CONTRIBUTIONS OF COMMUNITY-BASED SOLID WASTE MANAGEMENT TO SUSTAINABLE DEVELOPMENT: THE CASE STUDY OF THE KISUMU NDOGO SOLID WASTE MANAGEMENT PROJECT

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CONTRIBUTIONS OF COMMUNITY-BASED SOLID WASTE MANAGEMENT

TO SUSTAINABLE DEVELOPMENT: THE CASE STUDY OF THE KISUMU

NDOGO SOLID WASTE MANAGEMENT PROJECT

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Over the past decade and a half, sustainable development has become a major developmental focus for many international organizations. As a result, recognized inefficiencies of various governmental services in providing sustainable solutions have highlighted community-based organizations as a viable alternative. In Kenya, one area in which this has occurred is in solid waste management. Solid waste management services provided by many municipalities in developing countries are incapable of meeting demand, resulting in both direct and indirect negative effects on the recognized features of sustainable development: economic prosperity, environmental protection, and social advancement. Community-based organizations, including the case study organization the Kisumu Ndogo Solid Waste Management Project, offer themselves as an opportunity to make up for these losses and contribute to sustainable development. This researcher finds that indicators of sustainable development are present in the case study example, and therefore concludes that community-based solid waste management does contribute to sustainable development.

April 27, 2006

List of Acronyms and Abbreviations

CBD   Central Business District

CBO   Community-based Organization

CIDA   Canadian International Development Agency

FORD   Forum for the Restoration of Democracy

GDP   Gross Domestic Product

HDI   Human Development Index

ILO   International Labour Organization

IMF   International Monetary Fund

IPPG   Inter-Parties Parliamentary Group

KANU   Kenya African National Union

KAU   Kenya African Union

KNSWMP   Kisumu Ndogo Solid Waste Management Project

LDP   Liberal Democratic Party

LIFE   Local Initiative Facility for Environment

MCM   Municipal Council of Malindi

MDG   Millennium Development Goal

MGTM   Malindi Green Town Movement

MoU   Memorandum of Understanding

MSWMP   Maweni Solid Waste Management Project

NAK   National Alliance of Kenya

NARC   National Alliance Rainbow Coalition

NCEC   National Convention Executive Council

NDP	National Democratic Party
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
SWM	Solid Waste Management
USAID	United States Agency for International Development
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USD	United States Dollars
WHO	World Health Organization
WSP	Water and Sanitation Program

Acknowledgements

Chapter One

Introduction

1.1   Introduction

In Canada, the total amount of solid waste produced increased from just over 29 million metric tons in 2000, 0.9 metric tons per person, to almost 30.5 million metric tons in 2002, 0.95 metric tons per person (Statistics Canada, 2005). This, however, pales in comparison to the 406 million metric tons of solid waste produced in 2002 in United States, the equivalent of 1.36 metric tons per person per year (American Society of Civil Engineers, 2005). Despite the fact that more than half of the world's municipal waste is produced in developed countries, the problem is also recognized as a global one. Almost 60% of the national reports presented at the 1992 Earth Summit of the United Nations delineated solid waste as a major environmental concern (Srinivas, 2006). Ever growing levels of solid waste are undoubtedly a major global environmental issue which requires sustainable solutions.

Illustrating the major environmental and sustainable development concerns presented by solid waste, one needs venture only as far as the local grocery store. Plastics bags, given out at most grocery stores, provide not only a convenient means of transporting goods, but also have become the accepted norm of consumer-buying habits in both developed and developing countries. According to an article by Caroline Williams in the scientific magazine *New Scientist*, between 500 billion and 1 trillion plastic bags are used globally every year. This is the equivalent of 150 plastic bags a year for every person in the world, most of which end up as waste (2004). Siegle's (2006) investigations on plastic

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packaging in the United Kingdom provides a further illustration of the extent of the problem by drawing attention to the extremely high levels of plastic packaging which is used and subsequently, wastefully discarded. As an example, a family of four who participated in the study collected 20 kg of plastic packaging in one month. This translates into enough energy to light a 60 watt light bulb for 821 days (Siegle, 2006).

It is argued that many developing countries will only too soon face issues of similar proportion in solid waste management (SWM) as a result of easier access to manufactured goods, increases in industrialization, and higher incomes levels (Mgaya & Nondek, 2004). This places a heavy burden on all levels of government in the developing world, but perhaps most notability on the municipalities, whose function it is to provide services that manage and properly dispose of this waste. Unfortunately, what is commonly found to be the case in developing countries is the inability of municipalities, typically due to budget constraints and lack of human capacities, to properly address SWM issues. The WHO argues that only about 5-20% of municipal budgets are spent on SWM (n.d.). This lack of spending by municipalities results in only 50-70% of the population receiving some sort of waste collection service, therefore contributing to environmental, economic, and social degradation (WHO, n.d.) To properly address this problem, the WHO argues that municipal governments need to raise their levels of spending on SWM, in some cases, by upwards of 800% (n.d.).

Developing countries are clearly unable to handle present consumption levels and waste it now produces. Therefore, if levels of consumption continue to rise to levels similar to

those in the developed world, there is a very real concern that issues of solid waste will lead to ramifications that are disastrous both locally and globally. The current inability of developing countries and their municipalities to offer adequate solid waste collection services is a problem that is in need of urgent address requiring that solutions be immediately found.

1.2   Posing the Problem

The Bruntland Report entitled *Our Common Future* (1987), is founded on the idea that the environment and development cannot be separated. It differs from the World Conservation Strategy (WCS) in that it starts with people and seeks as its main purpose to delineate environmental policies that benefit socio-economic goals. To achieve this, the report outlines two key concepts: The first of these is the "concept of basic needs and the corollary of the primacy of development action for the poor" (Adams, 1993 p. 211). The second is the concept of environmental limits, as determined by technological and social organizations. Taking into account both the conclusions of the WCS and their own findings, the Bruntland Report was able to define sustainable development as: "development that meets the needs of the present without compromising the ability of future generation to meet their own needs" (Bruntland, 1987, p. 43).

The most widely recognized document attempting to incorporate this definition of sustainable development is *Agenda 21*. The Rio Earth Summit in 1992 brought together 176 nations to participate in the Untied Nations Conference on Environment and Development (UNCED) (Pelling, 2002). Stemming from this conference was a 40

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chapter document which outlined "substantive issues concerned with different sectors on, and actors involved in, development and the environment" (Pelling, 2002, p. 287). Sustainable development, although vaguely formulated, subsequently became an important and complex developmental focus of many multilateral organizations, governments, and NGOs. This focus continues to be maintained today, a fact highlighted by the important role sustainable development plays in the Millennium Development Goals (MDGs).

Many countries in the developing world, including the case study country of Kenya, have subscribed to the idea of sustainable development and, as a result, employ the MDGs as a directive for their development initiatives (Ministry of Planning and National Development 2003; 2005). However, it is evident that there are major failures in the application of sustainable development concepts throughout their development initiatives. As a result of these failures, multilateral agencies, government institutions, and Non-Governmental Organizations (NGOs) are turning to Community-Based Organizations (CBOs) as a means of better attacking development issues in order to achieve development goals (World Bank, 2005 [B]).

One area in which CBOs have attained an important role is in SWM: This has resulted from the failures of municipalities to properly fund solid waste services, thus neglecting their own responsibilities to sustainable development. The increasing levels of solid waste in the developing world require that efforts to tackle issues of solid waste need to be effectively implemented if sustainable development is to be a legitimate policy

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directive. The onus, therefore, has devolved upon communities themselves and CBOs to pick up where the national and municipal governments have left off in contributing to the local, and ultimately global, sustainable development agenda. However, due to the complexities of sustainable development and the many burdens people in the developing world face on a daily basis, the issue of their ability to contribute, if at all, to sustainable development needs to be addressed.

1.2.1 Study Rationale

Although sustainable development is an important area of focus within the international community, SWM is an issue that is clearly not a high priority for many international development agencies or national governments. However, the problems of solid waste figure prominently in social withdrawal, environmental degradation, and economic loss therefore contributing both directly and indirectly to all areas of sustainable development. It is for this reason that problems of solid waste need to be dealt with in an effective and sustainable manner. As a result of the failure of local municipalities in many developing countries to properly handle SWM, alternative solutions must be found. CBOs lend themselves as this alternative.

1.2.2 Thesis Objective

Although CBOs are able to influence issues of SWM, it is necessary to determine if their approach has an overall positive effect on development: specifically, what do CBOs contribute to the components of sustainable development? The notion of sustainable development requires that CBOs focus their actions to take into account economic,

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environmental, and social needs. This, therefore, leads us to the thesis question which states: "Does community-based solid waste management contribute to sustainable development?" To help answer this question the thesis will be using the case study example of the Kisumu Ndogo Solid Waste Management Project (KNSWMP) in Malindi, Kenya.

1.3   Methodology

To determine the thesis question it was important to employ various methods of research. The most common method used in the thesis was a review of relevant sources in the literature. Primary sources were drawn from many organizations, including the World Bank, United Nations, the Republic of Kenya, and the Municipal Council of Malindi (MCM). Secondary and tertiary sources were drawn from books, journals, and various internet sources, all of which have been documented in the citations where appropriate. Much of the information used in this thesis originates in secondary literary sources.

In addition to the literature sources, I carried out field research in Malindi, Kenya in September 2005 where I spent one month conducting the majority of my fieldwork. I also spent one month in Kisumu, Kenya in November, 2005 supplementing the data collected in Malindi through basic participatory observational study.

To determine what was occurring on the ground in Malindi, three methods of data collection were initiated: interviews, questionnaires, and participant observation. Interviews consisted of mainly pre-determined questions which provided information

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relevant to the thesis question. However, it is important to note that this approach did not prevent the inclusion of information that was gained from unforeseeable and unpredictable circumstances. The goal of the questionnaires was to gather data that allowed for an analysis of what is actually occurring in Kisumu Ndogo and Maweni. Reaching 19 households, roughly 100 people, the questionnaires provided a base line study of primarily qualitative data which demonstrated how changes had occurred and how these changes were interpreted by community members. The last in-field method used was participatory observation. Participatory observation consisted of accompanying members of the community at large, members of the KNSWMP, and the Municipal Council of Malindi (MCM), observing their actions, and taking notes, as their activities related to issues of sustainable development and SWM.

1.3.1 Conceptual Framework

Sustainable development and *community-based development* will serve as the overriding development focus of this thesis. Community-based SWM, specifically the KNSWMP, will be measured against elements of sustainable development, including economics, environment, and social areas of concerns to assess their contribution, if any, to the concept of sustainable development. Due to the broad nature of these three features of sustainable development, the focus will be narrowed to the following aspects:

- *Economic* – The value of waste and formal and informal sector involvement
- *Environment* – Health
- *Social* – Capacity building as a means of increasing social capital

The overall concept and components of sustainable development will be further defined and debated in the following Chapter.

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1.3.2 Research Constraints

There were many constraints in the methods utilized for this thesis. The primary constraint was a lack of funds to conduct a longer and more in-depth in-field study. Although the in-field research was reasonable, a lack of funding did limit both the amount of time that could be spent in the field and the resources that could be used. The field research was further limited by language constraints, as many people in the local community spoke only Kiswahili. To conduct much of the research, the use of an interpreter was necessary. A last constraint was the limited secondary literary sources that are available on the subject of SWM. SWM, in comparison to other development subjects, does not have the same wealth of literary sources, therefore limiting what could be studied and discussed.

However, this much being said, we do believe that sufficient data has been collected both through fieldwork and through the literature review to form a basis for a number of well-founded conclusions arising from this case study.

1.4 Chapter Outline

Chapter One – This chapter has provided an introduction to the thesis, outlining its thematic background, analytical focus, the methodology, and the techniques used to determine the thesis question.

Chapter Two – This chapter will provide a review of the literature on the major issues surrounding the thesis question. A great deal of attention will be paid to the issues of sustainable development, community-based development, and community-based SWM.

Chapter Three – This chapter will provide background information in relation to the case study, including a political and socio-economic overview of Kenya, background and description of Malindi, and an overview of the case study group, the KNSWMP.

Chapter Four – This chapter will discuss the findings of the field research and compare these findings with the major issues raised in the literature.

Chapter Five – This chapter will offer both positive and negative conclusions on what was found, outlining recommendations on how to solve the problems discerned.

Chapter 2

Literature Review

2.1 Introduction

The issue of sustainability, in particular sustainable development, has been a matter of debate since the late 1970's. Many have argued that it is an unclear concept that offers little value to the overall project of development (Adams, 1993; Schuuram, 1993; Redclift, 2002). However, despite the criticisms that can be directed against it, sustainable approaches to development have become a popular policy directive adopted by many donor agencies, non-governmental organizations (NGOs), multilateral institutions, and are also a major component of the Millennium Development Goals (MDGs). Sustainable development relates to many project areas, not least of which is solid waste management (SWM).

To illustrate the pertinent issues in the literature related to the focus of our study – solid waste management – the origins of sustainability, specifically 'sustainable development', as a policy direction will first be outlined. This will be followed by a discussion on the many understandings of sustainable development, making specific reference to the World Bank and the policy directives of the Millennium Development Goals (MDGs). From this, our review of the literature turns to outlining the general issues relating to community-based SWM and sustainable development. Specifically we will focus on community-based issues such as participation, community, and social capital. In relation to this, issues surrounding the terms 'capacity building' and 'waste' will also be discussed.

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However, our overall focus will remain centred on the specific issues of community-based SWM as it relates to sustainable development. The issues to be addressed in this regard will identify environmental health concerns that develop as a result of poor SWM. Next, the economic component will focus on defining formal and informal economies as a means of highlighting them as major contributors to community-based SWM. Lastly, social advancements will be recognized through capacity building and its role in promoting and increasing social capital in the community.

2.2 The Foundations of Sustainable Development

Sustainable development is typically known to be based on a set of ideas developed within the context of three foundational forums which have guided its progress as a policy direction: the 1970s International Union for the Conservation on Nature and Natural Resources' (IUCN) *World Conservation Strategy*, the 1987 Bruntland Commission's *Our Common Future*, and the 1992 United Nations Environmental Programme's (UNEPs) *Rio Earth Summit* (Adams, 1993; Khosla, 1995). It was through the discourse of these three pivotal forums that the most common understanding of sustainable development as an operational concept arose. As it was originally understood, sustainable development was considered to involve: a) economic prosperity and b) environmental protection. However, as a result of the heated debates and the numerous international forums, the understanding of sustainable development has grown to include a further feature: c) social advancement.

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The *World Conservation Strategy* (Khosla, 1995; Adams, 1993; IUCN, 1980) was

developed as a formulation of ideas set forth by the IUCN, the World Wildlife Fund

(WWF), and UNEP who outlined environmental problems facing the world at the time of

their writing. The major theme that was developed from this forum was that of

'conservation'. The *World Conservation Strategy* defined 'conservation' as "the

management of human use of the biosphere so that it may yield the greatest benefit to

present generations while maintaining its potential to meet the needs and aspirations of

future generations (IUCN, 1980, p. 9).

Stemming from the *World Conservation Strategy* was the 'Bruntland Commission'

(Bruntland, 1987 & 1991; Adams 1993). The 1987 so-called Bruntland Report offered

by the World Commission on Environment and Development places "elements of the

sustainable development debate within the economic and political context of international

development, and puts environmental issues firmly on the political agenda" (Adams,

1993, p. 211). The literature outlines two key themes within the document (Bruntland,

1987; Adams, 1993; Pelling, 2002). The first relates to the alleviation of poverty as a

means of protecting the environment through sustainable economic growth. It was

argued in the Report that, as a result of poverty, people resort to the degradation of the

environment to ensure the sustenance of their basic needs. Therefore, efforts to stimulate

economic growth, thus reducing poverty, will ensure that negative effects on the

environment are lessened. The second theme incorporates this notion of economic

growth and argues that it can be enhanced with increases in technology, which will also

assist in the preservation of the environment. Technological advancements, in both the

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developed and developing worlds, can lessen environmental degradation through such factors as reduced factory emissions due to increases in efficiencies of productivity. This, in turn, will have an overall positive effect on the environment and on domestic and global economies (Adams, 1993).

