by enabling the poor to generate wealth from environmental services. These results are discussed in the following chapter.

## Chapter Five

### Discussion

#### 5.1 Introduction

This chapter analyses and discusses the results of the social survey and the responses provided by key informants. Furthermore, this analysis will entail a comparison to similar case studies, linking the responses to relevant literature. First to be discussed is the socio-economic background of the respondents, followed by an examination of their participation in WCT's small scale pro-poor green economy programme which has allowed them to become environmental entrepreneurs. Third, the results are synthesized to determine the level of environmental awareness of the respondents as it pertains to their environmental knowledge, attitudes, willingness to act and proactive response.

#### 5.2 Socio-economic data

The majority of women were over the age of 50 which is to be expected as more than two-thirds of women registered in the uMgugundlovu initiative are over the age of 35 (WCT, 2011b). Many of these women are unemployed due to their lack of education, which is not uncommon for women living in poverty in South Africa who historically face gender-based inequality as they lack access to education, finances, opportunities and resources such as land (Kehler, 2001; WEDO, 2001). WCT's green economy initiative has provided them with a means to support their families and has supplemented their income, which includes income from employment, and government social welfare grants (*i.e.*, pensions, child-support grant, foster-care grant and disability grants). However, though aimed at reducing the 'destitution gap', these grants do not in any way lead to the eradication of poverty as they are meant for individuals but are used to support multiple dependents (Coalition on Civil Society Resource Mobilisation, 2012), as was evident in the study where the majority have at least three dependents. These grants are barely enough to meet the basic needs of an individual, much less the dependents, leaving many recipients food insecure (Warshawsky, 2011). The Coalition on Civil Society Resource Mobilisation (2012, p. 39) asserts that while social grants provide safety nets for the poor, alone, they "cannot lead to equitable distribution of income and wealth" as they need to be combined with other pro-poor strategies which directly address unemployment and inequality. In addition, there is a growing fear that such grants will only lead to a high level of dependency and apathy which will inevitably result in the failure of the marginalised to escape the poverty trap (Benjamin, 2007).

To further explain the noticeable absence of younger women in the project, the WCT project facilitators speculated that the younger women are reluctant to collect waste or grow trees and crops

for income, especially in their communities and in front of their friends, due to the *'stigma associated with working with the Earth'*. These women are reluctant to join the programme as they feel it would be unpopular with their friends, preferring to stay at home and wait for their mothers to provide for them. An official from WCT suggested the absence of young women in the project may be due to the high rates of HIV/AIDS infection in this population group, which leads to ill-health and the inability to perform manual work. As of 2011, women constitute 58% of the people living with HIV in the sub-Saharan region (UNAIDS, 2012). This epidemic has been shown to have negative economic impacts as it results in reduction of labour supply and productivity due to HIV/AIDS-related mortality among the working class age group, and in most cases these are the primary wage earners. This leads to increased expenditure for households as infected members need health care, placing pressure on households that already have limited sources of income and cannot afford to spend the extra money (Booyesen, 2003).

The majority of the respondents were not married which is not surprising as the women from such female headed households are not subject to the same constraints faced by married women who, culturally, tend to face inequalities and are not allowed to make any decisions in the households because of the "presence of the alpha male" (Darkey, 2012, p. 212). Furthermore, husbands in these societies tend to discourage their wives from participating in such projects. Conversely, the lack of a husband in a household provides more incentive for women to participate in such projects as they are the breadwinners of the family and are always seeking opportunities to become financially secure.

### **5.3 WCT's Green-economy initiative**

"Poverty elimination is impossible unless the economy generates opportunities for investment, entrepreneurship, job creation and sustainable livelihoods. The principle route out of poverty is work" (ILO, 2003, p. 7).

Green economy is a concept that seeks to attain sustainable development and eradicate poverty. With this goal in mind, the global community is taking steps to mainstream the discourse into policies and procedures. However, since the task is too big for national governments to tackle on their own, civil society is taking steps to make this vision a reality. WCT is an example of community-based ENGO, that is, through their green-preneurship programme, attempting to merge environmental concerns with aspects of the civil society's development such as poverty and gender equality, and to empower the poor to help themselves rather than just provide them with aid (Jasonoff 1997; Shah, 2005). The green-preneurship initiative is one of many NGO grassroots initiatives that is linking "economic security with environmental sustainability" (Martinez-Alier,

2002, p. 43), as per the aims of green economy, in urban areas. Similar to many other community-based, informal economy projects, green-preneurship is highly gendered as women form approximately 80% of the participants due to their inability to enter the formal economy as they lack the skills and educational qualifications (WCT, 2011b). From the three study areas, it was evident that the majority of green-preneurs were waste-preneurs and some are involved in two or more initiatives as this enables them to generate more income. Waste-preneurship has made for a cleaner environment as most of the waste in the communities has been collected and recycled. This has served to reduce environmental degradation, improve health, and prevent burning of waste by community members who, prior to their involvement with WCT, would bury and burn waste as a form of waste management.

Tree-preneurship has led to the successful planting of over 300 000 indigenous trees per annum by WCT for carbon sequestration, while food-preneurship has provided the communities with food for consumption and sale. Currently, waste-preneurship is the most successful project because of the immediate returns as opposed to tree- and food-preneurship which require a waiting period to allow the trees and crops to grow before they can be sold. This, however, calls into question the sustainability of the project as there is a limited amount of waste available for collection, forcing some women to walk long distances in search of waste in a bid to maintain their monthly income levels. When asked about this, WCT stated that waste-preneurship was the ENGO's first project whilst tree-preneurship is the sustainable project, even though the rewards take longer to accrue. She added that with the right funding, and if 'uses' for the trees are found, the project can be sustainable. While this sounds promising, it begs the question of the sustainability of the tree-preneurship project node if suitable 'uses' for the trees are not found. With the rapid rate of urban growth, the amount of land on which to plant the trees is decreasing and at a rate of 300 000 trees planted per annum, it is inevitable that there will be an excess of trees. When this happens, will the ENGO be forced to temporarily suspend tree-preneurship and what will happen to the tree-preneurs? Thus, it becomes increasingly important that steps need to be taken to ensure the long-term sustainability of the green-preneurship initiative. In view of this, an official from the Msunduzi Municipality suggested that waste-preneurship can be diversified by having the women organise themselves into co-operatives and providing them with transport to enable them to collect waste from more affluent areas where such programmes are absent. However, there is a need for formal structures to be in place, proper management, and the people living in the area have to allow the women to work in their area. This kind of micro-enterprise can grant the women autonomy in the project and empower them.

The challenges that the green-preneurs face are mainly the lack of water in their areas which reduces productivity in their tree- and food-preneurship activities, and the fluctuating price of waste which has led to a reduction of their monthly income. WCT explained that the cost of waste fluctuates and the people in the project have been informed that they are free to sell the waste they collect to any organisation of their choice. In this way the women are being empowered economically as they are given an opportunity to make decisions about the sale of the waste (Citrome, 2011), however, they are limited in their options as they do not know of any other organisations that purchase waste. Another issue raised was the lack of protective clothing and fencing which is unhygienic and dangerous. A few women argued that given the labour intensive nature of the project, they had earned very little income from the project. WCT addressed this by asserting that the project rewards people based on the amount of waste they are willing to collect and the number of trees and crops they are willing to grow. If they are not willing to do the work, they will not be paid.