The other source of foundational ideas of sustainable development lies in UNEP's 1992 Rio Earth Summit (Pelling 2002; Foster 2003; Finger 2002). During this Summit, 176 of the world's leaders signed five major agreements that directly related to sustainable development: the *Rio Declaration*, the *Biodiversity Convention*, the *Framework Convention on Climate Change*, the *Agreement on Forests Principles*, and *Agenda 21*. As Pelling (2002) argues, two of the most compelling agreements promoting sustainable development were the *Rio Declaration* and *Agenda 21*. The *Rio Declaration* posited that industrialization was the main path to development and subsequent environmental protection. Moreover, it concluded that the nation-state was to be the main agent in the actualisation of this path (Pelling, 2002). *Agenda 21* also outlines sustainable development in a 40-chapter document covering many issues relating to environmental protection and how it is tied to economic growth (Pelling, 2002). Despite the seemingly positive direction encouraged by the *Rio Declaration* and *Agenda 21*, Foster 2003 and Finger 2002 have argued that little actually subsequently changed and that the 1992 *Rio Summit*, as well as the 2002 *Johannesburg Summit*, offered little more than empty promises. This results, they argue, from the fact that there are no binding components of the agreements, which allows many polluting nations to pay lip service only to the outlined agreements of sustainable development (Foster 2003; Finger 2002).

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Although the salient policy direction of sustainable development in its early years clearly

outlined economic growth and environmental integrity as the two fundamental features,

this has since changed. Sustainable development has grown to include *social*

advancements as a third feature (Gilpin, 1996; Onimode, 2004; Markandya, Harou,

Bullù, & Cistulli, 2002; World Bank, 2003 [A]; Luckin & Sharp, 2005; Lehtonen, 2004;

Roseland, 2000). Specifically, we can see this inclusion in the definition offered by the

World Bank which states "that ensuring sustainable development requires attention not

just to economic growth but also to environmental and social issues" (World Bank, 2003

[A], p. 1). Expanding on this understanding is Onimode who states,

> In other words, sustainable development is development that not only
> generates economic growth but also distributes its benefits equitably;
> that regenerates the environment rather than destroying it; that
> empowers people rather than marginalizing them. It is development
> that gives priority to the poor, enlarging their choices and opportunities
> and providing for their participation in decisions that affect their lives.
> Sustainable development is development that is pro-people, pro-nature,
> pro-jobs, pro-women (2004, p. 236).

Clearly the literature regarding sustainable development has undergone a shift and has

become more focused with the inclusion of social concerns. However, what is also clear

in the literature is that this inclusion has added an entirely new area of contention, social

advancements, to an already debatable concept.

2.3 Defining Sustainable Development

As we have pointed out, since its creation in the 1970s the concept of sustainable

development has occasioned great debate in the development community (OECD, 2004;

Lélé 1991; Castro 2004; Bruntland 1991 & 1987; Graf, 1992; Fernando, 2003; Marcuse,

1998; Khosla, 1995). For example, Lélé (1991) describes sustainable development as the

ecological objectives which mutually reinforce traditional development objectives such

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as basic needs. Carlos Castro (2004) on the other hand, suggests that the mainstream understanding of sustainable development was a reaction to the radicalism of the environmental movement. Castro concludes, therefore, that mainstream proponents define sustainable development in terms of economic growth with little focus on the needs of the environment.

The government of Kenya's interpretation of sustainable development reflects that of the international community. In a 1999 sessional paper on the environment and development, the Republic of Kenya states that it "strives along a path of sustainable development to meet the needs of the present generation without compromising the ability of the resources base to meet those of the future generations" (p. 5). As it relates to the environment, the Kenyan government goes on to outline its guiding principles, goals, and objectives as a means of quantifying its commitment to a sustainable environment. Furthermore, the paper illustrates that poverty is a major contributing factor to environmental degradation and the need to tackle it as a prerequisite to sustainable development (1999).

Despite the various understandings of sustainable development, the most common definition, and one which has shaped the understanding of many international organizations and international governments, including Kenya's, stems from the Bruntland Commission (1987). The Bruntland Commission, known widely for its publication of *Our Common Future*, states that sustainable development is "development

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that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Bruntland, 1987, p. 43).

A definition as vague as that of the Bruntland Commission's has invited much criticism from academics in all fields of social science (Adams, 1993; Schuuram, 1993; Redclift, 2002; Prugh & Assadourian, 2003; Stevens & Morris, 2001; Tuts, 1998; Viederman, 1993). Nevertheless, Daly (1996) argues that it is important that the concept of sustainable development not be disregarded, and offers a comparison of the term sustainable development to similar vague terms such as democracy, justice, and welfare. Daly also "claims that sustainable development is at least as clear an economic concept as money itself", further suggesting that if social scientists "reject this concept of sustainable development because it is dialectical rather than analytical, then they should also stop talking about money" (p. 4).

Taking into account all of the above factors, we can state that sustainable development "is meeting the needs of current and future generations through an integration of *environmental protection, social advancement* and *economic prosperity* (emphasis added)" (Department of the Premier and Cabinet, 2003, p. 12).

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2.3.1 Theoretical aspects of Sustainable Development[1]

Although the theoretical background of sustainable development is not a direction that will be taken in this thesis, it is necessary to address it briefly. Along with the discourse surrounding the meaning of sustainable development are concerns regarding its theoretical foundations. Some argue that it is a concept that is too vague in its definition and therefore bears little theoretical foundation (Adams, 1993; Schuuram, 1993; Redclift, 2002). However, the theoretical basis of sustainable development can be placed nevertheless into two camps: Mainstream and Grass-roots. Mainstream sustainable development follows the theoretical lines of modernization and neo-liberalism, where growth is limitless and the market is the key to poverty reduction (Tetreault, 2001). Grass-roots sustainable development, on the other hand, "refers to the direct involvement of local people working to improve their often marginalized situations" (Stevens and Morris, 2001, p. 149). As such, grass-roots sustainable development is argued to fall under the theoretical jurisdiction of Alternative Development (AD). AD is argued to be "socially inclusive, equitable, human in form and scale, sustainable in terms of both the environment and livelihoods, and above all, predicated on community or popular participation" (Parpart & Veltmeyer, 2004, p. 48).

Amongst the various understandings, definitions, arguments, and theories relating to sustainable development, it is important to grasp the basis of policy directions in sustainable development. In this regard, we will begin by turning our attention to the

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[1] For an excellent and in-depth analysis of the theoretical backgrounds of mainstream and grassroots sustainable development refer to D.V. Tetrenult's 2001 Saint Mary's University Master of Arts thesis entitled *Environmental degradation, poverty and sustainable development: A case study of rural Mexico and the community of Aytitlán.*

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definition outlined by the World Bank, which arguably offers the most prevalent and

influential understanding of sustainable development in development practice. For

example, in 2004 the World Bank disbursed some $11 billion USD in project funding

throughout the world, all of which fell under their influence and their particular

understanding of sustainable development (World Bank, 2004 [D]; Wolfensohn, 2005).

Illustrating the World Bank's interpretation of sustainable development will help in

providing an overall understanding of how many multilateral agencies, NGOs, and

governments attempt to shape the underlying focus of their development projects.

2.3.2 The World Bank's Interpretation of Sustainable Development

Much like the Bruntland Commission, Pearce and Warford (1993) in their World Bank

publication see poverty as the major contributing factor that leads to environmental

degradation. Referring to the economies of developing countries they state that,

> in these economies, the trap of environmental degradation and poverty
> prevails: as poverty increases, natural environments are degraded to
> obtain immediate food supplies. As environments degenerate, the
> prospects for future livelihoods decrease: environmental degradation
> generates more poverty, thus accelerating the cycle (p. 48).

However, Pearce and Warford in fact disagree with how the Bruntland Commission uses

the term 'needs' in their definition. Addressing this concern, Pearce & Warford replace

the term 'needs' with 'welfare', thus redefining sustainable development as

"development that secures increases in the welfare of current generations provided that

welfare in the future does not decrease" (1993, p. 49). They go on to express their

definition of sustainable development in the form of a mathematical model:

$$\text{NNP} = \text{GNP} - \text{D}_m - \text{D}_n{}^2.$$

Todaro (2000), a supporter of the Pearce and Warford model, suggests that it does not go far enough. He, therefore, adds to the formula by accounting for expenditures that would occur to introduce a sustainable economy. This model is represented as:

$$\text{NNP} = \text{GNP} - \text{D}_m - \text{D}_n - R - A^3$$

An important feature of these economic formulas is that they see features of the environment, including air, water, soil, etc., as 'goods' that can be given a monetary value, thus allowing for economic formulation and measurement.

The understanding of sustainable development offered by Pearce & Warford and Torado revolves around the concept that in order to obtain sustainable development, poverty must be eliminated through economic growth. This understanding is very much in line with the Bruntland Commission's view of sustainable development. Moreover, it is also affirms the view of the World Bank, which stated in their 2003 World Development Report that, "Any serious attempt at reducing poverty requires sustained economic growth in order to increase productivity and income in developing countries" (World Bank, 2003 [A], p. 1). To allow economic growth to occur, thus reducing poverty, the World Bank, in 1992, outlined the requirements of both the developed and developing countries that would encompass economic growth and environmental stability (1992). These requirements included:

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[2] NNP (Net National Product) equals sustainable national income, D_m is the deprecation of manufactured capital assets, D_n is the depreciation of environmental capital

[3] For this equation, all variables are the same as the Pearce and Warford model; Todaro has added two more variables. R is the expenditure required to restore environmental capital (forests, fisheries, etc). A is the expenditure that is required to avert destruction of environmental capital (air pollution, water quality, etc).

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1. Developing countries need to have access to less-polluting technologies and to learn from the successes and failures of the environmental policies implemented within industrial countries.

2. Some of the benefits from environmental policies in developing countries, for example the protection of tropical forests and of biodiversity, benefit rich countries, who ought to therefore, incur an equivalent part of the costs.

3. Many of the potential problems facing developing countries are a direct result of high consumption levels in rich countries. As such, the burden of finding and implementing solutions should be on the rich countries.

4. Increasing evidence illustrates the links between poverty reduction and environmental goals, thus making a compelling case for greater support for programs to reduce poverty and population growth.

5. The capacity of developing countries to enjoy sustained income growth will depend on industrial countries' economic policies, such as improved access to trade and capital markets, increased savings and lowered world interest rates, and policies that promote environmentally responsible growth in industrial countries (World Bank, 1992, p.25).

Despite the apparent thorough nature of the approaches taken by the World Bank (1992), Pearce & Warford (1993), and Todaro (2000); Daly (1996) disagrees with their conclusions. He argues that approaching sustainable development in a manner that attempts to mimic the consumption patterns of the West is naïve. The consumption patterns of the West, argues Daly, are detrimental in attempting to achieve sustainable development. Moreover, to assume, as the World Bank, Pearce and Warford, and Todaro do, that developing countries can obtain similar sustainable consumption patterns simply by taking into account environmental loss is unfounded (1996). He goes on to state:

> If development means anything concretely it means a process by which
> the South becomes like the North in terms of consumption levels and
> patterns. But current Northern levels and patterns are not generalizable
> to the whole world, assuming anything resembling even our best
> existing technologies without exceeding ecological carrying capacity—
> this is, without consuming natural capital and thereby diminishing the
> capacity of the earth to support life and wealth in the future (p. 4)[4].

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[4] Daly refers to 'carrying capacity' to address the resources made available on the Earth. However, this term has changed and is referred to now as 'ecological footprint'. Specifically, eco-footprint refers to, "a

The World Bank in its 1992 report suggests that economic growth must occur in both the North and the South so that investment opportunities are created and more money is made available to encourage poverty alleviation in the South. Moreover, it is argued by the World Bank and Pearce and Warford that as natural resources are depleted the constraints of scarcity take hold and increases in technology will replace exhausted environmental resources, thus allowing economic growth to be limitless (Pearce & Warford, 1993; Word Bank, 1992 & 2003 [A]). However, the assumption that growth is limitless is one with which Daly takes issue. Daly argues that as a result of environmental constraints, economic growth must be subject to the limitations of natural resources, and therefore cannot be limitless, despite, although important, increases in technology (Daly, 1996).

Instead of suggesting the notion of limitless growth, Daly believes that the solution for the alleviation of poverty and the consequent rise of sustainable development requires three things: population controls, redistribution of wealth, and advancements in the technological process of production (Daly, 1996). Only by tackling these three areas will poverty be reduced and sustainable development become attainable.

In the 2003 World Development Report the World Bank further developed its approach to sustainable development. Although similar assumptions, such as limitless growth and the commodification of the 'commons' are made, many of the concerns of academics,

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resource management tool that measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology (Global Footprint Network, 2005). For more information see http://www.ecofoot.net/

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such as the aforementioned criticisms raised by Daly, are taken into consideration.

Delving into much greater detail than the 1992 report, and clearly influenced by the

MDGs, the 2003 report outlines the responsibilities of the developed world, the

developing world, as well as their joint responsibilities. It also goes on to include issues

of social advancement, a concern that was not properly addressed in the 1992 report.

With these in mind, it can be summarized in the following:

Developing world responsibilities:

- Strengthen institutions
- Better access to assets for the poor
- Increased transparency

Developed world responsibilities:

- Increase and make aid more effective
- Reduce debt
- Open agricultural, industrial, and labour markets
- Improve developing countries access to technology and knowledge

Joint responsibilities:

- Governments can improve the accountability of public agencies and the provision of information about social and environmental conditions
- Civil society organizations can help to aggregate the voices of dispersed interests and provide independent verification of public, private, and nongovernmental performance. Academia needs to be recognized as a key actor in learning, monitoring, and evaluating.
- The private sector can advance economic, social and environmental objectives by helping to construct a framework that provides appropriate incentives for firms to be accountable in all three dimensions (Chapter 9, p. 20-21).

This list of responsibilities illustrates a change in direction expected by the World Bank

from both the developed and developing worlds to allow the most desirable foundation of

sustainable development to be laid.

2.3.3 Millennium Development Goals

The MDGs were important in shaping the policy direction of the 2003 World Bank report

and how the World Bank now approaches sustainable development. On September 18th

2000 the United Nations General Assembly brought forth the United Nation Millennium

Declaration which outlined eight objectives through which the 191 members of the

United Nations made a comment (UN, 2000). Although what is outlined in the original

decree of the UN General Assembly bears little resemblance to what has been

popularized as the MDGs, the essence of the declaration still remains. Specifically, each

of the 191 United Nations members made a non-binding commitment to achieve eight

different development goals by 2015 and 2020. These include:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and promote women
4. Reduce child mortality
5. Improve mental health
6. Combat HIV/AIDS, malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development (UN, 2005)

On the surface these goals seem rather vague and lacking in any specific direction.

However contained within each are specific targets. For example, the Targets of Goal

Seven include:

9. Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources
10. Reduce by half the proportion of people without sustainable access to safe drinking water
11. Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020 (UN, 2005).

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Although there are arguably still many vague qualities with the specific targets of Goal

Seven, they nevertheless provide a superior sense of direction of where agencies involved

in development should focus their attention.

The MDGs have attracted many supporters (UN, 2000 & 2005; UNDP 2006 [B]; World

Bank, 2004 [B]; CIDA, 2005; United Nations Millennium Project 2005) all of whom

stress the importance of following the guidelines of the goals and, most importantly, of

achieving them. Specifically, the Millennium Project states:

> The Millennium Development Goals (MDGs) are the world's time-
> bound and quantified targets for addressing extreme poverty in its many
> dimensions —income poverty, hunger, disease, lack of adequate shelter,
> and exclusion—while promoting gender equality, education, and
> environmental sustainability. They are also basic human rights—the
> rights of each person on the planet to health, education, shelter, and
> security as pledged in the Universal Declaration of Human Rights and
> the UN Millennium Declaration (p.1).

Supporters of the MDGs further illustrate the possible benefits of achieving the MDGs

suggesting that by 2015 350 million more people will have access to drinking water, 650

million people will have access to basic sanitation, and 500 million people would be

lifted out of extreme poverty (UN Millennium Project, 2005).

Jeffrey Sachs, a renowned development economist, outlines his own support for the

MDGs which he has had a hand in developing (Sachs, 2005). He argues that they

> state real goals that provide not only benchmarks for aid but also
> milestones for assessing the advice of the international agencies as
> well. The failures to meet the MDGs are failures of rich countries as
> well as the poor, since both are responsible for their success" (p.82).

Illustrating the MDGs importance, Sachs uses them as a "midway station in 2015" for his

own 2025 poverty elimination plan, suggesting that if governments make investments

now in the MDGs they will ultimately have to spend less on development in the future

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(Sachs, 2005, p. 364). Although Sachs is supportive of the MDGs, he also understands the empty promises of the past. Specifically, he points to pledge promises of 0.7 percent of GNP by the OECD countries and the 1978 global pledge of "Health for all by 2000", both of which have failed to materialized (Sachs, 2005).

The overarching nature of the MDGs gives rise among academics to many different concerns. The approaches to overcome these concerns and achieve the MDGs differ dramatically, varying from increased funding (Sachs, 2005; Addison, Mavrotas and McGillivray, 2005), improving access to water and sanitation (Mwanza, 2003), improving human resources (Dreesch et al, 2005), or increasing access to health (Simwaka, Theobald, Amekudzi, & Tolhurst, 2005). However, one concern that is consistent among many academics is that without major changes in the way the MDGs are being approached by both the developed and developing worlds, they will not be achieved, especially in sub-Saharan Africa, detracting greatly from any form of sustainable development.

2.4 Community-Based Development and Sustainable Development

Community-based development – and the understanding of sustainable development that is associated with it – arises out of the field of Alternative Development, which was first conceptualised in 1974 by the Dag Hammarskjöld Foundation for Alternative Development (Petras & Veltmeyer, 2000, p. 20). Alternative Development theorists oppose mainstream development due to its inability to improve significantly the lives of the poor. It is argued by alternative development theorists that mainstream development,

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instead of working towards the eradication of inequalities, promotes inequalities through its project, which is exemplified in the notions of peripherally, marginality, exclusion, and powerlessness (Parnwell, 2002). Alternative development theorists criticize the 'top-down' nature of mainstream development, which is characterized by generally-defined and broad-based programs that are being executed in a variety of settings without regard to the specific needs of the community in which it is being implemented. As Parnwell (2002) states, "large-scale, universal, government-driven national programmes of (especially rural) development frequently fail to meet the particular needs and wants of local communities, and are only rarely tailored to local conditions and contexts" (p. 115).

In response to this 'failure' of mainstream development, alternative development theorists support the concept of community-based development, which aims to place the project of development within the community. Instead of having a development program implemented by a national government or international aid agency as is the norm in mainstream development projects, the program is implemented at the community level. Community-based development practices thus enable the community itself to define, implement, direct, and evaluate the progress rather than having an outside body govern the project (Parnwell, 2002). This form of development is often referred to as 'development from the bottom-up' as it is deemed to be decentralized and thus specific to the particular needs of the local community (Parnwell, 2002).

Community-based development is a term that describes projects which include community members who are actively involved in the design or management of

development projects (Mansuri & Rao, 2004). As such, Mansuri & Rao argue that community-based development is comprised of three core features which determine its framework: participation; community; and social capital (2004).

2.4.1 Participation

Participation is seen by many as a positive step towards more effective and inclusive development (Chambers, 1983 & 1992; World Bank, 1992 & 1996; OECD 1991; UNDP 2005; UNDESA, 1987). It has led to the development of such research techniques as Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA), and Participatory Action Research (PAR) (Chambers, 1983 & 1992; Gatenby & Humphries, 2000). Addressing the term 'participation', the World Bank (1996) argues that it is "a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them (p. xi). Based on this definition and similar ones, it is further argued that participation is a positive tool that allows marginalized members of a community to have a say in the development programs that are undertaken in their area (UNDESA, 1987). In addition, participation is seen as valuable in enabling women to gain a voice in the decision making processes (Yaya Mansaray, 2004). The World Bank furthers the positive impact of participation by citing three main advantages: "(a) they give planners a better understanding of local values, knowledge, and experience; (b) they win community backing for project objectives and community help with local implementation; and (c) they can help resolve conflicts over resource use" (World Bank, 1992, p. 93).

Mansuri & Rao (2004) and Cleaver (1999) observe the benefits of participation, including inclusiveness and active involvement, but are quick to point out its many problems. Specifically, Cleaver argues that participation has "become an act of faith in development; something we believe and rarely question" (p. 597). Mansuri & Rao outline three critical areas in which participation can serve as a deterrent to efforts for sustainable development. First, participation can mean financial loss for those involved, in particular women, because the time they spend participating takes away from their time spent earning money (Mansuri & Rao, 2004; Cleaver, 1999). Second, it is argued that participation enlists the poor more so than the rich, leaving much of the development burden on the poor. Third, it is argued that participation does little to put pressure on governments to change the structures that caused much of the poverty in the first place. Instead, it leaves the poor with new pressures and responsibilities without the necessary changes to the structures that impoverished them in the first place (Mansuri & Rao, 2004, Cleaver, 1999). A further concern raised by Cleaver suggests that the democratic nature of participatory methodologies may not be in concurrence with local traditions and practices, which, in turn, could limit the actual involvement of the neediest people (Cleaver, 1999).

2.4.2 Community

The concept of community is a broad idea, but is one that has become the focus of many sustainable development projects. In much of the literature the term 'community' is used indiscriminately, typically referring to geographical boundaries. As is argued by Mansuri & Rao,

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> Most of the literature on development policy uses the term community
> without much qualification to denote a culturally and politically
> homogenous social system or one that at least implicitly is internally
> cohesive and more or less harmonious, such as an administratively
> defined locale (tribal area or neighborhood) or a common interest group
> (community of weavers or potters)" (2004, p. 8).

Cleaver adds to this by outlining his concerns with the concept of 'community',

suggesting that there "is a strong assumption in development that there is one identifiable

community in any location and that there is a co-terminosity between natural (resource),

social and administrative boundaries" (Cleaver, 1999, p. 603). To further his point, he

cites examples of village members in Zimbabwe where administrative boundaries were of

little consequence when it came to issues of wealth, resource use, and social arrangement,

thus negating the boundary concept of community (Cleaver, 1999). He also argues that

relationships within households and associational activities, such as churches, can have a

far wider reach and involve more meaningful relationships than 'communities' (Cleaver,

1999).

According to O'Malley (2004), the notion of community is problematic as it can be

defined at best as a "fanciful indulgence in wishful utopian thinking and at worst as an

ideological conception of specious solidarity used to obscure fundamental structural

inequalities or the objective conditions of social class" (p. 275). In this critic's opinion,

the concept of 'community' and community-based development is used as a 'fashionable

term' that is useful in reducing potential conflicts and promoting political stability by

giving communities the appearance of making a contribution to the development process.

Unfortunately, this appearance does nothing to transform the structure that is causing the

poverty within the community in the first place (O'Malley, 2004).

Acknowledging these concerns, it is nevertheless hard to argue that some form or type community does not exist in a given area. It is therefore necessary to gain a clear understanding of what is being said with regard to the make up of a 'community' as it is clearly a fundamental component of CBD.

For many sociologists, the idea of community is typically defined as a village or small town where there are *associations* between humans (Almgren, 2000). It is the term 'association' that distinguishes this understanding from many others and is defined as "intimate, familiar, sympathetic, mutually interdependent, and reflective of a shared social consciousness" (Almgren, 2000, p. 362). However, associations are only one element of community according to Zimmerman. She also cites elements of social action, definite and compact geographical areas, and unique qualities as further factors which define the term 'community' (1938).

In her book, which attempts to outline the various types of existent communities, Scherer (1972) argues that although 'community' is a difficult concept to define, the naïve assumption that "men live alone, or in meaningless social aggregates, is not only unrealistic, but also indicative of a kind of sociological blindness" (Scherer, 1972, p. 118). Refusing to accept that 'communities' do not exist, Scherer outlines four structures which communities can take. The first is social networks in which individual persons develop relationships that are a sum of their choices and personal characteristics. Secondly, she outlines synthetic communities which are argued to be those that are built

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consciously and deliberately. A third forum of community are 'hybrids' which entail

organizations that adopt characteristics of a community to "become more community-

like" (Scherer, 1972, p. 121). Lastly, she describes temporary communities that are

established for a weekend, a week, or a few months, but which dissolve after a short-time

(Scherer, 1972).

The term 'community' is clearly a difficult concept which takes many different forms,

each offering their own advantages and drawbacks. However, what the literature

demonstrates effectively is that awareness is necessary to determine what constitutes a

'community' in a given area as well as the need to delineate who are beneficiaries within

the defined community.

2.4.3 Social Capital

Although the term 'social capital' was first coined by Loury (1977), it was the works of

James Coleman (1990) and Robert Putman (1995) that brought it into mainstream

thinking. For Loury, social capital occurs through social relationships that are created by

individuals so that individuals can make the best use of their resources for their own

benefit. However, Coleman (1990) argues the contrary, stating that it is unrealistic to

assume that individuals act in a void of independent social relationships. He articulates

this by demonstrating the flaws of the presumed reality that is consistent with classical

and neoclassical economic thinking. He states,

> [t]his fiction is that society consists of a set of independent individuals,
> each of whom acts to achieve goals that are independently arrived at,
> and that the functioning of the social system consists of the
> combination of these actions of independent individuals (p. 300).

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Instead Coleman argues that "individuals do not act independently, goals are not independently arrived at, and interests are not wholly selfish" (p. 301). Therefore, Coleman sees social capital to comprise of trust, reciprocity, and networks of civil engagement. These factors must be present in both *horizontal* relationships (between communities), which creates a sense of purpose and identity within the community, as well as *vertically* (between social divides, such as socioeconomic status and religion), which allows broader and more effective *horizontal* relationships to occur (Coleman, 1990; Markandya, Harou, Bullù, & Cistulli, 2002).

Adding weight to the arguments surrounding social capital is Putman (1995) who put forward a much narrower view than Coleman. In his 1995 article "Bowling Alone: America's declining social capital" in the *Journal of Democracy*, Putman suggests that only *horizontal* associations need to be accounted for to understand and pursue social capital. These associations include: social networks and norms that influence productivity as well as the well-being of a community (Putman, 1995; Markandya, Harou, Bullù, & Cistulli, 2002). Although Coleman and Putman blazed the trail of literature on how to address social relationships, it is evident that considerable ambiguity still remains. As a result of the vague nature of what is considered to comprise social capital, debate has arisen with regard to its meaning and applicability in social sciences.

While social capital is a widely accepted feature of not only community-based initiatives, but also sustainable development, it has been defined differently by various authors (Coleman, 1990; Putman, 1995; Fukuyama, 1999; Markandya, Harou, Bullù, & Cistulli,

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2002; World Bank, 2003 [A]; Glaeser, Libson, & Sacerdote, 2002; Office for National

Statistics, UK (2003); OECD, 2001). For example, Fukuyama (1999) defines social

capital as, "an instantiated informal norm that promotes cooperation between two or more

individuals" (p. 1). The OECD (2001), on the other hand, defines social capital as

"networks together with shared norms, values and understandings that facilitate co-

operation within or among groups" (p. 41). Despite the differences in the definitions,

there is a basic premise for social capital. As Coleman argues, the values of trust,

reciprocity, and sharing must be evident (The Economist, 2003; Office for National

Statistics, 2005).

The vague formulations of social capital in terms of trust, reciprocity, and sharing also

demonstrate a difficulty in conceptualising and applying measures to it (OECD, 2001;

Gleaser, 1998; Markandya, Harou, Bullù, & Cistulli, 2002; World Bank, 2003 [A]).

Again, however, despite this apparent problem, Gleaser (1998) argues that social capital

plays an important role in the social sciences. He observes:

> Social capital variables are surely correlated with many important
> unobservable characteristics that could be driving the observed
> relationship. While this annoying cynic would be right, he would also be
> missing the point. We are only at the beginning of research on this topic,
> and social scientists have already made a strong case that social capital
> is extraordinarily important in many domains (p. 1).

More deserving criticisms of social capital relate to the fact that it does not account for

unequal distributions of power. This concern is argued by Beall (1997) in his case study

example of community-based SWM in Bangalore, India. In applying the concept of

'social capital', he argued that the CBO failed to acknowledge issues of power within the

community. As a result of this, he was able to observe the struggles that emerged and

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endured within the community and which, in turn, diminished the community's ability to provide effective leadership for SWM (Beall, 1997). He goes on to point out arguments made by Levi which suggests that "a focus on power renders Putnam's (1993) distinction between vertical and horizontal networks inadequate and his celebration of horizontal networks as hopelessly over romanticized" (Beall, 1997, p. 957).

A further criticism suggests that promoting social capital only services to further 'disempower' the poor as it legitimises the decentralizing practices of the state which only serves to promote their poor *vertical* social networks (Lehtonen, 2004). Furthermore, it is argued that failing to recognize these concerns will only serve to detract from the implementation of sustainable development practices and hinder the development of already fragile countries (Lehtonen, 2004).

2.4.4 Capacity building/development[5]

An important feature of the third component of sustainable development, social advancement, is capacity building. Capacity building can be traced back to many of the popular topics of the 1970's, including 'empowerment', community development, and international aid and development (Crisp, Swerissen, & Duckett, 2000). From this origin, it has become a term that has been applied to many academic and professional disciplines, including health, business, and international development, to help explain and determine the tools required to improve efficiency and effectiveness. As a result, the term 'capacity building', or capacity development as it is sometimes known, has

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[5] The term 'capacity building' is now, slowly becoming known as 'capacity development', and are therefore used interchangeably in our discussion.

developed various meanings (Loza, 2004; Crisp, Swerissen, & Duckett, 2000). Loza

(2004) recognizes this point when he states,

> While it is neither a new term nor a new approach, capacity building
> definitions and approaches are divergent and wide-ranging and there is
> no one formula or single approach for building the capacity of
> community organizations and thus the communities that they service (p.
> 301).

Crisp, Swerissen, & Duckett (2000) agree with Loza when suggesting that, "while there

has been recognition for some time that capacity building is not a unitary term, much of

both the academic literature and policy documents concerned with this topic are

seemingly oblivious of this fact" (p. 99). Despite these obvious criticisms, both Loza and

Crisp, Swerissen, & Duckett, along with others, recognize the importance of capacity

building as a necessary feature that can add to a community's social advancement and be

an effective tool for sustainable development (2004; 2000; CIDA, 2001; World Bank

2006; UNDP, 2006 [A]; Kirk & Shutte, 2004; Republic of Kenya, 1999; Nwanko &

Oyinade, 1998; Edoho, 1998, Schuftan, 1996).

Turning to define capacity building as it relates to development, we see that, according to

the World Bank, capacity is defined as "the ability of people, organizations and society as

a whole to manage successfully their affairs" and capacity development as "the process

whereby people, organizations and society as a whole unleash, strengthen, create, adapt

and maintain capacity over time" (Capacity Development Resource Center, 2006).

CIDA defines it as "building capacity, which means helping women, men and children in

developing countries, their communities and institutions, to acquire the skills and

resources needed to sustain their own social and economic progress" (CIDA, 2001).

Although the World Bank and CIDA offer their interpretations of capacity development,

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UNDP stresses its own understanding as an approach that will help achieve the MDGs. They state capacity development as follows,

> Capacity is the ability of individuals, organizations and societies to perform functions, solve problems, and set and achieve goals. Capacity Development (CD) entails the sustainable creation, utilization and retention of that capacity, in order to reduce poverty, enhance self-reliance, and improve people's lives (2006).

The importance of capacity building, especially as it relates to sustainable community development, is argued by Schuftan (1996) when he states that "[c]apacity building can be characterized as the approach to community development that raises people's knowledge, awareness and skills to use their own capacity and that from available support systems, to resolve the more underlying causes of maldevelopment" (p. 261). He further suggests that capacity building is an important tool in helping communities better understand decision making processes, thus allowing them to communicate more effectively, not only with each other, but with levels of government, NGOs, and international donors. Creating the capacity for this will, therefore, instill a greater confidence and an increased aptitude in managing community-based projects (Schuftan, 1996). This point is echoed further by Edoho (1998) who suggests that capacity building has been the missing link from African development. This is because he sees "a shortage, in almost every area, of local skills and institutions so vital to sustain development" (p. 228).