Financial gain is the main reason that the majority of women participate in the project, and the environment is of secondary consideration. This is to be expected as the majority of households are low-income and female-headed, with a high dependency on government social grants. At R1200 per month (ZAR 1=USD 0.10 16 September 2013), these grants are inadequate to meet basic needs, even if the women receive child support grants of R280 per month per child under the age of 18. Therefore, green-preneurship supplements their income, enabling them to meet some of their basic needs, educate their children and in some cases, affords them a few luxuries, thereby empowering them economically. Moreover, their participation in this informal economy has ensured their food security as many testified to *'no longer going to sleep hungry'*. This is an important contribution to urban development as urban food insecurity is one of the growing effects of urban poverty and Warshawsky (2011) reveals that in 2010, 300 million urban residents were food insecure and it is estimated that urban food insecurity will be greater than rural by 2050. Therefore, there is a need for policy-makers and governments to promote and support similar community-based initiatives as this will contribute to sustainable and resilient urban growth which "reconciles short- and long-term social, economic, and environmental goals" (Gupta, 2012).

In addition to providing food, the project has enabled participants to purchase tanks for water storage as some areas, such as SWAPO, have no access to clean piped water. This is common in many urban areas in South Africa as the high rates of urbanisation are accompanied by the failure of government to provide basic services. This is the case with housing in the study areas where some women are building houses with their extra income as *"they have grown impatient waiting*

*for government's promise of Reconstruction and Development Programme (RDP) housing*" (Project facilitator, pers comm, 2012). The South African government launched the RDP housing project with the aim of improving the living conditions of the poor by providing them with subsidized low cost housing, however, the process is taking too long because of a lack of human and financial resources, the short supply of land on which to build the houses, and corruption (Chetty, 2012). The lack of access of the poor to urban land and housing is one of the major challenges facing South African policy-makers, as they are unable to keep up with the increasing demand as urban populations continue to grow (Cities Alliance, 2006; Chetty, 2012).

Despite the financial incentive for participating in the project, the women are beginning to understand the importance of the environment and are more conscious of the environmental impact of their activities. Many asserted that they now know that environmental degradation has an impact on their long-term health, livelihoods and future generations- knowledge they would not have gained otherwise. This is demonstrated through their understanding of the importance of recycling and tree-planting to environmental rehabilitation. Others admitted that cleaning the environment is beneficial to their families and for their *'peace-of-mind'*, as it makes the environment safer for their children and livestock, and reduces the incidence of environmental health hazards. For those with existing health issues such as hypertension, the extra activity has been perceived to improve their health. Conversely, while *'commodifying'* waste management has resulted in a substantial decrease in waste in the communities, plastic waste remains an issue as greenpreneurs gather only waste that is of high weight value since WCT remunerates according to weight. Accordingly, plastic waste is not usually collected due to its low commercial value, creating a problem for the environment as plastic is non-biodegradable. In this regard, WCT's weight system appears to be a hindrance to environmental protection. In view of this, the ENGO should hold workshops to teach the women how to recycle plastics for re-sale. Such initiatives have been successful in, for example, Cameroon, where, five women launched the New Era Foundation in 2010 to manage waste in their cities. The Foundation holds arts and crafts workshops where they train women to become environmental entrepreneurs by recycling plastic waste into jewellery, mats and bags for sale and income generation. Some women manage to open their own crafts shops (Mussa, 2013). A similar community-based initiative has been lucrative in Burkina Faso where women are clearing the street of old plastics by using them to weave clothing, fashion accessories and decorative objects for sale (UNEP, 2011b). Such a training portfolio can be incorporated into WCT's entrepreneurial skills training, promoting the collection of plastic waste.

Green-preneurship is not only improving the environment and the women's livelihoods but changing the role of the women in their households where, again, as a result of gender-based inequality, they are not respected. UNEP (2004, p.13) asserts that "discriminatory social structures and attitudes, at personal, community and institutional levels, persist in deeply entrenched patterns of gender inequality". This project has helped to increase the role of women in the household, empowering them economically and socially, earning them much deserved respect in their homes and, perhaps, in their communities. This has inspired other members of their families to join the project. Similarly, in a study carried out by Khumalo (2010), it was found that rural female crafters felt more respected in their communities and in their households due to the financial contribution they were making to their households. They gained confidence to pursue other job opportunities, and self-esteem, enabling them to make better decisions in the household and to plan for the future. In this regard, the women felt economically and socially empowered. Nikkhah and Redzuan (2010) concur by stating that, for women, economic empowerment tends to bring about increased self-esteem, respect and additional forms of empowerment.

Finally, the respondents agreed that WCT has met its poverty alleviation and environmental goals as the project has educated them about the environment and provided them with a safety net while empowering them with entrepreneurial tools that they can use to lift themselves out of poverty. Providing the people with a source of income will not only contribute to their well-being but make them more inclined to learn about the environment and to take steps to safeguard it. In addition, being the first educators, women can pass on similar environmental values to their children, as some are already doing, ensuring long-term sustainability (Agarwal, 2012).

WCT was not as positive regarding the fulfilment of their poverty alleviation goals as the key informant asserted that poverty cannot be alleviated in five years as the goals set are highly ambitious but not impossible to achieve. Despite having a strong model, team, network, and foundation, the ENGO, like other civil society organisations, faces funding challenges. The ENGO is dependent on donor funding and is currently running at a loss which limits the number of people allowed to participate in the project as evidenced by their cessation of registration process at the time of data collection. This, undoubtedly, calls into question the economic sustainability of the ENGO and its initiatives, and the future of the green-preneurs should WCT cease to function. However, the project, unlike government social welfare grants, is equipping women with entrepreneurial skills that they can use to enter the informal economy, which should ensure their economic security in the future, independent from WCT. This is evidenced by the successful entry of numerous women into the waste-picking informal economy in developing countries. The

previously mentioned example of the New Era Foundation in Cameroon where women recycle plastic waste into jewellery, mats and bags for sale and income generation showcases this. This project, much like green-preneurship, is protecting the environment and empowering women economically. Similarly, the Living Earth Foundation has launched an urban ‘Waste to Wealth’ project aimed at improving the lives of urban slum dwellers in Cameroon, Nigeria and Uganda. The project encourages the poor communities to collect and manage solid waste because failure to do so will lead to pollution, poor sanitation and the spread of diseases (Living Earth Foundation, ud). The Living Earth Foundation (ud, no page number) asserts the need to address the issues at community level as “no-one else will do it for them”. “The environment is a public good and the public as a whole must take responsibility for it” (Bond, 2002, p. 232). It is anticipated that the ‘Waste-to-Wealth’ project will improve the environment, generate income while improving the health of the urban communities, equip them with skills to enter the business sector, encourage private-public partnerships between local government and the private sector, and promote the role of women in waste management (Living Earth Foundation, ud).

Thus, WCT’s green-preneurship initiative strives to meet the goals of green economy in the context of (urban) poverty alleviation and sustainable development by enabling the impoverished and vulnerable to generate income from environmental services, thereby promoting “sustained environmental sanitation improvement” (Living Earth Foundation, ud, no page number). The project takes a bottom-up approach to poverty alleviation as opposed to a top-down approach, thereby encouraging sustainable community development. Rather than giving the poor hand-outs and increasing their dependency, the ENGO is harnessing their skills and equipping them with knowledge to work their way out of poverty. While such waste-to-wealth projects may not be ethically sound as they seem to place a price on environmental protection, they do provide the necessary incentive to prevent any further environmental degradation and produce positive multiplier effects. With the advent of sustainable development and green economy, environmental issues have ceased to be solely environmental but are intertwined with social and economic issues, and all three need to be addressed simultaneously. As urban populations continue to grow, the challenges facing policy-makers are four-fold. They have to meet the needs of the growing populations while preventing further environmental degradation, address urban poverty and ensure women empowerment and gender equality in the sustainable development agenda. Thus, such projects help to relieve some of this pressure and address the pressing social and environmental issues. Therefore, it is up to government to work with civil society organisations and the private

sector to promote such initiatives and work towards a gender-inclusive, sustainable, resilient and pro-poor green economy and reinvigorate the 'urban advantage' that cities have begun to lose.