Capacity building is also seen as an important component of SWM. Henry, Yongsheng, & Jun (2005) outline problems such as a lack of education about solid waste and poor municipal government policies in Kenya as issues that needs to be addressed to improve capacity. Similarly, Zurbrügg, Drescher, Patel, & Sharatchandra (2004) argue that

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accountability and transparency, involvement, and the knowledge and techniques

involved in composting are lacking with municipal authorities, which strongly affects

community-based efforts. van de Klundert & Anschütz (2001) tackle the issue of

capacity by formulating a seven step plan to address and integrate effective SWM

programs for municipalities in developing countries.

2.4.5 Waste

For a practical understanding of waste and its relation to sustainable development, we can

turn to *Agenda 21*. Specifically, *Chapter 21* within the Agenda outlines both prescriptive

and descriptive measures as a means of relating sustainable development to the problems

of SWM. It defines solid waste and solid waste management as:

> [A]ll domestic refuse and non-hazardous wastes such as commercial and
> institutional wastes, street sweepings and construction debris. Environmentally
> sound waste management is concerned not just with safe disposal or recovery
> but also with the root cause of the problem, such as unsustainable production
> and consumption patterns (UNCSD, 2004, Chapter 21).

Although *Agenda 21* offers a concise and practical definition of solid waste it is

important to take it a step further. To many, waste is simply what we discard and has

little or no value. However, as is evident in the developed world through garage sales

and flee markets, and in the developing world through land fill scavengers and waste

recyclers, what one person discards as waste with no value, may in fact, hold value for

another person (van de Klundert & Anschütz, 2001)

Lynch (1991), argues that waste is:

> [W]hat is worthless or unused for human purpose. It is a lessening of
> something without useful result; it is loss and abandonment, decline,
> separation and death. It is the spent valueless material left after some
> act of production or consumption, but can also refer to any used thing:

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garbage, trash, litter, junk, impurity and dirt. There are waste things,
waste lands, waste time and wasted lives (p. 146).

Although the definition outlined by Lynch suggests that he sees no value in waste, it is

evident in other sections of his book that this is not the case. For example, under his

broad understanding of waste, he is able to outline various types of 'sacred waste',

including rituals parsing dirt and human excrement that demonstrate its perceived value

(Lynch, 1991). A further example given is that of 'junk' which has been turned into art

or has been reused as a means of creating value in the eyes of another (Lynch, 1991).

Therefore, is can be concluded that, despite the premise of Lynch's definition of waste,

that it lacks value, he has demonstrated that to some degree, value can be perceived in

any type of waste.

Thompson (1979) suggests that for society to be maintained there have to be agreed upon

measures of value. Although people of different cultural backgrounds may value

different things or similar things differently, what is maintained is a distinction between

what is valuable and valueless (1979). To distinguish between these, Thompson

articulates three main categories: *'transient'*, *'durable'*, and *'rubbish'* (1979).

'Transient' objects are those that deteriorate over time and have a defined life-span.

'Durable' objects are those that, "increase in value over time and have (ideally) infinite

life-spans" (p. 7). *'Rubbish'* is considered to be objects that have zero value. Although

the three categories seem straightforward in their meaning, there is an important caveat to

be discerned with 'transient' waste. It is argued that although 'transient' items decline in

value over time they do not inevitably move into the zero-value category of rubbish

because a 'transient' object may still hold perceived value if discovered by someone who

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assigns it value and thus can fall into the 'durable' category (1979). This idea relates particularly to the efforts of scavengers and recyclers in the developing world, who reassign value to 'transient' objects.

What can be understood from the arguments presented by both Lynch and Thompson is that many different types of waste exist. Furthermore, it has been argued that the various types of waste can be assigned worth, depending on a perceived or under-perceived value. These arguments provide an important basis by which waste must be seen and approached in this thesis.

2.5 Sustainable community-based SWM

There is a high amount of support for the use of community as a source to promote sustainable development and its projects (Odediran, 2004; Veale, 2000; Luckin & Sharpe, 2005; World Bank, 2003 [A]; Gaye & Diallo, 1997; Asomani-Boateng, 1996). For example, Odediran (2004) feels that CBOs are the way forward when it comes to development and development initiatives. Odediran (2004) argues that "sustainable development and the empowerment of communities are mutually dependent. Communities should determine their own needs, control the course of their own lives, manage their resources and gain access to services to which they are entitled" (p. 170). Moreover, Luckin & Sharpe state that sustainable development "implies that social, economic and environmental objectives can – and should – be delivered together, and that they can be achieved through enhanced community participation" (2005, p. 62).

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Referring back to *Agenda 21*, important features of community-based development

initiatives are directly related to sustainable development. *Chapters 24, 27*, and *28*,

articulate the roles of women, non-governmental organizations (NGOs), and roles of

local authorities, respectively. Making specific reference to *Chapter 28*, it outlines the

requirements of *Localizing Agenda 21*, which according to Tuts 1998) includes,

> supports the development and implementation of broad based
> environmental action plans that focus on context-specific aspects of
> municipal planning and management. The programme enhances the
> capability of local authorities to integrate these action plans into a
> strategic structure plan, stimulate intersectoral synergy, draw attention to
> cross-cutting issues and fulfill the local authority's pivotal role between
> all public and private local development actors (p. 176).

Localizing Agenda 21, and the other related chapters, offer necessary guidelines related to

components of community-based development. These guidelines are directly tied to the

application of sustainable development and further illustrate the perceived importance of

community-based initiatives.

Demonstrating the benefits of community-based directives as they relate to SWM and

sustainable development is the United Nations Economic and Social Council's (UNESC)

report on sustainable human settlements and environmentally sound management of solid

waste (2001). Linked to *Agenda 21*, it reviews the accomplishments of community-based

SWM in developing countries as a means of creating sustainable human settlements.

Further multilateral agencies (IADB, 2003; Schübeler, 1997; World Bank 2004 [D];

Commonwealth Consultative Group on Environment, 2004) add to the debate regarding

the role of community-based SWM and how it can help in achieving waste management

and sustainable development goals.

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Added to the multilateral interpretation of community-based SWM are recommendations put forth by various academics. Otieno & Wandiga (2000) suggest that private/public partnerships have the ability to act as effective tools for communities in Kenya to meet their SWM sustainable goals. Others add to this discussion by suggesting ways to improve communities through sustainable SWM methods, such as composting, recycling, and reusing waste (Baud, Grafakos, Hordijk, & Post, 2001; Zurbrügg, Drescher, Patel, & Sharatchandra, 2004). In a specific example, Asomani-Boateng (1996) argues that community-based composting efforts in Ghana's capital city of Accra have helped to dramatically reduce the amount of waste going to the land fill. This has been calculated to be upwards of 60% less waste, and has also created new employment opportunities for local residents.

Looking at community-based SWM more closely, some authors suggest it is a means of 'picking up the slack' left by the inability of national and municipal governments to adequately deal with solid-waste problems (Ali, 2003; Bartone, 1986; Smith-Korfmacher, 1997). These same articles describe the different types of waste which is currently being disposed of, such as plastic, cans, and biodegradable items. With this in mind, one of the roles of community-based SWM programs, according to the authors, is to educate citizens about the varying types of waste they are producing and how their waste can be reduced and/or reused. This allows community members to tackle issues of excess waste in a more sustainable manner, as opposed to burning it or throwing it into the landfill. Furthermore, it permits the separation of waste produced at the household level, thus

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making SWM more effective and efficient (Ali, 2003; Bartone, 1986; Smith-Korfmacher, 1997; Lynch, 1991).

Although there is considerable support for a community-based SWM approach as a means to promote sustainable development, there are also many critics (Patteau & Gaspart, 2003; Beall, 1997; Mansuri & Rao, 2004; Edelman, 2001, UNDP, 1997). Specifically, reports by the UNDP outline their LIFE initiative (Local Initiative Facility for the Urban Environment), which grew directly from the 1992 Rio Earth Summit (UNDP, 1997). This initiative addresses the practical applications of various projects which took place in Lebanon, Egypt, and Tanzania. Problems such as the lack of recycling facilities in the areas in which the project was being conducted negatively affected the community's efforts and resolve. This meant that the projects, although they had collected and separated the waste into various divisions, including plastics, metals, and non-recyclables, had no place to sell or even give away their waste products, thus forcing the community group to leave their items in the landfill, negating the very purpose of the project (UNDP, 1997). A further problem addressed which illustrates a limitation of the community-led organization, was the overall lack of available resources. For example, the LIFE program provided minimal funds, equating to a maximum of $25,000 USD per project. This required the community groups to secure funding from outside sources, thus placing many unnecessary constraints on their abilities to perform the project tasks as much of their effort was spent securing outside sources of funding (UNDP, 1997).

Further criticisms levied by many authors argue that community-based directives simply serve the rich and fail to address the structural issues that keep the poor in their disempowered position. This is a result of local elites 'seizing' power in the CBO, and utilizing the benefits generated and money invested to their own gain (Platteau & Gaspart, 2003; Mansuri & Rao, 2004). Another criticism is that for many CBOs to be sustainable in their own right, they rely heavily on outside sources of funding, whether it is from the government or international donors. This reliance detracts from the independent nature of the CBO due to this outside influence, which in turn, compromises the very foundation that many CBOs rest upon (Mansuri & Rao, 2004).

2.6 The Environmental, Economic, and Social Aspects of Community-based SWM

There is clearly a debate regarding the effectiveness of community-based SWM as a means for promoting sustainable development. From this discussion, it must be understood how community-based SWM is found to relate to the three primary factors of sustainable development: the environment protection, economic prosperity, and social advancement. Doing so will help to focus more narrowly the approach taken in this thesis, thus furthering the understanding of community-based SWM as a possible tool to promote sustainable development.

2.6.1 The Environment and Community-based SWM

Smith, Corvalán, & Kjellström (1999) argue that negative environmental factors, such as excess waste and unsanitary living conditions, play a major role in the ill health of people around the world. They estimate that 25-33% of global diseases can be attributed to risk

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factors associated with the environment (Smith, Corvalán, & Kjellström 1999). These conclusions are elaborated upon further in a 1997 World Health Organizations (WHO) report which looks at the health, the environment, and sustainable development. The report makes thirteen conclusions regarding the importance of these three factors, some of which include:

- Environmental quality is an important direct and indirect determinant of human health.
- Major challenges to sustainable development are posed by mismanagement of natural resources.
- Global environmental change has great implications for health, particularly that of the poor.
- Lack of basic sanitation, poor water supply and poor food safety contribute greatly to diarrhoeal disease mortality and morbidity (WHO, 1997, Pp. 35-36)

Added to the recognition of the need for an improved environment, is the Inter-American Development Bank (IADB) Report (IADB, 2003) which looks at issues of SWM and its relation to sustainable development in Latin America and the Caribbean. The authors of the Report argue that improvements to SWM would help millions of people, with particular reference to health, because of the environmental improvements that would naturally follow. Additional literary sources discuss the need for urban planning (Schübeler, 1997) as well as for sustainable human settlements, in which SWM, the community, and the resulting environmental benefits play a major role (UNESC, 2001, UNEP, 2003).

2.6.2 Economic growth and community-based SWM

When dealing with economic growth and community-based SWM it is important to recognize the difference between the formal and informal sectors. This is because many

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of the activities that take place within CBOs take part in the informal sector of the economy, and thus would not be counted in official statistical data with respect to economic growth. Determining the differences between the two and outlining the nuances of the informal economy will provide a more narrowed focus to help illustrate whether economic growth is occurring or not.

2.6.2.1 Formal and Informal sectors

Both the formal and informal sectors play a major role in the national economies of developing countries in the services they provide and products they produce. The relevance of these two sectors to the economic contribution of community-based SWM is made clear in much of the relevant literature (Vincentian Missionaries, 1998; Ali, 1998; Beall, 1997; van de Klundert & Lardinois, 1995; Ojeda-Benitez, Armijo-de-Vega, & Ramý´rez-Barreto, 2002; Agarwal, Singhmar, Kulshrestha, & Mittal, 2005). The formal sector can be simply defined as "salaried or wage-based work registered in official statistics" (Miller, Van Esterik, & Van Esterik, 2004). Although this is a simple approach to what encompasses the formal sector, it clearly delineates the key factor which is that a business or organization be 'registered' by an official authority.

The concept of the informal sector is much more complicated. The term was first coined by the International Labour Organization (ILO) in 1972 in its Kenya Mission Report. In that report, the ILO defined the informal sector as being characterized by "(a) ease of entry; (b) reliance on indigenous resources; (c) family ownership; (d) small scale operations; (e) labour intensive and adaptive technology; (e) skills acquired outside of the

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formal sector; (g) unregulated and competitive markets" (ILO, 1972 cited by the World

Bank, 2005 [A]). The ILO report was an attempt to recognize a sector of the economy

that was not appearing in the official statistics despite the fact that it constituted such a

large proportion of the economic activity occurring in developing countries (Todaro,

2000). Current estimates for the amount of the labour that is involved in the informal

sector ranges from 30% to 70%, with the average being around 50% for most developing

countries (Todaro, 2000)

With the diverse nature of the informal sector and the difficulty encountered in measuring

it, grasping what it encompasses, and what social and economic actors are included in it

becomes a contentious issue. Morrision (1995), argues that it can be defined by three

criteria: (1) its size, where informal businesses are restricted to self-employed and micro-

enterprises with less than 10-20 employees; (2) its legal informality, where informal

enterprises are not registered and are not forced to comply with legal obligations

concerning safety, taxes, labour laws, etc; and (3) its limitations on the physical and

human capital allocated per worker. The World Bank offers a further understanding of

what the informal sector encompasses: (1) Coping strategies, that include casual jobs,

temporary jobs, unpaid jobs, subsistence agriculture, multiple job holdings; and (2)

unofficial earning strategies. The latter category has two components that are: tax

evasion, avoidance of labor regulation and other government or institutional regulations,

no registration of the company; and second, underground activities, for example, crime,

corruption - activities not registered by statistical offices (World Bank, 2005 [A]).

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2.6.2.2 Informal community-based SWM and economic growth

It is an important datum for any research on SWM that in many cases, it is the informal

sector that creates opportunities out of discarded waste, thus contributing to the overall

goals of a sustainable development agenda (Wilson, Velis, & Cheeseman, 2005).

In the literature there are examples of turning waste into resources from throughout the

world. For example, in the Philippines, peasants who were landfill scavengers were able

to generate income through the reuse and sale of solid waste (Vincentain Missionaries,

1998). Moreover, some of these peasants were able to generate enough wealth from their

informal business so that they were able to hire employees (Vincentain Missionaries,

1998). In India and Ghana, the reuse of biodegradable resources has been illustrated as

an effective means of not only creating income through the sale of compost safe for use

in subsistence and agricultural farming, but also as a means of decreasing levels of waste.

This is important when considering the fact that developing countries produce upwards of

50-70% biodegradable waste (Zurbrügg, Drescher, Patel, & Sharatchandra, 2004;

Asomani-Boateng, Haight, & Furedy 1996). Further examples of wealth generation

through informal community-base SWM are highlighted by many other authors (Ojeda-

Benitez, Armijo-de-Vega, & Ramirez-Barreto, 2002; Agarwal, Singhmar, Kulshrestha,

Mittal, 2005; Wilson, Velis, & Cheeseman, 2005; Gaye & Fodé Diallo, 1997).

2.6.3 Social capital, Capacity Building, and community-based SWM

Our review of the relevant literature up to this point has already delineated the

contentious nature of the term 'social capital' and it has demonstrated its relevance when

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discussing community-based projects. This thesis will, therefore, address the relationship of social capital and capacity building, as it relates to SWM, as the factors impacting on the social advancement component of sustainable development.

A study done in Dhaka, Bangladesh attempted to quantify and relate the importance of trust, reciprocity, and sharing to efforts of community-based SWM (Pargal, Gilligan, & Huq, 2000). The results of the study indicated that municipal government's efforts to improve the social capital by increasing capacities, such as partnerships and knowledge transfers, helped to instill more efficient and effective approaches to community-based SWM (Pargal, Gilligan, & Huq, 2000).

Although there is very little else written directly relating the intersection of social capital and SWM, suggestions as to their mutual influence has arisen from various other studies. Sultana and Thompson (2004) argue that capacity was improved upon in both Bangladesh and the Mekong Delta in Vietnam. Their study involved local fishers who, through their improved capacity of knowledge transference, were seen to have an overall improvement in their social capital. It was argued that by allowing each of the fishers to express their concerns and ideas on how to improve the local fishery to various interested parties, social capital, trust and sharing, was increased through the creation of a more involved and more cohesive community.

Phillips (2002) is another author who argues the importance of social capital and its relation to effective and sustainable community initiatives. However, she maintains that

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it is not just the capacity of the community that will lead to improved social capital, but

improved capacity of the measure and understanding of social capital as a concept. She

therefore suggests six areas of focus, which include:

1. Identify, understand, and support current social capital in the community
2. Improved capacity in research and support mechanisms for social capital
3. Understand the relationships of social capital to local economic, social, and
   political concerns
4. Improve the capacity of community members to understand their social capital
5. Improve resources available to community members
6. Improved indicators of social capital (p.147-148)

Beall (1997), whom we have already referred to above, offers a more presistent voice of

scepticism about the importance and role of social capital as a useful measure. To

illustrate this position, the author uses examples of community-based SWM programs

from India and Pakistan. He determines that within these groups there occur clear

differences of power, varying access to different capacities, which raise major issues over

the improvement of social capital. Beall argues that "differences in access to resources

and the power structures involved cannot be ignored. These include both the micro-level

power of dealers over children; house-holders over waste collectors and rich neighbours

over poor" (p. 957). From this, three main areas of concerns are outlined: First, social

capital is based on a group and not individuals, so that issues of who is included in the

groups need to be addressed; second, past developmental factors need to be understood as

a possible contributor to the current status of social capital; and lastly, the idea that an

increase in social capital will benefit the development of a local community cannot be

assumed.

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2.7 Conclusion

Surveying the literature that surrounds sustainable community-based SWM has brought

to light many issues for debate. These issues include: defining sustainable development;

its relation to community-based development and community-based SWM; and the issues

that pertain to the three major areas of concern within sustainable development

(environment, economic, social). Attaining an overview of the points of contention

within the literature has served to further strengthen the framework of study and allows

us to proceed with an outline of the case-study.

Chapter 3

Case Study Analysis

3.1 Introduction

The case-study example of the KNSWMP will be used as a means of better understanding the requirements of sustainable community-based SWM. However, before considering in depth the organization and its background, it is first important to gain a better understanding of Kenya's geography, a brief review of its political background, and to provide a socio-economic overview. In addition to this, an understanding of Malindi's historical background, municipal government structure, the development of the KNSWMP, and SWM issues in Kenya and its cities will narrow the focus of this section. From within this context, the interrelation of the informal and formal sectors in Kenya, including the process of registering a CBO, health issues, and a brief outline of capacity building in Kenya, will be discussed in order to relate the case study to the specific issues of sustainable development.

3.2 Geography of Kenya

Kenya is situated in Eastern Africa on the Indian Ocean coast and borders Somalia, Ethiopia, Sudan, Uganda, and Tanzania. The total area of Kenya is 582,650 km² (569,250 km² land and 13,400 km² water) and it has an estimated total population of just under 34 million (CIA, 2006). The climate along the coast of Kenya is tropical, the interior is temperate, and the eastern and northern sections of the country are arid to semi-arid. Kenya is a country of diverse topography. As you move west from the Eastern coast the landscape rises from sea level, reaching 1680m in Nairobi, the capital of Kenya, and

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plateaus at its highest point at Mount Kenya (5199 m), which is in the central part of the country. The rift valley, also found in the central part of the country, divides the country into two parts: the western area, which is suited for agriculture as a result of high rainfall and the eastern part, which receives less rainfall and is mainly inhabited by pastoralists.

3.3 Political Background of Kenya

Politically, Kenya is divided into eight provinces which are further sub-divided into 40 districts (CIA, 2006). Within these districts live the more than 40 ethnic groups that have been caught up in many of Kenya's political problems. A specific political problem relates to ethnic patronage. Intimately associated with ethnic patronage has been the Kenya African Union (KAU), which later became the Kenya African National Union (KANU), a political party that was headed by Jomo Kenyatta from 1946 through to 1978 and by Daniel Arap Moi from 1978 through to 2002. It was under the leadership of these two men that Kenya's government became internationally infamous for corruption and discriminatory practices. However, in 2002 Moi was constitutionally forced to step down from power as President, thus seemingly ending the negative characteristics of Kenyan governance. Under the banner of constitutional reform and the elimination of corruption, Emilio Mwai Kibaki, the leader of the opposition party, National Alliance Rainbow Coalition (NARC), won the 2002 Presidential elections. At the same time, the NARC gained a majority 132 parliamentary seats out of 210, thus, arguably, beginning a new era in Kenyan politics (Ndegwa, 2003).

3.3.1 Lead up to Kenya's independence and the Kenyatta Era

The change from British to Kenyan rule resulted not only from a general movement

which saw a number of African countries gaining independence, but also from a growing

intolerance of the repressed majority towards the wealthy British minority. As Obudho &

Obudho state,

> [c]olonization imposed a deliberately segregated economic, political and socio-
> cultural climate in which the Europeans dominated the country, the Asians were
> the 'middlemen', and the Africans were overworked in low paying jobs in urban
> areas or otherwise restricted to their respective ethnic areas (Obudho & Obudho,
> 1992, p. 153).

The problems that resulted from this state of affairs led to conflict between the British

colonizers and the subordinated Kenyans. In an attempt to quell the uprisings, the British

declared a state of emergency (1952-59), which, in the words of Mason "marked the

bloodiest and most repressive epoch in the post war history of British colonial Africa"

(Mason, 1998, p. 225).

'Mau Mau', the Kenyan name for opposition to the British, quickly grew to a point where

the British could no longer afford to protect their economic interests in Kenya. The

strength of the 'Mau Mau' movement at this time was particularly significant because

Kenya was experiencing impressive economic growth. Between the years 1954 to 1964

Kenya's GDP increased from $314 to $594 million USD (Mason, 1998). Ndege observes

that between 1951 and 1953 Kenya's GDP averaged 5% growth, whereas from 1960-62 it

had grown to 8% (1992, p. 243). This growth is even more impressive given the fact that

neighbouring countries, like Uganda, were experiencing drops in their GDP during the

same period (Ndege, 1992). Unfortunately for Kenya, the vast majority of wealth that

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was being earned through their natural resources and labour was being exported to Britain and not staying in Kenya.

Despite the economic growth and the wealth being earned for Britain, the British Government announced, in 1959, that they would be relinquishing their power over the colony. At the front of the political line-up to take over from the British was KANU, a political party that had grown from KAU and the Kenya African Democratic Union (KADU). After elections in 1961, Jomo Kenyatta, leader of KANU, established himself as the political voice of Kenya, a position of privilege that was furthered December 12, 1963 when Kenya officially gained independence from Britain.

With Kenyatta in control of the newly independent government, it quickly became evident that ethnicity would be an important factor in the running of Kenya. Kenyatta, for example, was himself a member of the Kikuyu ethnic group, the largest ethnicity in Kenya. As a result of this, he installed many of his fellow Kikuyus in powerful government positions (Murunga, 2002). This in turn gave the Kikuyu a disproportionate power advantage in government at the expense of other Kenyan ethnic groups. Overall, Kenyatta's years as President of Kenya were marred by corruption and ethnic patronage, severely tainting Kenya's seemingly bright future.

3.3.2 The Moi Era

After the death of Kenyatta in August 1978, Daniel Arap Moi came to power as leader of KANU and President of Kenya. Under the leadership of Moi the problems of political

corruption and constitutional injustices plaguing Kenya worsened. However, it was not until the late 1980's and early 1990's that these problems received much needed international attention. Western governments began to recognize that poor governance and corruption meant wasted donor aid and a lack of development. These realizations led the international community to demand that 'good governance' become a focus for developing countries so that corruption, in particular political corruption, would be minimized (Sandbrook, 2000). To enforce these 'good governance' measures the international donor community, through the multilateral agencies of the World Bank, the International Monetary Fund (IMF), and Paris Club of donors, refused to give loans to countries, including Kenya, that did not adhere to their 'good governance' demands (Sandbrook, 2000).

By the 1990's Kenya's economy was in a desperate state and heavily reliant on foreign aid that was quickly disappearing. Kenya's economy was so bad that its per capita income was 9% lower than it has been a decade earlier, falling from a dismal $410 USD, in 1980, to a pathetic $370 USD, in 1990 (Todaro, 2000). Politically, Moi realized that he could not afford to lose foreign donor support. As a result, he;

> decided to abolish the one-party (Kenya African National Union [KANU]) state in December 1991, shortly after the Paris Club of donors, citing the absence of adequate economic and political reform, withheld a multiyear package of fast-disbursing aid amounting to U.S. $350 million (Holmquist & Ford, 1998, p. 228).

In the months leading up to the 1997 elections two important events occurred. First there was the establishment of the National Convention Executive Council (NCEC); an organization that began to question the merits of the Kenyan constitution (Ndegwa,

1998). The NCEC was made up of international and local NGOs, Civil Society

Organizations (CSOs), and opposition party members. Despite the fact that the NCEC

was considered to have no legal standing by the government, it demanded constitutional

reform (Ndegwa, 1998). Moi, however, refused to deal with the NCEC, citing that

elected representatives should conduct constitutional reforms. As a result, the Inter-

Parties Parliamentary Group (IPPG) was created in 1997, a group of 125 MPs, 70% of

whom belonged to KANU, who and were given the task of looking into constitutional

reform (Holmquist & Ford, 1998; Barkan, 1998).

The second major issue revolved around corruption. Little had been done to address the

problems plaguing Kenyan politics in this area. As a consequence of government apathy

on the matter, the IMF cut off a $220 million USD loan. This resulted in other donor

agencies also cutting funds, leading to a loss of over $400 million USD in aid (*The

Economist*, 1997). Despite attempts by the Kenyan government to assure donor agencies

that the problems of political corruption would be dealt with, the donors remained

adamant. It was not until 2001 that Bretton Woods agencies reinstated loans based on

changes made to the Kenyan Anti-Corruption Authority (Kelley, 2001). However, the

effects of the aid boycott took its toll on the development of Kenya, which saw consistent

drops every year from 1995-1999 in GDP growth (afrol news, 2006).

Up until the 2002 elections, the Kenyan opposition had been criticized for being

disorganized and failing to look beyond ethnic divides, much to the detriment of the

Kenyan populace (Murunga, 2002). However, with the establishment of the NARC this

criticism fell by the wayside. NARC was created through a series of events that took place in the late 1990's. Again, after the 1997 elections Moi tried to incorporate the second place party, the National Democratic Party (NDP), into KANU. He was successful in doing so through concessions of prominent government positions made to the NDP (Ndegwa, 2003). However, not everyone in KANU and NDP was happy with the arrangements and some Members of Parliament broke off to create their own parties, specifically the Liberal Democratic Party (LDP) and the Rainbow Coalition. Along with these groups, the National Alliance of Kenya (NAK) was also created, incorporating CSOs and smaller political parties (Ndegwa, 2003).

In early 2002, the KANU and NDP alliance broke up because of a disagreement over who would be appointed leader for the upcoming election. Capitalizing on this, NAK invited the other opposition parties and disenchanted NDP and KANU party members to come together to form a party. From this, they created a Memorandum of Understanding (MoU), which established a party framework and an ethnically united opposition. The birth of the NARC demonstrated that ethnicity could be overlooked in an effort to create meaningful political change for Kenya. As a result of their efforts, the NARC was rewarded with 62% of the popular Presidential vote for their leader Mwai Kibaki and 132 seats in Parliament in 2002 (Ndegwa, 2003). This change in leadership, it was hoped, would usher in a new era for Kenyan politics, one that looked beyond ethnicity and would solve the problem of corruption.

3.3.3 The Kibaki Era

Kibaki's incumbency has garnered mixed reviews, gaining praise for fulfilling a platform promise of free primary education, and criticism for allowing an $800 million USD budget deficit. Coming to power in 2002 on a platform of governmental reform, Kibaki has made piecemeal attempts to help Kenya move on from its tainted political past. A major area of attempted reform for Kibaki and the NARC was the elimination of corruption in Kenya. The approach to this problem was, at first, very aggressive issuing in the implementation of anti-corruption laws such as the Anti-Corruption and Economic Crimes Act and the Public Ethics Act (Barkan, 2005). With the new focus on corruption, there was a concomitant shake-up of the judicial system in October 2003 with the suspension of 23 senior judges from the Court of Appeal and the High Court together with the suspension of 82 magistrates (Barkan, 2005).

Although Kibaki was seemingly leading Kenya away from its corrupt past, this was not to last. In February 2005 John Githongo, the head of Kibaki's anti-corruption unit, resigned, dealing a major blow to the credibility of the Kibaki government. During his time as permanent secretary – Ethic and Governance, Githongo's efforts to perform his tasks were severely undermined (Barkan, 2005). Moreover, the government that had appointed him and instituted a 'zero-tolerance' policy on corruption was itself prone to corruption scandals. One such scandal revolved around inconsistencies associated with a $90 million USD contract established to improve police forensics and produce new passports. Despite claims of corruption, the matter was never investigated (Holmquist, 2005). Perhaps a more vocal and damming allegation of corruption in the Kibaki

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government came from the British High Commissioner, Sir Edward Clay, who in June 2005 blasted Kibaki and the Kenyan government for regressing into old habits of corruption (Ford, 2005). This allegation was followed by similar expressions of concern over corruption in Kenya voiced by international donors, such as the United States, Germany, and the European Union (Ford, 2005).

A further platform promise was that of constitutional reform. Although this has been a concern for the last decade, it was not until 2001 that any attempt at meaningful reform had been at least considered. With the establishment of the Constitution of Kenya Review Commission in 2001, talks and planning for a new constitution began again (Barkan, 2005). Releasing its plan for constitutional reform in 2002, "[t]he commission's proposal called for the devolution of authority to district governments, a substantial reduction of presidential authority, and, most controversially, the establishment of a new prime minister post" (Barkan, 2005, p. 91).

Working out some of the controversial issues, such as the powers of the President, the 2003-2004 Commission was able to agree upon a draft constitutional proposal that would be either accepted of rejected in a referendum by the Kenyan people (BBC, 2005 [A]). However, the proposed constitution by the Review Commission did not come forward until November 2005 when it was put to a vote in a national referendum. In the hotly contested debate that surrounded the constitution, the Kenyan population fell into two camps: Orange, who did not support the proposed constitution; and Banana, who supported the proposed constitution. However, as it turned out, the referendum was less

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about the merits of the constitution itself, but was considered to be more of a mid-term review of Kibaki's performance as President (BBC, 2005 [B]).

The lead up to, and the fruition of the referendum on the proposed constitution have illustrated the major problems the Kibaki government and NARC must face. Even within Kibaki's own cabinet support for the 'No' campaign had been voiced by seven ministers, further indication of the divisions that have formed within the Rainbow Coalition (BBC, 2005n [B]). With 58% of almost 6 million people voting 'No' to the proposed changes, the Kenyan people not only illustrated their dislike for the proposed constitution, but also their disappointment with their President's performance (BBC, 2005 [B]). Reacting to this serious setback, President Kibaki chose the drastic measure of firing his entire cabinet and postponing the new session of Parliament. This act brought the country's political and governmental agencies to a standstill as everybody awaited the reappointment of the cabinet. In early December 2005, Kibaki announced his appointment of the new cabinet, considered to be mostly made up of old political friends. This notwithstanding, however, 16 people chosen as ministers or deputy ministers refused their post, including two close allies (BBC, 2005 [B]).

This synopsis of the political background of Kenya serves to illustrate the turbulent past that Kenyans have had to endure as a result of inefficient and corrupt governments, a legacy on which can be blamed many of the problems they continue to face today.