NGOs, however, need to take steps to prevent poor communities' over-reliance on external aid for livelihoods. The viability of any community development project hinges on bottom-up activities that promote self-reliance and capacity building, where self-reliance refers to the ability of the poor to utilize local initiatives and human, natural and technological resources to improve their status quo (Nikkhah and Redzuan, 2010). Dependence on external funding should only be encouraged in the short-term but in the long-term communities should strive for autonomy and independence and they should be in charge of their own development. In a study carried out by Busiinge (2010), it was found that the rural poor in the Rwenzori Sub-region of Uganda had developed a 'donor dependency syndrome' such that they felt that government and NGOs should cater to all their needs. Such dependency inhibited any form of local entrepreneurial potential as a false impression had been created that the farmers in this case-study could not improve their farms without donor funding (Busiinge, 2010). In the same way, it is possible for the green-preneurs to feel that green-preneurship cannot work without funding from WCT- a fact that should be discouraged. Any kind of dependency will only lead to a failure to eradicate poverty in the face of the financial unsustainability of donor funding. Hence, to truly empower the green-preneurs, WCT, in the long-run, should grant them their independence and monitor their progress. This will allow the green-preneurs to teach others who have been unable to register for the initiative to earn an income and manage environmental resources, thereby expanding the reach of the project and reducing poverty levels.

In the same way that WCT needs to grant their green-preneurs freedom, it, too, needs to disengage from its external donors. The organisation, like many other NGOs, relies heavily on donor support and this can compromise its long-term goals of poverty alleviation and environmental management, should the donors suddenly pull out. Therefore, it needs to find alternative means of generating income to ensure the longevity of green-preneurship and similar projects. For example, they can invest shares or sell goods or encourage greater participation by government. In this way, independence for the ENGO will mean that they are only accountable to the communities and not to donors, who, often, are more interested in meeting their own needs and not the needs of the people. Moreover, a partnership with government will make government active participants in the projects and prevent the government's dependency on civil society organisations to assist the people where they have failed.

## 5.4 Environmental awareness

“Environmental awareness influences human behaviour in several ways: reduction of consumption, change of wasteful or harmful consumption patterns, and preference of environmentally products, selective waste collection, or different forms of protest may represent ecological sensibility” (Füle and Kenéz, 2005, p. 122).

Environmental knowledge influences environmental values and combined, these two can work together to influence environmental attitudes (Füle and Kenéz, 2005). The women in the study had a basic understanding of what constitutes the environment and their high dependence on environmental resources fuelled their concern for the deterioration of environment, for both current and future generations. Though they have noticed a change in the climate, they had no real knowledge as to why climate change was occurring, as evidenced by their lack of knowledge regarding the contribution of the industrial sector, over-use of electricity, vehicles, agriculture, mining, and population growth to environmental deterioration. When asked about the severity of certain activities that are leading to environmental degradation in their community, the respondents indicated that solid waste pollution and air pollution are serious issues but deforestation, over-use of electricity, wild fires, and water pollution are not. The reason for the latter may be that a case of water pollution is clearly seen in the Wilgerfontein River (Figure 3.1) in Willowfontein where many mothers dispose of the babies’ disposable nappies, and not in SWAPO or Sweetwaters. Therefore, only respondents from Willowfontein would cite water pollution as a serious issue. Similarly, Darkey (2012), found that 59% of the women in a study carried out in Mamelodi township in South Africa did not view the pollution of their river as a serious environmental problem and this led the researcher to conclude that people are not concerned about an environmental problem when they are not directly impacted by it, as is evidenced by this case study. This pollution of the Wilgerfontein River is a very contentious issue and is the biggest challenge that the waste-preneurs face and the main reason for requesting protective gloves to collect waste. The Msunduzi Municipality asserted that this is an area of concern as nappies are not recyclable.

Referring to the over-use of electricity, some houses in the areas did not have electricity and those that did, refused to acknowledge its over-use as an environmental issue as they were paying high electricity rates. Bond (2002, p. 341) notes that the “per-unit price of electricity in South Africa is too high for low income households” and these high rates have led to residents taking extreme measures to cut down on their usage. Such steps include the use of cheaper fuels such as firewood and paraffin for cooking, instead of electricity, thereby incurring negative environmental

externalities and endangering their health. Similar results were found in a study carried out by Goebel *et al.* (2010) on urban poor female-headed households in South Africa where, despite high access to electricity in the area, only 67% of respondents used electricity for cooking, opting to use firewood and paraffin due to the high cost of electricity. Bond (2002) corroborates this by noting that in Soweto, despite a large number of households having electricity, only a few use it for cooking as it is expensive.

When asked who was responsible for the different factors that contribute to environmental degradation in their areas, the majority of respondents placed the “burden of pollution” (Martinez-Alier, 2002, p. 43) on the community. The respondents agreed that they were primarily responsible for deforestation, solid waste pollution, over-use of electricity, air pollution, and wild fires. Most respondents did not know who was responsible for water pollution as this kind of pollution directly impacts the residents of Willowfontein. In addressing these issues, the respondents understood that they have a role to play, however, they felt that the government should be the catalyst as they have the authority and knowledge to solve the problems. The women emphasized that people listen to government and if they were told to stop degrading the environment, they would. This is a view shared by the project facilitators who believe that the presence of government, because of their authoritative nature, will encourage more people to preserve the environment. This was an interesting point which served to illustrate that despite their distrust of government, the community members still have great respect for their authority, or perhaps they want to avoid their responsibility and pass it onto others. Similarly, in a study carried out by Alfaro (2010) on the environmentalism of the urban poor in Ocotlán, Mexico, it was found that the women in the study, both those who had received a formal education and those who had not, demanded government action to stop pollution and raise awareness, leading the researcher to conclude that “poor women saw government action as a solution to their environmental degradation”, regardless of their level of education (Alfaro, 2010, p. 30). In a study carried out by Leung *et al.* (2005) on environmental degradation in rural China, it was found that the majority of respondents depended on the government (local and central) to solve their environmental issues.

The presence of WCT in the communities has led some respondents to believe that ENGOs should assist in solving their environmental issues as they have witnessed the ENGO do so far, which is to be expected as most of them were introduced to environmental issues by WCT. Others advocated for the creation of partnerships between the people, government and ENGOs to help find a global solution to environmental issues- a fact that was emphasized at the WSSD in 2002. This is because the women were not content with the level of service delivery (for example, the lack of water, roads

and refuse bins) in their communities and the lack of adequate housing and infrastructure. As a result, the respondents perceived that government cannot do this alone, forcing them to place their trust in ENGOs, whom they believe have the financial backing and environmental knowledge to take them out of poverty and address the environmental issues. While the role of the ENGO in introducing environmental entrepreneurship to the communities cannot be ignored, a heavy reliance on ENGOs should be discouraged and the poor should strive for independence. They need to view such organisations as a “mechanism to improve their position while driving sustainable development processes” (Gupta, 2012, p.145) so as to escape the poverty cycle and ensure financial security in the future should anything happen to WCT, for example, a lack of funding. Only then can they be said to be truly empowered.

The majority of respondents failed to hold the industrial sector culpable of any form of environmental degradation. While a small number of respondents did consider industries accountable, a large proportion did not understand the major role that industrialisation has played in driving the environment towards its tipping point. This is likely a result of their lack of formal environmental education and the fact that industrial pollution is not directly visible as there are no industries within close proximity.