3.4 Socio-economic Indicators of Kenya

Kenya's history, both during colonization and independence, has been marked by the gross exploitation of its people for the benefit of a small few. The negative effects of Kenya's repressive and corrupt state came to a head between 1992 and 2002, as average GDP growth dropped to 2.1%. In addition to economic declines, Kenya experienced a drop in its Human Development Index (HDI), a measurement of life expectancy at birth, adult literacy and mean years of schooling, and income, watching it fall from 0.535 in 1990 to 0.489 in 2001 and again falling to 0.474 in 2003 (UNDP 2006 [C]). This subsequently dropped Kenya from a rating of 'medium' human development to that of 'low' human development (UNDP, 2006 [C]).

More recent statistics on the Kenyan economy illustrate a resurgence in growth in all of the major economic sectors. For example, overall GDP growth in Kenya increased from 0.6% in 2000 to 4.3% in 2004 (Ministry of Planning and National Development, 2005 [A]). This can be attributed to increases in the production of maize, tea, and horticulture as well as an overall increase in the 2004 manufacturing sector (Ministry of Planning and National Development, 2005 [A]). Tourism has also seen a resurgence as the number of tourists that visited Kenya increased by over 300,000 from 2000 to 2004 (Ministry of Planning and National Development, 2005 [A]).

However, it has not all been good news for the Kenyan economy. Inflation has jumped from 2% in 2002 to over 11% in 2004, which can be attributed to increases in food and oil prices (Ministry of Planning and National Development, 2005 [A]). Kenya has also

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seen drops in important areas of it social indicators. Specifically, poverty has risen from

49% in 1990 to 56% in 2003 and infant mortality rates have increased from 63 deaths per

1000 live births in 1990 to 79 in 2004 (World Bank, 2004 [A]). Moreover, life

expectancy has also fallen, going from 57 years in 1986 to 45 years in 2004.

3.5 Malindi, Kenya

This section will provide a background on the town of Malindi, describing the pertinent

neighbourhoods, the issues relating to them, the role of the KNSWMP, and how they are

able, through community-based initiatives, to tackle issues of solid waste management in

the community.

3.5.1 Malindi Town and Government Background

Malindi, which covers an area of 574 Km², is located on the Eastern coast of Kenya,

roughly 150 km North of Mombassa, Kenya's second largest city (Kwach, 2002). As a

city-state of early Swahili civilization, Malindi has a 1000 year history as a port where

traders from the Middle East have sought access to inland opportunities for trade and

commerce. Early in the last century, Malindi was 'rediscovered' by British colonists who

recognized its tourist potential and, more recently, German and Italian investors have

sought to develop Malindi into a major European tourist destination (Jamison, 1999).

In 1974 Malindi was established as a town council and was subsequently elevated to

municipal status in 1981. In 2000, Malindi had a population of approximately 120,000

people with a yearly influx of between 8,000 to 10,000 tourists (Kwach, 2002; Ministry

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of Planning and National Development, 2000). As of 2002, the structure of the

Municipal Council of Malindi (MCM) was made up of a mayor and an administrative

team of 12 elected and 4 nominated councillors (Kwach, 2002). Major operational

decisions affecting Malindi are made by the councillors and chief officers through

committees. These include:

- Finance, staff and general purpose committee
- Works, town planning and housing committee
- Public health committee
- Education and social services committee
- Tourism committee
- Environment committee (Kwach, 2002)

In addition to the committees are the service departments which are run by the town

clerks, aided by chief officers. These service departments include:

- Town clerk department
- Municipal engineer department
- Municipal treasurer department
- Public health department (Kwach, 2002)

The population in Malindi is primarily made up of people from the Kikuyu and Akamba

with influences from Italian immigrants. The religious background in Malindi is split

between two major religious groups: Christian and Muslim. Economically, more than

half of the local population earns employment directly or indirectly through the local

tourism industry, clearly demonstrating its importance (Jamison, 1999). The popularity

of Malindi as a tourist destination was evident in the early 1990s when it was able to

boast a 94% occupancy rate for its over 100 hotels and resorts, the highest for any locale

in Kenya (Jamison, 1999; Kwach 2002). However, as the primary employer and source

of income for the municipality problems have arisen in recent years as tourist levels have

fallen, primarily resulting from the 1998 US Embassy bombing in Nairobi, the 2002

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bombing of a tourist resort near Mombassa, and the US labelling Kenya as a 'terrorist threat'(US Department of State, 2005).

3.5.2 Neighbourhoods

The town of Malindi is divided into two major socio-economic groups: the well developed tourist industry and the people that service it. As such, there is a poor distribution of wealth with low income earners making up 65% of the population, 22% medium income earners, and 13% high income earners (Kwach, 2002). In Malindi the majority of the low income earners live in four peri-urban informal settlements, which include:

- Kisumu Ndogo
- Maweni
- Shella
- Moyeye

Typically the inhabitants in these communities are considered to be squatters, with the exception of three other types of land tenure that occur sporadically. These include:

- Traditional Arab owners
- Private ownership of land and property (typically European or Asian)
- Government or municipal owned land (Kwach, 2002)

Kisumu Ndogo is an unplanned settlement of squatters established in 1974. It has a population of 7000-9000 of mixed religions and people emanating from various parts of Kenya and Eastern Africa (UN-Habitat, 1998). It is an area that is considered poor, sometimes referred to as a slum, with sporadic access to electricity and the only access to potable water coming from privately owned 'kiosks'. As an informal settlement, it has little, if any, support from the municipality with respect to basic services including solid waste collection (UN-Habitat, 1998). *Shella* is also a low-income neighbourhood that

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joins the sea-front with the centre of the city. It is one of the older villages, as it was built in the 1960's, and is predominately Muslim (UN-Habitat, 1998). Approximately 9,000 people reside in this area and are subject to poor living conditions due to large amounts of solid waste, sewage, and still water. A contributing factor to these substandard living conditions is the municipality's inability to provide water and sanitation services and the issue that Shella is an unplanned settlement.

Contrasting with these examples of informal areas of Malindi, are the formal settlements of *Barani and Centre* and *Central Estate*. *Barani and Centre* makes up the centre of the town and comprises 6000 inhabitants. This area is considered to be the major economic area of Malindi consisting of shops, markets, and the Bus Park. The people that reside in this area are considered to have a medium-income level in comparison to Kisumu Ndogo (UN-Habitat, 1998). Despite the increase in monetary status and the partially functioning municipal waste collection service in this area, garbage and garbage collection has been a major problem throughout Barani and Centre. This is not only due to the increased level of economic activity in the neighbourhood, but also due to a lack of available waste receptacles and insufficient capacity in municipal services (UN-Habitat, 1998). *Central Estate* is a former European settlement area and is made up of residents who are considered to be in the medium income bracket. Waste management services in this neighbourhood are believed to be reasonable due to the influence of private SWM (UN-Habitat, 1998).

3.5.3 Solid Waste issues in Kenya and Malindi

In Kenya, it is the responsibility of the municipal council's Public Health Department to administer issues of SWM services. However, the 2002-2008 National Development Plan states, "[m]ost local authorities have been unable to cope with collection, treatment, and disposal of wastes due to inadequate capacity and financial constraints" (Republic of Kenya, n.d., p. 120). Problems of not being able to develop sustainable SWM solutions have been compounded further as levels of solid waste in Kenya are on the rise (UNEP, n.d.). One possible reason suggested for the rise in solid waste is that "[h]igh population and urbanization has led to high consumption of natural resources and generation of substantial wastes" (Republic of Kenya, n.d., p.120).

Despite demonstrated increases in poverty and consistent drops in Kenya's HDI, evidence points to indicators that elucidate an increasing level of consumerism in Kenya, further contributing to the growing issue of solid waste. For example, the level of energy consumed (kilograms of oil per person) in Kenya has grown from 1985 levels of 72 kg to a level of 94 kg in 2001 (Globalis, 2006 [C]). Taking into account purchasing power parity (PPP), Kenya has seen increases in per capita Gross National Income (GNI) which has risen from $340 USD in 1975 to $1,030 USD in 2003 (Globalis, 2006 [G]). Recognizing Kenya's Gini coefficient[6] of 0.45, which suggests a medium level of inequality in income distribution, there is still a demonstrated increase in disposable income, which, in turn, encourages spending on goods and services, both of which create

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[6] Todaro (2000) defines Gini coefficient as "An aggregate numerical measure of income inequality ranging from 0 (perfect equality) to 1 (perfect inequality). It is measured graphically by dividing the area between the perfect equality line and the *Lorenz curve* by the total area lying to the right of the equality line in a Lorenz diagram. The higher the value of the coefficient, the higher the inequality of income distribution; the lower it is, the more equitable the distribution of income" (p. 746).

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waste (WRI, 2003). The indication of consumer goods and services spending is strengthened by user statistics for cellular phones, which in one year rose 850% from 0.40 per 100 people in 2002 to 3.80 cellular subscribers per 100 people in 2003 (Globalis, 2006 [D]). The same is true for internet and computers users. Internet use has grown over 400% from 0.30 per 100 people in 2000 to 1.30 per 100 people in 2002 (Globalis, 2006 [E]). The number of personal computers in use has also risen from 0.10 per 100 people in 1995 to 0.70 in 2002, an increase of 700% (Globalis, 2006 [F]). With these and similar increases in consumption patterns in other areas, it is only reasonable to assume that levels of solid waste produced has and will continue to increase in Kenya, thus requiring sustainable solid waste solutions.

The type of waste that is being produced in Kenya varies, but the vast majority is considered to be biodegradable waste, such as discarded food items, spoiled plants, and animal waste (NEMA, n.d.). More specifically, Kenya's National Environmental Management Authority (NEMA) argues that upwards of 75% of the waste produced in Kenya is biodegradable. Some of the other items that are discarded in the waste throughout Kenya include: plastics, glass, cans, paper, leather, textiles, grass/wood, other metals (Henry, Yongsheng, & Jun, 2005). For Malindi, although there are no official numbers, it was discovered through interviews and observation that the majority of waste produced and collected is also biodegradable with similar non-biodegradable items, similar to those listed above mixed in (Interview #7, October 4th, 2005; Interview #10, September 28, 2005; Observations, October 3, 3005).

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The problems of solid waste and the municipal council's inability, or unwillingness, to collect solid waste can be seen throughout Kenya. According to Kwach (2002), who cites a 1997 study conducted by the Japan International Co-operation Agency, it was estimated that of the 1200 tons of solid waste produced daily in Nairobi only 70 tons was collected by Nairobi City Council and 130 tons by private collectors, or about 17% of the total waste produced. A later study argues that collection services have increased suggesting that between 30-45% of the total waste produced was being collected in Nairobi (Henry, Yongsheng, & Jun, 2005). A further study, conducted by NEMA, also shows an increase in collection for Nairobi, but also illustrates that the amount of solid waste produced had also increased. They suggest that Nairobi produced upwards of 1803 tons per day of solid waste, with only 52% of that being collected (NEMA, n.d.).

The theme of high levels of solid waste being produced is echoed in other cities in Kenya. For example in Kisumu, Kenya's third largest city with a population of 322,734, the level of waste collected ranged from 28-48% of the total produced (Henry, Yongsheng, & Jun 2005). According to a 2004 study, it is estimated that Kisumu produces 400 tons of waste per day, or 144,000 tons of waste per year. It was also concluded that only 10% of the waste produced is collected by the municipal council, with private collectors making an insufficient contribution to the overall total (Gulf E, M, & A. Consultants, 2004).

In Malindi the status of waste collection is much the same as it has been shown to be in Nairobi and Kisumu. In Malindi the total amount of waste that is produced is between 60

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to 80 metric tons per day, or between 1800 to 2400 metric tons per month, the equivalent of 0.18 to 0.24 metric tons per person per year[7] (Kwach, 2002). The variation in the amounts is due in large part to the tourist industry and the number of people that are visiting Malindi at any one time (Interview #7, October 4th, 2005). The municipal council is responsible for solid waste collection from Malindi's central business district (CBD) and offers it as a free service. With a staff of 35 (24 permanent and 11 casual) and equipment consisting of three tractors trailers and one compressor, they collect between 500 to 700 tons per month of solid waste (Interview #7, October 4th, 2005). Unfortunately, the waste collection services offered by the municipality accounts for only about 30% of the total waste produced in Malindi.

Much like Nairobi and Kisumu, Malindi also relies on private collection services. Aside from CBOs solid waste collection services, there are two private firms in Malindi to whom the municipality has given responsibility for waste collection: Prima Bins (responsible for North Malindi and Watamu) and Keen Kleeners (responsible for South Malindi) (Interview #7, October 4th, 2005). Addressing Prima Bins specifically, it was found that of the 60 tons of solid waste that is being produced in Malindi North, only 10 tons was being collected from 368 registered customers (Interview #3, October 6, 2005). One of the primary factors limiting the amount of waste that is being collected by private firms is the fee charged. Although a variety of waste collection services are offered based on the amount produced, a basic package for a household offered by Prima Bins

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[7] Recalling the figures presented in Chapter 1, we see that the Canada and the United States produce between four to seven times more solid waste then the people of Malindi.

would cost Kshs 250 per month ($3.50 USD). This would include one large garbage bag (roughly 70 litres) picked up once a week (Interview #3, October 6, 2005).

Although the collection of waste is clearly a problem throughout Kenya, it is worth noting that there are also many problems associated with the disposal of the waste once it is collected. Henry, Yongsheng, & Jun (2005) note that "[i]n all five local authorities studied, it was found that little or no consideration of environmental impacts was paid in the selection of dumpsite, including those in use" (p. 95). The failure to account for environmental concerns means that problems such as local water supplies becoming contaminated occur (Henry, Yongsheng, and Jun, 2005).

In Kisumu, issues associated with landfills are not a problem as such because, as of November 2005, the municipality did not have one. This means that the 40 tons of the solid waste that the municipality collects, plus the additional amount that private firms collect, is indiscriminately disposed of, with a direct negative effect on the local environment, most notability Lake Victoria (Interview #5, November 29, 2005). Unlike Kisumu, Malindi does have a municipal landfill where all solid waste is supposed to be dumped. The MCM encourages the use of its landfill by outlawing indiscriminate dumping. As stated in MCM bi-laws on SWM, Part IV point 5.5, "Any person who deposits refuse anywhere other than at the council's refuse disposal sites or fails to pay refuse-dumping fees commits an offence" (The Municipal Council of Malindi – Solid Waste Management Bi-Laws, 2004, p. 6).

According to NEMA a popular method of waste disposal is burning, which is considered to be a major health and environmental concern and one that needs to be addressed. NEMA has estimated that of the waste that was collected in 2002, 5.26 million tons was destroyed through burning (NEMA, n.d.). Again the MCM attempts to address this problem with a further byelaw. MCM byelaw Part IV point 5.14 states that "[n]o person is allowed to light a fire on the refuse disposal site" (The Municipal Council of Malindi – Solid Waste Management Bi-Laws, 2004, p. 6).

3.5.4 KNSWMP and the Malindi Green Town Movement

KNSWMP began in 2001 with six youths in Kisumu Ndogo who sought a means of addressing what they perceived to be a problem for their community: *solid waste*. In addition to this apparent problem, the youth[8], many of whom had finished their secondary education, were able to tackle their own problem of unemployment (Interview #10, September 28, 2005). Before the youth group started their garbage collection in Kisumu Ndogo, garbage was indiscriminately piled in various parts of the community where, every so often, it was either burned of buried (Interview #10, September 28, 2005). The negative effects of the random garbage piles were evident to the community members. Some of the stated concerns were that the garbage piles; hurt business owners close to them, smelt bad, were unsightly, were breeding grounds for mosquitoes, were dangerous to children playing around them, promoted water born diseases such as cholera, typhoid and malaria, and were dangerous to animals eating it (Questionnaire #1-#10, October 20th, 2005). Addressing these problems, the six youth began cleaning the dumpsites by

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[8] The term 'youth' in a Western context typically refers to people between the ages of 18-30, however in the case of the KNSWMP there is no age limits set and it is more of a term that has stuck since their conception.

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arranging for a municipal truck which they would fill and take the waste collected away

to the local landfill. In return for providing this service for the community they would

ask for contributions to be made (Interview #10, September 28, 2005).