To assist in establishing the respondents’ willingness to act in environmental preservation it was important to establish whether the women acknowledged that they had a role to play in environmental sustainability. The majority of women felt that they could make a contribution and are already making that contribution by participating in WCT’s initiatives. Many felt that they, as women, care more about the environment than do men and are, therefore, more likely to safeguard it for their families’ sake. This is a view that was shared by the WCT and the project facilitators who stated that women are thorough and *‘think before they act’*. Martinez-Alier (2002) concurs, adding that women are more sensitive to any changes in the environment and are quick to respond as they are concerned with their economic security which is highly dependent on a clean environment. Some respondents acknowledged that taking care of the environment makes them happy and so they will continue to do so. In a study carried out by Ferrer-i-Carbonell and Gowdy (2007), there was a positive correlation between environmental well-being and a concern for the environment, and this has proved to be true in this study. Environmental awareness contributes to human well-being and happiness (Ferrer-i-Carbonell and Gowdy, 2007). Conversely, some women disagreed that they have a role to play but stated that both men and women have unique roles to play. This view was shared by the officials from WCT and Msunduzi Municipality who agreed that to tackle environmental issues, equal participation is needed from both men and women. A few

respondents felt that their roles are not recognised and *'they are too weak'* to make a contribution. To understand the rationale behind this, one has to understand the role of gender in South Africa, during Apartheid where women were historically seen as inferior to men, and they had very “low political and social power” (Darkey, 2012, p. 213). Their roles were limited to household duties and reproduction, and they were denied an education (UNEP, 2004; Darkey, 2012). Some of these disparities still exist. It is, therefore, unsurprising that even though steps have been taken to engender policies and provide women with a voice in decision-making, there are some, particularly of the older generation, who still feel disadvantaged and powerless.

With regards to purchasing decisions, the women consider price, quality and quantity of a product, and availability before they purchase. This is to be expected due to the high cost of environmentally friendly goods. Füle and Kenéz (2005) assert that a consumer's willingness to act not only depends on their environmental attitudes but on their need and spending power. The consumer may be motivated to purchase the more expensive environmentally friendly goods, however, this means little if they cannot afford to pay for the goods. Similarly, in a study carried out by Alfaro (2010), it was found that women with higher education and income are more likely to purchase the more expensive environmentally friendly goods. A higher income may enable the urban poor to purchase environmental goods which have fewer negative impacts (Martinez-Alier, 2002), however, the women in the study areas were not earning enough money to finance such a lifestyle.

Overall, the respondents demonstrated a rudimentary level of environmental awareness and they still have much to learn. That being said, their desire to receive environmental education indicates that they want to learn more and contribute. However, before they can fully embrace environmental values and change their attitudes or engage in environmentally friendly activities, which were lacking prior to WCT's green economy venture, they need to be self-sufficient and their basic needs need to be met. WCT contends by asserting *'people would sooner kill the buck to put food on the table'* and that it is impossible to teach people about the environment when they are starving. When asked to list and rank their main concerns in the area, the majority of respondents listed a lack of adequate housing, unemployment, poverty, lack of infrastructure (roads, electricity, water), crime, lack of health services in close proximity, alcohol abuse and teenage pregnancy. None of the respondents mentioned environmental issues, justifying why it is important to address the basic needs of the people before *'connecting them to the environment'*. A similar result was found by Darkey (2012, p. 217), who concluded that, “there is no natural affinity between women and environmental issues as other socio-economic concerns must be addressed”. Addressing such issues

is a necessary pre-requisite for marginalised women to prioritise environmental management, and not just view it as a meal ticket.

## **5.5 Contribution to conceptual and theoretical development of the green economy concept**

Green economy is a concept that evinces the importance of merging environmental stewardship and social development with economic strategies and policies (Bertazzi, 2011). According to the UN Environment Management Group (2011, p.39), the green economy is expected to:

- Provide new sources of income and employment in the form of green jobs
- Create a “low carbon emission” economy, reduce the use of (finite) resources, and reduce the generation of waste and pollution by managing consumption and production patterns
- Contribute to the social development goals of sustainable development which include social equity and inclusion, and poverty alleviation

However, the concept has been criticised for failing to mainstream a gender equality perspective and women still face challenges in attempting to participate in the global green economy (Becher, 2012). These barriers include structural gender inequality, lack of time and opportunity to enter the green economy market, lack of access to information and decision-making bodies, and lack of exposure to new technologies and training services (WESC and WOW, 2009; Stevens, 2012; Tandon, 2012a).

This research has shown how women, particularly those in urban areas, can participate in the green economy through their participation in the informal economy, which is a poorly researched area. Moreover, it has been demonstrated how the green-preneurship initiative has empowered women, economically and socially, through poverty alleviation, and contributed towards urban food security and sustainability. Furthermore, the research showed how the usually underestimated informal economy can be of societal importance to the formal economy’ as it is a vital component of the ‘real economy’ (Becher, 2012). The economic and social gains of such initiatives can facilitate the transition to a resource efficient, sustainable economy (Cozendey, 2011, Becher, 2012). Becher (2012, p.2) asserts that “a sustainable life can only be attained through a comprehensive socio-ecological transformation of society and through *de facto* societal equity in terms of wealth and gender”. Therefore, successfully addressing the economic, social and environmental pillars of sustainable development in the context of green economy will require a gender perspective (Cozendey, 2011, Becher, 2012).

## 5.6 Conclusion

The research investigated the alleviation of poverty for urban poor women in three areas in Pietermaritzburg, South Africa, SWAPO, Sweetwaters, and Willowfontein, through the application of a green economy initiative. A donor-funded local ENGO, Wildlands Conservation Trust, facilitated the initiative in the communities through ‘green-preneurship’ activities. These activities include the gathering, recycling and sale of waste, the growing of indigenous trees for sale to the ENGO, and the propagation of food crops for subsistence and sale of the surplus. More than half of the respondents were over the age of 50 and unemployed due to their lack of formal education, and are reliant on government social grants. Through green-preneurship they have found a means of diversifying their income sources and a form of livelihood, decreasing their vulnerability. The initiative, unlike the grants, is more than just a safety net as it aims to eradicate rather than just reduce poverty. This is achieved through educating women and equipping them with entrepreneurial skills that they can use to escape the poverty trap. In earning an income and contributing to the household, women feel economically and socially empowered, receiving respect and recognition from their families and community. In this regard, the women are closer to breaking the gender disparities that have historically trapped them.

The ultimate goal of this poverty reduction project is environmental sustainability. Poverty alleviation is a tool that is being used to safeguard the environment by educating participants about the impacts of environmental degradation and how to reduce them. Moreover, environmental attitudes and values are being developed which will be passed on to future generations. Against this backdrop, the women’s level of environmental awareness was established and it was found that they possessed a rudimentary level of environmental awareness as evidenced by their indigenous environmental knowledge and their basic understanding of how environmental issues impact their health, daily lives, and future generations. However, they lacked ‘scientific’ understanding of environmental issues due to their low levels of formal education, a gap that WCT is attempting to fill. It was ascertained that they are not financially able to pay extra for environmentally friendly goods as their primary concern is that of meeting their basic needs. Despite this, their environmental attitudes are changing, and perhaps, over time, so will their willingness to act, in the absence of a financial incentive.

The project is working towards meeting the goals of green economy which are poverty alleviation and environmental protection, and though the ENGO finances and facilitates the project, women are the key to the project, as evidenced by their willingness to participate. Their role as caretakers in the household fuelled their voluntary participation and in so doing they are lifting themselves out of

poverty and empowering themselves while simultaneously contributing to sustainable development processes. With the rise of urban poverty, urban women, much like rural women, need to escape the poverty trap and they are using WCT and its green economy programme as a mechanism to achieve this, while indirectly managing the environment, a role that is yet to be recognised by the South African government. This research has shown that green economy can be pro-poor, socially inclusive, environmentally sustainable and economically sound (Aguilar, 2012), therefore, addressing the many failures of sustainable development. The application of similar bottom-up projects at global scale will finally place the world on a sustainable path. However, in initiating these community development projects, self-reliance should be the goal and in the long-term there should be a decreased reliance of the poor on external funding or NGOs for assistance. In the same way, NGOs or civil society organisations should disengage from external donor funding to ensure economic sustainability of the projects they initiate.