The efforts of the youths in providing a cleaner and healthier environment in Kisumu

Ndogo did not go unnoticed. In April 2003 the Malindi Green Town Movement[9], an

environmental lobby group in Malindi, was able to secure a grant from UN-Habitat aimed

at enabling community-based groups to develop their capacity and sustainability for, in

this case, solid waste projects (Interview #1, September 27th, 2005). The project was to

take place over 16 months, developing the capacity of two community groups in Malindi,

Kisumu Ndogo and Maweni, helping them to become self-reliant in providing SWM

services to their communities (Interview #1, September 27th, 2005).

With a grant from UN-Habitat, the MGTM was given the responsibly of administering

the funds to the community-based groups and ensuring that the money was spent on

project requirements (Interview #1, September 27th, 2005). Keeping the MGTM in

check, was the municipal government of Malindi and UN-Habitat, both of whom required

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[9] The Malindi Greentown Movement (MGTM) was established in June 1994 as a locally run and
administered CBO which acts an environmental lobby group attempting to address environmental concerns,
such as poor sanitation, poor drainage, and a lack of trees, in the Malindi area. It has 12 board members
who are all members of the MGTM. As of 2005 there were 44 member organizations and individuals,
consisting of bilateral organizations, companies, financial institutions, etc, that pay membership fees. The
objectives of the MGTM state that "The main objective of the project is to introduce sustainable integration
of the environmental consideration into urban development in order to achieve a healthy and attractive
environment through enhanced cleanness, tree planting and initiation of flower gardens on street avenues
thereby creating an attractive, healthy and hence a conducive atmosphere for such resources as water, food
energy, and shelter" (MGTM, 2006). A key element of achieving these goals and objectives has been
through the spread of its environmental messages by developing community solid waste initiatives, helping
disadvantaged groups, and developing public awareness campaigns.

detailed reporting of progress and money spent. With the grant money the MGTM attempted to improve the capacity of the community groups by providing training in handling solid waste, making compost, and establishing a tree nursery, all of which were areas in which the community groups could make money and become self-sustaining. The MGTM was also responsible for providing tools necessary for the collection of waste, such as wheelbarrows, rakes, and shovels. They also provided safety equipment, such as gloves, boots, and jackets and were responsible for finding and providing land for the building of a temporary garbage and waste recycling site in Kisumu Ndogo and the construction of nine garbage transfer stations in Maweni (Interview #1, September 27th, 2005; Observation Notes, 2005).

In addition to the above accomplishments, the MGTM played an important role in securing needed MCM support, a role that continues to this day. To establish their role in the community-based SWM process, the MGTM worked with the MCM to develop a Memorandum of Understanding (MoU). This MoU outlined roles and responsibilities for each party, but most important stipulated that the MGTM is responsible for the development of the community-based SWM projects in Kisumu Ndogo and in Maweni and that any group wanting to start up in these areas would have to consult and gain approval from the MGTM before commencing (Interview #1, September 27th, 2005; Observation Notes, October 24, 2005).

This was one of many administrative steps that the MGTM took as a means of providing the starting points of sustainable SWM in Kisumu Ndogo and Maweni. Further

administrative steps included helping to rewrite Malindi's municipal by-laws on solid

waste so that they enabled the community groups to have the legal right to provide SWM

service and collect fees for it (Interview #1, September 27th, 2005; Interview #10,

September 28, 2005). The MGTM, along with the two community groups, also officially

arranged specific days for the municipal council to provide a garbage truck for waste

collection. A further change made by the MGTM, was to take the youth solid waste

project in Kisumu Ndogo and the one the MGTM created in Maweni and make them

official CBOs (Interview #1 September 27th, 2005). This required many necessary steps

(to be discussed below), but had the benefit of determining the structure of the groups.

Addressing the KNSWMP, their structure became:

- Chairman
- Vice-chairman
- Secretary
- Vice-Secretary
- Treasurer
- Organization Secretary
- 3 X Committee Members
- Work Advisors (Interview #10, September 28, 2005).

Elections for the various positions are to take place every three years. In addition to the

new structure, an ownership fee of Kshs 200 ($2.78 USD) was installed to encourage

members commitment to the project (Interview #10, September 28, 2005).

Although the MGTM still acts as an important supporter for the KNSWMP, it is not as

involved as it was during the 16 month period when it was supplying funding and

support. This is because the KNSWMP has been able to develop its own capacities to

address problems it faces and work independently with the MCM, and other key players.

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The MGTM is considered to be a 'last resort' for the KNSWMP to approach when trying

to address problems that are affecting how they are conducting their business (Interview

#10 September 28, 2005).

3.5.5 KNSWMP

The total of 15 working youths in the KNSMWP is comprised of 8 men and 7 women

(Interview #10, September 28, 2005). All of them work for 5 days of the week (Monday

to Friday), but are given different roles within the CBO. 11 workers participate in the

collection of waste, which takes place on Mondays and Thursdays. In Kisumu Ndogo

there are 968 households, of which 600 have registered with the KNSMWP for garbage

collection, despite the fact that it is illegal for people not to do so. The 600 households

serviced by the KNSWMP is representative of 5000 people in Kisumu Ndogo. Each of

the households is required to pay Kshs 100 per month ($1.40 USD) for garbage collection

services. In return they get garbage collection twice a week. The collection of waste

entails the youth going from house to house and picking up full 'gunny sacks'[10] and

exchanging them for a clean one. From there, the youth will move the full sack by

wheelbarrow to predetermined areas where they will be later loaded by the youth into the

garbage truck. Each worker is responsible for the collection of garbage from roughly 50-

60 houses (Interview #10, September 29, 2005; Observations, October 3rd, 2005).

On Wednesdays the group of 11 youth work at the temporary collection site separating

the waste, tending the plants, washing the gunny sacks, etc (Observations, October 5th,

2005). The KNSMWP tries to reuse the organic waste, plastics, cans, and glass it collects

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[10] A 'gunny sack' is a 30-40 liter bag made of woven plastic

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and attempts to generate income from it. They use the manure created in compost pits on their gardens to grow vegetables, plants, and fruits. The plastic bottles they use to hold seedlings. These, in turn, are sold to generate money for the group (Observations, October 5th, 2005). This is the only recycling that is done by the KNSMWP. However, at the household, level minor recycling is done, including reusing plastic bags to stuff mattresses or pillows, using plastic containers to hold kerosene, and glass jars to hold spices (Observations, October 5th, 2005; Questionnaire #1-#10, October 20th, 2005).

The other four workers in the KNSWMP are tasked with the collection of fees from the community (Interview #10, September 29, 2005). This is an important task as it is the primary source of funds and is what maintains the financial stability of the CBO. These fees provide wages for the KNSWMP members, new equipment, and any other incidentals required for the proper running of the CBO. However, the task is difficult and requires four full-time members as many people in the community are reluctant or unable to pay (Interview #10, September 29, 2005). In addition to the collection activities, on Tuesdays and Fridays all members of the KNSMWP focus their efforts on making the community more aware of HIV/AIDS and drug use. They practice plays and skits and employ other educational methods for transmitting their messages (Interview #10, September 29, 2005).

3.6 Community-based SWM and Sustainable Development Characteristics

Understanding the general characteristics of solid waste management issues in Kenya and Malindi we can now discuss more specific issues related directly to the characteristics of

sustainable community-based SWM. From this, formal and informal SWM organizations will be outlined, along with health concerns and the generation of capacity.

3.6.1 Formal and Informal Sectors of SWM in Kenya and Malindi

In Kenya, as in many developing countries, the informal sector adds a great deal to the overall economy. According to the Kenyan government, in 2004 the informal sector employed just under 6 million people, or 70% of the workforce, an increase from 2000 when the number informal employees was 4.2 million, or 60% of the workforce (Ministry of Planning and National Development, 2005 [A]). The informal sector in Kenya is made up of every facet of business, including: auto repair, food preparation, cleaning, amongst many others. The formal sector in Kenya also adds a great deal of wealth to the overall economy. In keeping with the previously mentioned definition of the formal sector in Chapter 2, Kenya requires its businesses to be registered and comply with laws is regulations to be considered a part of the formal economy.

When specifically addressing SWM, there are many formal and informal actors who are found to be involved. For example, in Nairobi Kwach (2002) outlines 18 different formal NGOs and CBOs taking part in waste management schemes. Additionally, the significance of informal SWM groups in Kenya, specifically in Kibera slum in Nairobi, are also recognized for the contributions they make to SWM (Interview #6, 2005). The reach of formal and informal SWM organizations can also be seen in Kisumu where there are 27 NGOs and CBOs directly involved in solid waste collection and recycling

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programs, with numerous informal groups, such as scavengers, also having direct involvement (Gulf E, M, & A. Consultants, 2004).

In Malindi, as outlined above, the MGTM, KNSWMP and Maweni Solid Waste Management Project (MSWMP), as well as two private organizations provide examples of organizations involved in solid waste collection. However, these only represent the formal CBOs and NGOs who are involved in solid waste collection. In Malindi there are many informal groups not only involved in solid waste collection, but also involved in merry-go-rounds and micro credit groups (Questionnaire #1, October 20th, 2005). Some of the informal groups involved in solid waste collection include scavengers at the Malindi landfill (Observations, October 3rd, 2005). The scavengers at the landfill help to unload the trucks that come to dump the waste they have collected. While unloading, the scavengers sort out what waste they see as having value, including food items, textiles, and plastic, which are then used either for personal use or for selling (Observations, October 3rd, 2005).

With formal and informal groups utilizing the same resource of solid waste, it is important to the focus of this thesis to address the process of how both informal groups and formal CBOs come into being.

3.6.2 Creation of Formal CBOs in Kenya and Malindi

There has been a sharp increase in the number of CBOs tackling the many problems that are prevalent in Kenya. For example, by October, 2005, 256 CBOs had registered or

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reregistered with the District Office in Malindi alone (Interview #11, October 18th, 2005). With such a large number of CBOs, it has been necessary for the Kenyan government to install a registration format to keep track of them and to regulate their growth. Before a group can become a CBO, it must complete the 'Local Registration Form'. The purpose of this form is to illustrate the group's organization and acceptance within the community. In addition to outlining such items as where they are located and the number of men and women involved, it is necessary also for the group to draw up a constitution. The constitution sets out 12 features of the prospective CBOs structure, including: its objectives, frequency of its meetings, and how elections will be held (Department of Social Services, 2005). After establishing this, it is then necessary for the group to gain acceptance from their village Assistant Chief, the Chief, the municipality, and finally the district office (Malindi District Social Services Committee, 2005). The costs associated with registering a group as a CBO at the Municipal level is initially Kshs 300 ($4.17 USD) and a voluntary[11] Kshs 200 ($2.78 USD) renewal per year. At the district level an initial Kshs 400 ($5.56 USD) and Kshs 300 ($4.17 USD) mandatory registration fee per year is necessary (Interview #11, October 18th, 2005).

Registering an organized group as a CBO is required by the Malindi municipal government and the National government, although it is not in practice enforced. In return for taking the steps necessary for registering, CBOs are then allowed legally to seek funding from government grants and to receive charitable donations. They are also allowed, and encouraged, to open a bank account under the CBOs name to keep monies

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[11] 'Voluntary', in this case, is interpreted as payment that is not required but is encouraged to allow the continued services by the MCM.

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generated. This also allows for better transparency of where the CBOs funding is being spent (Interview #2, October 4th, 2005). Additionally, government officials at the municipal level make annual and semi-annual visits to a CBO to monitor progress, resolve any conflicts that have arisen, and ensure proper administration of the CBOs money (Interview #2, October 4th, 2005).

3.6.3 Health issues in Kenya and SWM

The health situation in Kenya has been touched upon briefly in the socio-economic section of this Chapter. Addressing health issues in more depth, it is clear that Kenya, like most sub-Saharan countries, has suffered the effects of the HIV/AIDS epidemic. In 1990, 10% of the adult population was affected, but fortunately, although still very high, the infection rate has dropped to 7% in 2003 (UNAIDS/WHO, 2005). Kenya is also plagued with diseases such as malaria, leprosy, and tuberculosis, in addition to more common Western health problems such as cancer and heart disease. To handle these major health issues Kenya, as of 2002, spent roughly 5.1% of its GDP on health services (USAID, 2005). Unfortunately, this only made up 30% of the total expenditures on healthcare, with 51% coming from the general public, 16% from donors, and 3% from private sources (USAID, 2005). The poor level of spending by the government translates to about $19 USD per person, well below the Commission for Macroeconomics and Health's recommendation of $34 USD per person by 2007 (2001).

In addition to the major health concerns outlined above, the Kenyan Ministry of Health delineates respiratory problems, skin diseases, diarrhea, and intestinal worms as the most common outpatient complaints. UNEP and NEMA state that these common health issues

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are compounded as a result of poor SWM, which unnecessarily decreases the capacity of already strained Kenyan health facilities (UNEP, n.d.; NEMA, n.d.). Because of the amount of waste that goes uncollected, as indicated above, it is evident that many of the common health problems seen in Kenyan hospitals are preventable. In Kisumu Ndogo, since the inception of KNSWMP, residents there state that they have seen an overall improvement in the cleanliness of the community (Questionnaires #1-10, October 20th, 2005). Additionally, many have stated that they have had an improvement in their health which they associate, to some degree, with their cleaner environment (Questionnaires #1-10, October 20th, 2005).

3.6.4 Capacity building in Kenya and Malindi

Capacity is a difficult area in which to offer a clear indication of past and current status. To get a picture of the general features of capacity we can turn to levels of literacy and primary school enrolment in Kenya. In 2003, Kenya had decreased its levels of illiteracy to 14.9% of the population, down from 17.6 % in 2000 and 43.9% in 1980 (Globalis, 2006 [A]). A significant attempt to improve the basic capacities of Kenyans has been to make primary education free. The result has been a dramatic increase in primary school enrollment rates, growing from 70% in 2002 to 92.5% in 2004 (Globalis, 2006 [B]; World Bank, 2004 [A]). In addition to increasing capacities to improve reading and access to free primary education, increased access to the internet and personal computers has allowed people to become more informed, not only about what is going on in their own country but also around the world. Another significant benefit has been the encouragement of the development of technological capacities. The recent referendum in

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Kenya is further another example of capacity building in Kenya. Through the referendum on the proposed constitution, Kenyans were able to demonstrate their dismay with Kibaki and, to a lesser extent, the proposed constitution.

It can also be shown, on the other hand, that in some areas the capacity of Kenyans has decreased due to a variety of factors, which include health and corruption. Health concerns in Kenya are a major factor in limiting the capacity of Kenyans. An example of this is the poor level of spending on healthcare services by the Kenyan government. The lack of spending places much of the burden on the general population for basic medical services. This is money that could be spent on such things as secondary education, investment in business, or increased savings (USAID, 2005). Corruption is a further factor that has limited the capacity for effective government in Kenya. In 2005, Transparency International, a corruption watch dog, gave Kenya a rating of 2.1, with 10 equalling no corruption and 0 indicating ramped corruption (World Resource Institute, 2005). Despite the piecemeal efforts of the current government, corruption, as has been shown, is still a major limiting factor, reducing the capacity of Kenyan's to benefit from their own taxes and development aid.

The lack of capacity by many municipal governments to provide basic services in Kenya requires CBOs to address head on the problems they face. Capacity building in municipalities throughout Kenya by CBOs involvement in solving community issues occurs in a number of ways. For example, with the increase in the numbers of CBOs comes, arguably, amongst other things, an increased capacity in the community's ability

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to recognise problems, improve their organization skills, and enhance their communication skills. With respect to SWM, capacity increases through improved knowledge of waste that is produced and the value that can be associated with it, as many Kenyan SMW related CBOs have demonstrated. In Malindi, the capacities of the KNSWMP have increased not only through such things as use of tools and through knowledge transfer, but also through representation at the MCM. All of these improved capacities can have both direct and indirect effect on a community's social capital.