## Chapter Six

### Conclusions

This chapter presents the main findings of the research with regards to the research aim and objectives.

#### 6.1 Main findings

The aim of the research was to investigate, through a local case study, how marginalised urban women are using green economy as a tool to alleviate poverty and contribute to environmental sustainability in South Africa. This aim was met through objectives that will be discussed in detail in this chapter. The study areas that were purposively selected for the study were SWAPO, Sweetwaters, and Willowfontein, in Pietermaritzburg, South Africa.

##### 6.1.1 To examine literature on urban poverty, its impact on the environment, and the role of the informal economy in alleviating poverty

South Africa has one of the highest urbanisation rates in Sub-Saharan Africa and while this presents opportunities for economic growth and wealth creation, urban growth can lead to an increase in urban poverty and environmental degradation, making urbanisation one of the greatest challenges that policymakers face (UN-HABITAT, 2003; Satterthwaite, 2004; Kimemia, 2007; Ravallion *et al.*, 2007; UN Economic and Social Council, 2007; UNICEF South Africa, 2012).

Characteristics of urban poverty include: decreased employment opportunities; a lack of education; poor provision of basic services (such as housing, potable water, sanitation, solid waste management, access to health care); food insecurity; a high proportion of female-headed households; high crime rates; and a lack of political power (Mitlin, 2004; UNEP, 2004; UNEP, 2011; PEP, 2012). Hence, strategies to manage urban poverty need to take these factors into account and the fact that rural and urban poverty have to be managed differently, partly because of the highly monetized nature of urban poverty. Survival for the urban poor equates to the use of natural resource combined with income gained from employment (UNEP, 2004; UN Economic and Social Council, 2007).

It was found that the urban poor are turning to the informal economy for employment opportunities and income as they lack the skills and education to enter the formal economy (Giddings *et al.*, 2002; WIEGO; ud). It was further established that while the urban poor do not depend on environmental resources for survival in the same way that their rural counterparts do, environmental changes affect their health, livelihood, and overall well-being in the same way (UNEP, 2004; Jahan,

2008). Hence, much like the rural poor, the urban poor need to manage the environment to help prevent further environmental degradation.

### **6.1.2 To critically review literature on the green economy discourse and assess its application in poverty alleviation in developing countries, particularly South Africa**

Green economy is an environmental discourse which aims to address the failures of sustainable development by integrating a more social approach. The goals of green economy are to reduce poverty by providing new sources of income and employment through green jobs, to protect the environment by creating a low carbon emission economy, and to promote social equity (UN Environment Management Group, 2011). Against this backdrop, countries are attempting to incorporate the concept of green economy into their policies and poverty alleviation strategies. South Africa is one such country as it has a high carbon footprint due to its overdependence on mineral resources, and it has high levels of unemployment and inequality, making the green economy a suitable solution (Maia *et al.*, 2011; Musyoki, 2012). The government has identified green economy as one of ten key job drivers in its New Growth Path of 2010 and it has started taking steps to transition towards a green economy (Maia *et al.*, 2011). Examples include large scale programmes such as Working for Water (WfW) which creates employment for the rural poor, the majority being women, by paying them to remove alien flora. Thus, this project is not only empowering the poor economically but is conserving biodiversity and restoring the ecosystem (Musyoki, 2012).

Such projects are one of many that South Africa is undertaking to green its economy and the nation has an opportunity to set an example for others to follow. Further, it was found that the participation of government, the private sector and civil society is mandatory if green economy is to be successful (UNEP, 2011a).

### **6.1.3 To examine women's involvement in a community-based green economy project organised by a local ENGO in three communities, and to establish reasons for their involvement and factors that may promote or hinder their participation in such grassroots-based green economy initiatives.**

The majority of women in the study were unmarried, over 50 years of age, had primary level education and were unemployed, depending on government grants for income to support their families which consist of at least three dependents. As a result, they were living in dire poverty. The introduction of the green economy project by the local ENGO, Wildlands Conservation Trust, provided the women with a means of employment and of earning an extra income to help support their families, reducing their over-dependence on government grants. The green-preneurship project

consists of three project nodes, waste-, tree- and food-preneurship. Waste-preneurship relates to the collection and segregation of waste for sale to the ENGO while tree-preneurship requires the women to grow indigenous trees for sale to the ENGO when they have reached a height of 30 cm. Lastly, food-preneurs are taught how to grow vegetables for their own consumption or for sale to community members, with the aim of ensuring food security and a healthy diet. The majority of women are waste-preneurs as this initiative produces immediate rewards as opposed to the other two that require a waiting period to allow for the growth of the trees and crops.

As the majority of households were female-headed, with three or more dependents, the main incentive for women joining WCT's green-preneurship initiative was financial as "access to income and employment opportunities is critical for the urban poor" (UN Economic and Social Council, 2007, p. 8). Environmental protection is of secondary concern as the impoverished have to earn an income to meet their short-term needs and support their families before they can concern themselves with other issues. Hence, as the women continue to be empowered economically by the initiative, they have been learning more about the environment and are taking steps to prevent further environmental degradation.

Despite the overall success of the project in addressing unemployment and inequality, the green-preneurs are facing challenges in the project as they argued that there are too many people registered for the project meaning that there is competition for resources as was evidenced by the lack of waste in the areas. Many women are forced to walk long distances in search of waste to sell, adding to the labour intensity of the project. This led many to complain that they are not paid enough for environmental services they provide. Moreover, the price of waste fluctuates, sometimes reducing their monthly incomes. However, in a bid to empower the women, they have been informed that they can sell the waste to other organisations if they are not happy with WCT, but they do not know of any other organisations that purchase waste, leaving them with no other option but to sell to WCT.

In addition to lacking basic services such as waste collection, some areas face water shortages, as the government continues to struggle to meet the basic needs of the people. This lack of water affects food- and tree-preneurship activities which are dependent on water, decreasing the income that the women could potentially earn from these project nodes. Another limitation was the lack of protective clothing which makes their work unsafe. However, despite the challenges, many expressed a strong desire to stay in the initiative due to the financial gains.

#### **6.1.4 To investigate the impact of the green economy project on the livelihoods of the marginalised urban women**

The green-preneurship initiative had a positive impact on the livelihoods of the women as it not only succeeded in empowering the women economically and socially but helped them to escape “the discriminatory social structures and attitudes, at personal, community, and institutional levels that persist in deeply entrenched patterns of gender inequality” (UNEP, 2004, p.13). The women in the study stated that they are more respected in their households and communities, and have inspired others to pursue the project. In addition, the women now have *‘peace-of-mind’* as their communities are cleaner and safer for their children and livestock. Furthermore, they feel empowered by the knowledge that they are working to protect the environment and preventing environmental degradation.

Green-preneurship has helped to ensure urban food security as the green-preneurs *‘no longer go to sleep without eating’* and they can now afford to buy a few luxuries for themselves and their children. Moreover, some women can afford to build their own houses *‘without having to wait on government to do it for them’*. Furthermore, the women have been equipped with entrepreneurial skills that they can use to diversify their livelihoods and lift themselves and their children out of poverty. For example, they have learnt to sell their crops from food-preneurship to community members in such a way that they can make a profit.

#### **6.1.5 To ascertain the level of environmental awareness and involvement in environmental management of the women in the case studies through their participation in the community-based green economy project.**

It was established that the women have a basic level of environmental awareness as was determined by their environmental knowledge, environmental values, environmental attitudes, willingness to act, and proactive response. They possessed a rudimentary understanding of what constitutes the environment and expressed grave concern over its degradation. However, as a result of their lack of post-primary education, many respondents lacked scientific knowledge about environmental degradation. They failed to identify the industrial sector, over-use of electricity, vehicles, agriculture, mining, and population growth as environmental culprits, however, they recognised that they have a role to play, with assistance from government and ENGOs, in environmental conservation. Interestingly, they expressed a high dependence on government to solve their environmental issues as they believe that the government has the finances and technical know-how to deal with the issues. Moreover, they felt that because of the authoritative nature of government, people will listen to them and prevent environmental deterioration. This indicated the women’s desire for government to deal with their environmental issues.

Seventy-eight percent of respondents knew that they, as women, have a role to play in environmental sustainability in South Africa. Many felt that they are more concerned for the environment than their male counterparts, and therefore, are more willing to take actions to protect it. Conversely, a few felt that they do not have a role to play as *'they are too weak'* - a response influenced by the gender disparities that women in South Africa have historically faced. Other respondents felt that both men and women have unique roles to play in environmental management, a view shared by WCT.

With regards to purchasing choices, the women's limited funds and their desire to meet their basic needs at the cheapest cost possible, makes price, quality and quantity their primary concerns when buying goods. Environmental considerations are of little importance which is not surprising as environmentally friendly goods tend to be more expensive. Moreover, it is important to take into consideration that the respondents may not have been educated about such products. If they knew about them, they may be more inclined to purchase them. The women, however, expressed a strong desire to learn more about the environmental management for current and future generations. This serves to show that they are developing environmental values and attitudes which will eventually translate to a willingness to act and force them to engage in more environmentally conscious activities. Furthermore, their role in the household places them in a suitable position to instil similar values in their children, enhancing sustainability.

The inevitability of urbanisation as a development process and the fast pace with which urban populations are growing makes the search for solutions to the negative social and environmental externalities of urban growth ever more urgent. Cities in developing countries are no longer just known as the hubs for economic growth but have become synonymous with worsening urban poverty, environmental deterioration and inequality, with women being the most vulnerable. The failure of the international community to address these issues through sustainable development processes has led to the adoption of green economy. The research showed how this new approach is being used by urban poor women in Pietermaritzburg, South Africa, under the management of an environmental non-governmental organisation, to lift themselves out of poverty through green jobs and participate in environmental management in the country. IFAD (ud, no page number) asserts that while "poverty eradication will not erase environmental degradation, it will change the nature of environmental problems facing society". Therefore, governments need to support initiatives by civil society to alleviate women's poverty, promoting their empowerment and gender equality as this will enable them to play a greater role in sustainable development.

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# Appendices

Each appendix should have a cover page followed by the appendix itself.

Appendix 1. Questionnaire for women from SWAPO, Sweetwaters and Willowfontein

Appendix 2. Interview schedule for project facilitators

Appendix 3. Interview schedule for official from WCT

Appendix 4. Interview schedule for Manager of Environmental Management Unit, Msunduzi Municipality

Appendix 5. Informed consent form from WCT

Appendix 6. Informed consent form from Msunduzi Municipality

Appendix 7. Ethical Clearance

**Appendix 1 Questionnaire administered to women from SWAPO,  
Sweetwaters, and Willowfontein**

**FIELD QUESTIONNAIRE**

My name is Sithabile Hlahla. I am currently studying for a MSc in Applied Environmental Science at the University of KwaZulu-Natal. I am carrying out a study to find out how women from urban/peri-urban areas in South Africa are participating in environmental management and in the overall African green economy. The information will be treated as confidential and your participation in my research is greatly appreciated.

Do you consent to participate?       Yes       No

**BACKGROUND INFORMATION**

1. **Area**.....

2. **House number/ GPS co-ordinates:**

**Longitude**.....**Latitude**.....

3. **Age (years)**     16-20     21-25     26-30     31-35     36-40

(Please tick)     41-45     46-50     > 50

4. **Level of education:**

<b>LEVEL</b>	<b>YES</b>	<b>NO</b>	<b>If yes, did you complete it?</b>
<b>Primary</b>			
<b>Secondary</b>			
<b>Higher education</b>			

5. **Marital status:**

A. Never married    B. Married    C. Widowed    D. Divorced    E. Living together but not married.....

6. If married, do you live with your spouse?     Yes       No

7. Do you have children?     Yes       No

8. How many dependents do you have?.....

9. What are the sources of income in your household?


10. For how many years have you lived in the area.....

11. Where did you live before?.....

12. Why did you move to this area?


**ENVIRONMENTAL AWARENESS**

13. What is your understanding of the term 'environment'?


14. Do you think the environment in trouble?     Yes     No

15. If yes, elaborate.


16. Which of the following activities do you think can lead to environmental degradation/ pollution? Please tick (✓)

<b>ACTIVITY</b>	<b>YES</b>	<b>NO</b>	<b>I DON'T KNOW</b>	<b>If yes, how?</b>
Deforestation				
Cooking with gas, fire or paraffin				
Improper waste disposal (litter)				
Over-use of electricity				
Water scarcity				
Veld fires				
Vehicles e.g public transport				

Agriculture: domestic animals				
Industry				
Mining				
Population growth				

17. Do any of the following environmental problems exist in your area? If yes, how serious are they? (SEE TABLE BELOW)

18. If yes, who do you feel is most responsible for the environmental problems? **1 = Industry**  
**2 = Government** **3 =Community** **4= I do not know** (SEE TABLE BELOW)

ENVIRONMENTAL PROBLEM	YES	NO	IF YES, HOW SERIOUS?			IF YES, WHO IS RESPONSIBLE?			
			Very	Moderately	Not	1	2	3	4
Deforestation						1	2	3	4
Air pollution						1	2	3	4
Solid waste pollution/ Improper waste disposal (litter)						1	2	3	4
Water pollution						1	2	3	4
Over-usage of electricity						1	2	3	4
Veld fires						1	2	3	4

19. Are you concerned about the environmental pollution and degradation in your area?

Very concerned     Mildly concerned     Not concerned

20. Do you feel that these problems are harmful to you and your physical wellbeing/ health?

Yes     Maybe     No     I haven't thought about it

21. If yes, how?



22. Who do you feel should be responsible for solving the following environmental problems and why? **You can indicate more than one answer.**

**1=Government    2= Environmental NGOs    3= Industry    4= Community    5= I do not know**

<b>ENVIRONMENTAL PROBLEM</b>	<b>WHO IS RESPONSIBLE?</b>	<b>WHY?</b>
Deforestation		
Air pollution		
Solid waste pollution/ Improper waste disposal (litter)		
Water pollution		
Over-use of electricity		
Veld fires		

23. Is the local government (municipality) taking any action to clean the area or prevent environmental pollution and degradation?

Yes     No     I don't know

**If yes, go to question 24**

**If no, go to question 26**

24. If yes, are they doing enough?     Yes     No

25. If no, what else can they do?


26. If government is **not** taking any action to clean the environment, what do you think they should do?


27. Before Wildlands Conservation Trust started working in the area, were you doing anything to prevent environmental degradation and clean the environment?

Yes       No

28. If yes, indicate which ones? (**Please put a X**)

ACTIVITY	YES	NO
Did not litter		
Turned off electricity when not using it e.g lights		
Recycled cans, papers and bottles		
Avoided deforestation		
Avoided the burning of waste		
Used water sparingly		
Did not cook with fire, gas or paraffin		
Did not purchase plastic bags from stores		
Swept the environment. sweeping		
Cleaned the environment e.g. picking up litter		
Promoted environmentally friendly behaviour by encouraging community members to care for the environment		

29. When you shop- what determines your purchase of an item and how important is it?

**1- Very important    2= Moderately Important    3= Not important**

FACTOR	LEVEL OF IMPORTANCE
Price	
Quantity of Product	
Quality of product	
Environmental friendliness	
Availability	

30. If your consumer choices resulted in a reduction in environmental pollution, would you purchase the more, expensive, environmentally friendly goods?

- Yes       No       Not sure

31. Do you agree that environmental pollution will affect the quality of life/well-being of your children and grandchildren in the future?

- Yes     No     Not sure     I have never thought about it

32. If yes, how?


33. Do you feel that you, as a woman, are important for environmental management/protection in South Africa.

- Yes       No

34. Explain your answer.


35. Have you had any form of environmental education?

- Yes       No

**If yes, proceed to question 36      If no, proceed to question 38**

36. If yes, how much?

- A lot       A moderate amount       A little

37. If yes, who educated you?.....

38. Would you like to learn more about the environment?

- Yes     No     Not sure

39. Besides environmental issues, what other problems exist in your area? List them in order of importance, starting with the most important. Include environmental problems in the list.

1.
2.
3.
4.
5.
6.
7.
8.

**PARTICIPATION IN GREEN ECONOMY**

Wildlands Conservation Trust is an environmental Non-Governmental Organization in South Africa that has launched ‘green-preneurship’ activities in different communities to help alleviate poverty while preventing further environmental degradation. Their aim is to promote an African Green Economy.

40. What does ‘green-preneurship’ mean to you?


41. Wildlands launched activities aimed at unlocking the ‘green-preneurship’ potential of the impoverished and unemployed. Which activities do you participate in and when in which year did you start participating? Refer to table on next page

Please tick (✓)

	YES	NO	IF NO, WHY?	START DATE (YR)
Food preneurship				
Tree preneurship				
Waste preneurship				

42. What is the main reason behind your participation in these activities?

- Financial reasons     Environmental reasons     Aesthetics     Others, specify


43. Are there some Wildlands' activities you want to participate in but haven't been able to?

- Yes     No

44. If yes, which ones and why?


45. Do you face any challenges in carrying out the 'green-preneurship' activities?

- Yes     No

46. If yes, what kinds of challenges?


47. In launching such activities, Wildlands hoped to alleviate poverty through job creation and simultaneously prevent environmental degradation. From your experience in the program, do you feel that Wildlands has achieved these goals?

- Environmental Goals?     Yes     No

48. Explain your answer.


49. Poverty alleviation goals?     Yes     No

50. Explain your answer.


51. Do you think recycling is important?    Yes    No

52. If yes, why?


53. Do you think it is important to plant trees?    Yes    No

54. If yes, why?


55. On average, how much do you earn monthly from these initiatives? .....

56. Is the income you get from green-preneurship activities a major source of income in your household?    Yes    No

57. What have you done with the income from these projects?


58. Have the green-preneurship activities changed your role in the household?    Yes  
 No

59. If yes, how?



60. Have you noticed a change in your environment since the program began?

Yes     No

61. If yes, explain.


62. Are there some people who want to join the program but have not been able to?

Yes     No

63. If yes, why?


64. Has anyone quit the program?  Yes     No

65. If yes, why?


66. Do you see yourself participating in the project for the foreseeable future? (e.g in 10yrs time?)

Yes     No

67. Why?


68. Why is the project important to you?


69. What changes would you like to see in the project? Do you have any ideas to add to the green-preneurship program?


70. Is your understanding of the environment and environmental issues different from before Wildlands came to work in the area?    Yes    No

71. If yes, explain.


72. Do you engage with officials from Wildlands Conservation Trust? Do you have regular meetings to discuss environmental issues?    Yes    No

73. If yes, how often?.....

74. Do you find the meetings helpful? Do you learn anything about the environment?  
 Yes    No

75. Are you sharing environmental knowledge with your children and those around you?  
 Yes    No

*Thank-you for participating in this survey.*

**COMMENTS FROM ENUMERATORS**

## **Appendix 2 Interview schedule for project facilitators**

**FIELD QUESTIONS FOR PROJECT FACILITATORS**

My name is Sithabile Hlahla. I am currently studying towards a MSc in Applied Environmental Science at the University of KwaZulu-Natal. I am carrying out a study to find out how women from urban/peri-urban areas in South Africa are participating in environmental management and in the overall African green economy. The information will be treated as confidential and your participation in my research is greatly appreciated.

Do you consent to participate?       Yes       No

**BACKGROUND INFORMATION**

1. **Area:**

2. **Age (years)**     16-20     21-25     26-30     31-35     36-40

(Pleas tick)     41-45     46-50     > 50

3. **Sex:**       Male               Female

4. **Level of education:**

None     Primary     Secondary     Higher

5. **Marital status:**

Never married     Married     Widowed     Divorced

Living together but not married

6. If married, do you live with your spouse?     Yes       No

7. Do you have children?     Yes       No

8. How many dependents do you have? .....

9. What are the sources of income in your household?.....  
.....  
.....

10. For how long have you lived in the area?.....

11. When did you become a project facilitator?.....

**Wildlands Conservation Trust is an environmental Non-Governmental Organization that has started activities in different communities that will help to alleviate poverty while preventing further environmental degradation. Their aim is to promote an African Green Economy.**

12. What is your understanding of the term ‘environment’?
13. What does green economy/green-preneurship mean to you?
14. As a project facilitator, what are your duties?
15. Do you receive some form of training to carry out these duties? If yes, what kind of training do you receive and how often?
16. Do you face any difficulties in carrying out these duties? If yes, what changes would you make?
17. How many registered families are taking part in Wildland’s green economy initiatives?
18. There are more women than men in the project. Why is that?
19. Do you think that women are better equipped to manage the environment than men? Why?
20. Are there any factors that promote or hinder the participation of women in Wildland’s initiatives?
21. What environmental problems are prevalent in your area?
22. How serious is the environmental degradation/pollution in your area?
23. What steps are being taken to clean the environment in the area, besides the green-preneurship program?
24. Is there some form of environmental education for the people in the area?
25. Who do you feel should be responsible for cleaning the environment?  
 . Government    Environmental NGOs    Industry    Individuals
26. Why?
27. Is the local government taking any action to clean the area or prevent environmental degradation? If yes, what kind of action?
28. Are there some people who want to join the Wildland’s projects but have not been able to? If yes, why?
29. How have the initiatives changed the lives/livelihoods of the women that participate in the program?
30. Have you noticed a change in the environment since the program began? If yes, explain.

31. Have you seen any changes in the community, socially? If yes, explain.
32. Has anyone quit the program? If yes, why?
33. Do you see yourself participating in the project for the foreseeable future? (e.g in 10yrs time?).  
Why?
34. What has the project taught you?
35. Given the opportunity, what changes would you make to the project?
36. In launching such activities, Wildlands hoped to alleviate poverty through job creation and simultaneously prevent environmental degradation. From your experience in the program, do you feel that Wildlands has achieved these goals?

Environmental Goals?       Yes       No

37. Explain your answer.

38. Poverty alleviation goals?       Yes       No

39. Explain your answer.

## **Appendix 3 Interview schedule for official from WCT**

## **INTERVIEW QUESTIONS FOR WILDLANDS CONSERVATION TRUST**

My name is Sithabile Hlahla. I am currently studying towards a MSc in Applied Environmental Science at the University of KwaZulu-Natal. I am carrying out a study to find out how women from urban/peri-urban areas in South Africa are participating in environmental management and in the overall African green economy. The information will be treated as confidential and your participation in my research is greatly appreciated.

1. Wildlands aims to achieve a sustainable African green economy by addressing the social dimensions of green economy through its green-preneurship activities in different communities around South Africa. In your opinion, what are the greatest strengths of these activities and what are the weaknesses?
2. Wildlands gives the people in the project coupons instead of cash. Why is this?
3. When you started the green economy initiatives, who were the target population? What selection criteria did you use?
4. Why do you think there are more women than men participating in the project?
5. Do you feel that women are better equipped to manage environmental issues than men? If yes, why?
6. Most of the women in the project are over 50? Why are there very few younger women in the project? What do you think can be done to attract the younger generation to such a project?
7. In your opinion, are there any factors that promote or hinder the participation of women in Wildland's green-preneurship programs?
8. I have conducted research in Swapo, Sweetwaters and Willowfontein. Are you facing any challenges in these areas? If yes, please elaborate.
9. The Willowfontein River is heavily polluted. In your opinion, what should be done to prevent the continual pollution of the river?
10. Is the South African government doing anything to manage the environment or address green economy at community level? If not, what should they do?
11. What roles do you think women can play in environmental management in South Africa? Is the South African government doing anything to empower or encourage the participation of women in environmental issues and green economy?
12. Environmental knowledge influences environmental attitude and behaviour. How is Wildlands tackling the issue of environmental education in the program? What have the participants been taught?

13. Wildlands is providing financial incentive to promote the cleaning of the environment. In the long run, do you feel that this is sufficient for the attainment of a green economy and overall sustainable development? What else can be done?
14. In as much as this program aims to alleviate poverty and prevent further environmental degradation, it can only go so far. The women in the study highlighted that the waste has run out so they are receiving less money. How can the project be diversified to ensure continual poverty alleviation in the long-term (explain) and the sustainability of the program
15. The municipality has suggested that to diversify the project, Wildlands should perhaps divide the green-preneurs into co-ops and have them collect waste in areas where no such program is running, where people have a higher purchasing power, e.g. Bisley. In your opinion, could this work?
16. Do you feel that women are the key to sustainable development?

**Appendix 4 Interview schedule for Manager of Environmental Management Unit, Msunduzi Municipality**

## **INTERVIEW QUESTIONS FOR MUNICIPALITY**

My name is Sithabile Hlahla. I am currently studying towards a MSc in Applied Environmental Science at the University of KwaZulu-Natal. I am carrying out a study to find out how women from urban/peri-urban areas in South Africa are participating in environmental management and in the overall African green economy. The information will be treated as confidential and your participation in my research is greatly appreciated.

1. Environmental issues are prevalent in the world today. What is the role of the Environmental Management Unit (within the municipality) in addressing these issues in Pietermaritzburg?
2. Does the municipality face any challenges in attempting to address the current environmental crisis? If yes, what are these challenges?
3. Women, particularly those living in poverty, are the most affected by the environmental crisis. What is the municipality doing to address women's vulnerability to environmental degradation?
4. It is argued that women are the key to achieving sustainable development. What are your views on this?
5. What is the South African government doing to encourage the participation of women in environmental management in South Africa? Are there any policies governing this?
6. Environmental knowledge influences environmental attitude and behaviour. Is there any form of environmental education taking place to increase environmental awareness, particularly in the high density urban/peri-urban areas, such as Swapo, Sweetwaters and Willowfontein, where there is extreme poverty?

**In a continual effort to achieve sustainable development, the international community has introduced a people-centred approach to sustainable development called green economy. Following this, Wildlands Conservation Trust, a local environmental Non-Governmental Organization, launched 'green-prenuership' activities in high density urban/peri-urban areas (for example, Swapo, Sweetwaters, Willowfontein) to help alleviate poverty while preventing further environmental degradation. Their aim is to promote an African Green Economy**

7. Women in the communities where Wildlands has launched its green economy activities are benefitting the most from the program. What is the municipality doing to encourage the development of similar environmental or green economy programs by other organizations?
8. In as much as this program aims to alleviate poverty and prevent further environmental degradation, it can only go so far. How can government diversify such a program to ensure poverty alleviation in the long-term (explain) and reduce the people's heavy reliance on such a program. What happens when all the waste runs out?

## Appendix 5 Informed consent WCT

**School of Agricultural, Earth & Environmental  
Sciences  
Discipline of Geography  
University of KwaZulu-Natal  
Informed Consent Document**

Discipline of Geography  
School of Agricultural, Earth & Environmental  
Sciences  
University of KwaZulu-Natal, Pietermaritzburg  
2012

To whom it may concern,

I, Sithabile Hlahla, am a student registered for a Master of Science Degree in Applied Environmental Sciences on the Pietermaritzburg campus of the University of KwaZulu-Natal (UKZN). A requirement for the degree is a research dissertation and I have chosen the following topic:

***MERGING THE SOCIAL WITH THE ECONOMIC AND ENVIRONMENTAL:  
WOMEN PAVING THE WAY TO A SUSTAINABLE AFRICAN GREEN ECONOMY***

Please note that this investigation is being conducted in my personal capacity. I can be reached on [sithabileh@yahoo.com](mailto:sithabileh@yahoo.com) or [211550446@stu.ukzn.ac.za](mailto:211550446@stu.ukzn.ac.za) or 0729432537

My academic supervisor is Professor Trevor Hill on the Pietermaritzburg campus of the University of KwaZulu-Natal. He can be contacted on [HillT@ukzn.ac.za](mailto:HillT@ukzn.ac.za) or 0836500057. This research is also in collaboration with Queens University, Canada.

The aim of this research is to find out whether there is a place for poor urban women in South Africa's green economy and to appraise their level of involvement in environmental sustainability in the country. Information gathered in this study will include secondary data as well as primary data from a questionnaire that I request you to participate in. Please note that your name will not be included in the report as only summary data will be included. Your anonymity and confidentiality is of utmost importance and will be maintained throughout the study.

Your participation in taking part in the interview is completely voluntary. You have the right to withdraw at any time during the study.

I appreciate the time and effort it would take to participate in this study. I would be very grateful for your participation, as it would enable me to complete my dissertation and degree.

Please complete the section below:

I Suzanne Dale (Full names of participant)  
hereby confirm that I understand the contents of this document and the nature of the research  
project, and I consent to participating in the research project.  
I understand that I am at liberty to withdraw from the project at any time, should I so desire.

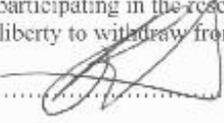
Signature of Participant..... Dale

Date..... 11/09/2012

## **Appendix 6 Informed Consent Msunduzi**

Please complete the section below:

I Ronney Smith-Moore (Full names of participant)  
hereby confirm that I understand the contents of this document and the nature of the research  
project, and I consent to participating in the research project.  
I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Signature of Participant  .....

Date 27/09/2012 .....

## Appendix 7 Ethical clearance



UNIVERSITY OF  
KWAZULU-NATAL  
INYUYISI  
YAKWAZULU-NATALI

Sent to Marsha  
Mailtracker 159101

20 August 2012

Ms Sithabile Hlahla 212550446  
School of Agriculture, Earth & Environmental Sciences

Dear Ms Hlahla

Protocol reference number: HSE/0748/012M  
Project Title: Merging the social with the economic and environmental: Women paving the way to a sustainable African Green Economy.

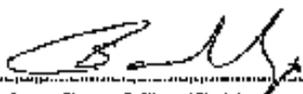
**EXPEDITED APPROVAL**

I wish to inform you that your application has been granted Full Approval through an expedited review process.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

  
Professor Steven Collings (Chair)

/pm

cc Supervisor: Prof Trevor Hill  
cc Academic leader: Professor D Jaganyi  
cc School Admin: Ms Michelle Francis & Ms Sithabile Hlahla  
cc Professor Steven Collings (Chair)  
Humanities & Social Sciences Research Ethics Committee  
Westville Campus, Geyan Mbheke Building  
Postal Address: Private Bag X61001, Durban, 4001, South Africa  
Telephone: +27 (0)31 260 5507/6350; Facsimile: +27 (0)31 260 4609; Email: hrm@apr@uqn.ac.za / any@hrm@uqn.ac.za  
Building Complexes: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

Inspiring Creativity