3.7 Conclusion

It is evident that Kenya and Kisumu Ndogo offer an interesting case study into the sustainability of community-based SWM. Kenya's turbulent political past and its recent economic roller coaster ride have contributed further complexity to an already complex country. The municipal government, not only in Malindi, but throughout Kenya, has been shown to lack the resources and capacity necessary to ensure adequate SWM. It is therefore necessary to discuss solutions to address these inabilities in an attempt to slow the environmental, economic, and social degradation that is further contributing to the problems of Kenya's development.

In the next section of the thesis we will attempt to draw out some of the implications of the case study data of this Chapter. We will then use these implications to assess the accuracy of the perspectives and related issues presented in Chapter 2.

Chapter 4

Discussion

4.1 Introduction

The purpose of this section is to discuss issues relevant to the thesis question: "Does community-based solid waste management contribute to sustainable development?" In order to do this, the discussion will draw upon the observed realities of community-based SWM in Kenya and the peri-urban settlement of Kisumu Ndogo and apply them to the arguments raised in Chapter 2. In so doing, our discussion section will touch upon issues of sustainability, community-based development, environment and related health concerns, economic value of waste and gains that can be achieved from it, and social advancement through capacity building and social capital.

4.2 Sustainability

In order for community-based development to make any sort of contribution to the sustainable development agenda of organizations, such as the Government of Kenya, World Bank, or UNDP, it is first necessary for these CBOs to have a clear understanding of what it is they are trying to achieve. It is clear that sustainability, and more specifically sustainable development, is an issue of contention in the literature (Daly, 1996). However, it is also evident that "[s]ustainability is meeting the needs of current and future generations through an integration of *environmental protection, social advancement* and *economic prosperity* (emphasis added)" (Department of the Premier and Cabinet, 2003, p. 12). The evidence for this approach is apparent in rhetoric of the World Bank, UNDP, CIDA, and the Republic of Kenya, to name a few. However, the

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reality of what sustainability means and what it entails for CBOs and local government officials is not consistent with the top-down agenda of these and similar organizations (Interview #10, September 28, 2005; Questionnaire #1-#10, October 20th, 2005; Interview #8, October 4, 2005).

The majority of responses to questionnaires administered to community members and in interviews with municipal level government officials conducted around Malindi and Kisumu Ndogo revealed that sustainable development was understood to represent simply issues of economic prosperity (Questionnaire #1-#10, October 20th, 2005; Interview #8, October 4, 2005). Although all were in agreement that the idea of sustainable development was a positive approach to development, environmental and social issues were distant concerns to those of economics, if indeed they were considered at all. For example, when asked of the relationship of the environment to sustainable development the majority of people interviewed considered that this was not a sustainable development issue. The environment was just something they were required to consider because of the laws laid down by the municipal and national governments (Questionnaires #1, #2, #4, #5, #7, #9, #10, October 20th, 2005). Social areas of concern, again considered important in there own right, were also not correlated with issues of sustainability by those interviewed. These findings on the understanding of what sustainable development is and what it entails illustrate a divide between what is being debated in the literature, what is being initiated by development agencies, and what is understood by the people on the ground.

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This difference in the understanding of what sustainable development entails lends support to the arguments made by those such as Adams (1993) and Schuuram (1993). However the argument on sustainable development goes beyond their concerns as to what ideology it represents or what it adds to the project of development. The issue raised here is that the people who are the actors and subjects of many sustainable development projects; CBOs, local government officials, community members, are ill-informed as to the goals and objectives being sought.

The problem can be highlighted by two examples. First, the World Bank understands an aspect of sustainable development to be the minimizing of the negative effects on common resources such as water, air, biodiversity, etc. As such, they attempt to explain and understand effects on sustainable development through a mathematical model (Pearce & Warford, 1993). Unfortunately, this only illustrates how differences in the understanding of sustainable development can, and do, occur. Even for those with a university education, understanding and implementing this sustainable development formula can be difficult. It is therefore not unreasonable to assume that people in the developing world, many of whom lack even a basic primary education, would have similar problems understanding it.

A second example is Goal Seven Target Nine of the MDGs which seeks to "[i]ntegrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources" (UNDP, 2006 [A]). Integrating principles of sustainable development, it can be argued, requires that the people of the participating

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country have a complementary understanding of what sustainable development means, what it encompasses, and what is required to achieve it. Failure to provide this will lead to competing agendas, will increase developmental problems, and will promote unsustainable practices.

Clearly, especially in the case of the World Bank, these are extreme examples of how differences in understanding can occur and how they can limit the effectiveness of sustainable development. However, it does illustrate a need for change in approaches to sustainable development and its application to projects if the people and organizations involved are to understand and contribute effectively to the global, national, and local sustainable development agenda.

4.3 Why a community-based approach?

There are two primary areas that need to be addressed in explaining why a community-based approach is necessary and effective. First, the top-down approach to development has fallen out of favour in the past decade, with the focus of development, especially as it relates to sustainable development, coming from the community level because of their intimate knowledge of local resources and customs (World Bank, 2005 [B]). Second, is the fact that governments, as is the case in Malindi and throughout Kenya, do not have the capacity or resources to properly address what is required to ensure a sustainable approach to development (Gaye & Diallo, 1997). However, before determining why community-based approaches are significant, it is necessary to address the question of

how communities can meet the framework requirements for community-based development and to identify the consequent concerns raised with this approach.

4.3.1 Community-based development framework

Mansuri & Rao (2004), as shown in Chapter 2, argue that three components are necessary for community-based development to exist. These include: participation; community; and social capital (which consists of reciprocity, trust, and sharing).

Participation is a necessary component in the delivery of effective community-based development because it is, "a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them" (World Bank, 1996, p. xi). Based on this definition, it is therefore necessary for a CBO to maintain a prominent level of control over their operations, not allowing outside organizations to gain too much control.

In the case of the KNSWMP, in the early stages of its development, it was necessary for the MGTM to work closely with them in order to gain a better understanding of the nuances within the community. Although the participation of the MGTM influenced the development process, it was essential for a more effective approach. This task was, however made easier as many members of the MGTM either lived in or close to Kisumu Ndogo (Interview #1, September 27th, 2005).

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In light of the direct participation by the MGTM and their control over resources during the 16 month project period, the youth participation in the collection of waste in Kisumu Ndogo was a key component since it gave them significant control over daily running of the development initiative (Interview #1, September 27th, 2005). Currently, KNSWMP has greater freedom to make its own decisions because of the reduced involvement of the MGTM. As a result, decisions on the daily running of the organization and on how resources are to be utilized are made directly by KNSWMP members (Interview #10, September 28, 2005).

The need to understand the term 'community' is a necessary component for a CBO if it is to be effective in delivering the services it is offering. Community can mean many things, and it is therefore necessary for a CBO to define exactly what 'community' it will be working in or with. In the case of SWM projects, the term community would seem to be relatively easy to define as in many cases, including Kisumu Ndogo and Maweni, it can be interpreted as simply a physical area. However, within more informal settlements, physical areas and boundaries are not typically defined (Scherer, 1972; Interview #4, October 18, 2005).

When focusing on a physical area, it is therefore necessary for a CBO to define exactly the physical boundaries it will be working in, therefore gaining a clear understanding of the term 'community' (Cleaver, 1999). For example, before the MGTM initiated the community-based SWM program in Kisumu Ndogo and Maweni, it was first necessary for them to define the physical areas of the community, especially in Maweni, home to

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over 30,000 people (Interview #10, September 28, 2005; Interview #4, October 18, 2005). This limited the potential for conflicts that may have arisen as a result of unclear and undefined community boundaries.

The components of social capital, (reciprocity, trust, and sharing), are important factors in the success of a CBO and to furthering its role within the community. Beall (1997), however, argues that disparities in levels of power within a CBO and its partner organizations, resulting from, for example, the superior reading ability of some over others or a more ready access to funding, creates tensions that disrupt the ability of the CBO to function properly. However, it might be said that conflict over levels of power is present in any organization, whether it is Pepsi, the World Bank, or the KNSWMP. There are inevitably going to be inherent power differences in any type of organization and it is up to the organization to structure itself in a manner that best handles such issues. A positive step in allaying the concerns Beall raises and limiting their impact are Kenyan government requirements that, in the establishment of a CBO, there be set out a constitution, a hierarchy, and rotating positions of authority.

Applying Beall's argument to the KNSWMP, it was clear that there were differences in power (Observations, October 4th, 2005). However, it did not, as in many organizations, limit the KNSWMP in successfully performing their tasks. In competently performing their SWM duties they were able not only to increase their social capital but also that of the community as a whole. For example, reciprocity increased as a growing number of community members participated in the SWM program by placing their garbage in the

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gunny sacks for pick up. As result, people saw that their community was becoming cleaner and there were fewer outbreaks of disease (Questionnaire #1-#10, October 20th, 2005). Trust increased not only within the KNSWMP, through working relationships, but in the community, as community members were able to see that the money they spent on the weekly service actually had a positive effect in their community, including economic growth and a healthier environment (Interview #10, September 28, 2005; Questionnaire #1-#10, October 20th, 2005).

Lastly, levels of sharing arguably have benefited Kisumu Ndogo as a result of people's overall willingness to pay for a garbage collection service. Before the KNSWMP, members of the community disposed of their garbage indiscriminately, by throwing their waste in garbage in piles or throwing it in a neighbor's yard. With the implementation of the KNSWMP, community members shared their economic resources to pay for a service that not only helps to keep their community clean, but also helps to employ youth in their community (Interview #10, September 28, 2005; Questionnaire #1-#10, October 20th, 2005).

4.3.2 Concerns with a CBO approach

Despite meeting framework requirements, concerns do remain. Mansuri & Rao (2004) and Cleaver (1999) have elucidated some of these, which include: taking finances away from participating members, leaving the development burden to the poor and not the rich, and leaving government structures intact, thus not addressing the source of the problems. Utilizing the case study of the KNSWMP, these concerns will be addressed.

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The establishment of the KNSWMP, with the involvement of the MGTM, did not take finances away from the community members that participated. In fact it did the opposite, by securing and subsequently increasing economic gain through mandatory fees payment for solid waste collection services and improving knowledge with regard to plant growth and sales (Interview #1, September 27th, 2005). In addition, the development of the group as a CBO increased the levels of employment in the community by adding additional members to it (Interview #10, September 28, 2005).

In addressing the next concern, it has to be recognized that the development burden is a reality that many people in poorer communities must live with everyday and it is in their immediate interest to tackle it, more so than for the rich. This was indeed a contributing factor that led to the creation of the KNSWMP; where a group of youth recognized a problem, saw an opportunity, and took it (Interview #10, September 28, 2005). The final issue raised by commentators is not consistent either with findings in Malindi. The laws governing SWM in Malindi were changed so that community-based initiatives had the legal support required for them to be successful. This change in the structure thus allowed the CBO to prosper (Interview #7, October 4th, 2005).

An important nuance in the case of the KNSWMP is that a significant contributor to its success as a CBO was through the participation of the MGTM. The MGTM obtained funding for the project, provided skills and resources to the KNSWMP, and were effective in lobbying the municipal government to make the necessary changes to waste management laws. What can be inferred from this is that although CBOs, like the

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KNSWMP, can overcome the obstacles outlined by Mansuri & Rao (2004) and Cleaver (1999), the influence of a well organized, locally run body, with the capacity to effect structural change in governing bodies is of major benefit to an up and coming CBO.

4.3.3 CBOs and sustainable development

The role for CBOs has become increasingly important for sustainable development. Odediran (2004) and Luckin & Sharpe (2005) both illustrate the necessary role that communities play in ensuring a sustainable development path by suggesting that CBOs are more in tune with local development needs. Community-based development has also become the focus of many multilateral development agencies, including the World Bank, UNDP, and UN-Habitat, who have moved away from top-down approaches to a partnership approach that includes CBOs (Interview #6, November 11, 2005). This is because they recognized that this shift would not only lead to a "better allocation of resources to help communities, but would also lead to reduced corruption and misuse of resources, and thereby more development assistance would reach the poor" (World Bank, 2005, p. xi-xii).

The second area of importance in choosing a community-based approach is the inability of governments in the developing world to handle the daunting development tasks they face, thus limiting their abilities to achieve a sustainable development agenda (Ali, 2003). In light of this, it becomes necessary for communities, such as the youth in Kisumu Ndogo, to recognize for themselves the problems they face and create solutions to address them (Interview #10, September 28, 2005). It is also evident when looking at the

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example of SWM in cities in Kenya, that the municipalities cannot properly meet the demands placed upon them, thus leading to increasing development problems and negating a sustainable approach. As a result, the creation of SWM CBOs that can, to some degree, provide an adequate response to the mounting problems of municipal solid waste is a necessary component in promoting sustainable development.

Despite the optimism, there are concerns with CBOs that need to be addressed. First, as outlined above, community-based groups need to have a consistent and current understanding of what sustainable development is in order to ensure that they are tackling problems in accord with sustainability. As such, they need to ensure that they are not just meeting economic needs, but also environmental and social needs. Failure to do so could inspire community-based development ideas which see, for example, deforestation as a viable development initiative. Although deforestation takes into account short-term economic development needs, it fails to address the environmental and social problems that are created with such one-dimensional development agendas (Diamond, 2005).

That being said, the second issue highlights the importance of creating economic sustainability. Many CBOs rely on one primary source of funding to ensure the success of their project, whether it is in the form of external sources or is generated from a product or service. The KNSWMP, for example, relies for its economic sustainability on the fee collection enforced by the MCM. Although they have alternative sources of resource generation, the vast majority comes from the fees collected and should this source of revenue be lost, they would be forced to find funding for their activities

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elsewhere or perform their tasks for free, possibly relying once again on donations (Interview #10, September 28, 2005). This problem proved a major contributory factor leading to the downfall of CBO projects, some of which were solid waste related, under the UNDP LIFE project. As a result of their inability to maintain viable levels of external funding, they became insolvent, thus negating their economic sustainability, which consequently detracted from environmental and social development (1997).

4.4 Issues of sustainable development in community-based SWM

There is a clear need for solutions to be found to augment the current situation on implementation of municipal led SWM in the developing world. Solutions offered by such CBOs as the KNSWMP clearly indicate a potential for picking up where the municipalities leave off in their attempts to contribute to what they understand to be a sustainable approach to development. The services that community-based SWM offer can promote sustainable development through environmental protection and health benefits, economic opportunity creation, and enhanced social capital.

4.4.1 Environmental Protection - Health and Community-based SWM

The environment is clearly paying a severe price as a result of poor municipal approaches to SWM. Problems, such as the lack of environmental awareness in the selection of landfills, are compounded further by deficiencies in waste collection and a consequent lack of concern over waste dumping. To make up for the inadequacies of the municipality in waste collection and disposal, it is necessary to have an alternative organisation, such as a CBO, dedicated to the collection of solid waste (Smith-

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Korfmacher, 1997). Although the larger issues of environmental standards for landfills and problems of burning are matters that need to be addressed by the municipality, the primary collection of waste is an area that can be tackled by the community directly to help limit the degradation of their local environment, thus promoting an improved standard of living (NEMA, n.d).

Consequences of the negative outcomes on the environment caused by improper SWM have direct and indirect effects on the health of local community members (WHO, 1997). In the case of Kisumu Ndogo, household questionnaires illustrate that people understood health as a major concern of improper SWM. Since the involvement of the KNSWMP, households in Kisumu Ndogo also stated that they had seen improvements in the cleanliness of their community, which some felt had contributed to an improvement in their overall health (Questionnaire #1-#10, October 20th, 2005).

In addition, helping to provide a cleaner and healthier environment, community-based SWM helps to promote the other two components of sustainable development. Economically, healthy community members are more likely to contribute to the local economy because they are spending less time in hospital and are paying less on hospital bills (Interview #8, October 4, 2005). Moreover, one household in Kisumu Ndogo stated that because of the cleaner and healthier environment, the family business was improving because wealthier people with more money to spend on goods and services were moving into Kisumu Ndogo (Questionnaire #2, October 20th, 2005). Social contributions to sustainable development can also occur through more community involvement in

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programs such as micro-credit, HIV/AIDS awareness, and malaria programs

(Questionnaire #1, #2, #4, #5, October 20th, 2005).

Although there are many positive effects on the environment and on the health of local

community members, it is also important to address the health and safety of the

community-based SWM workers. Although KNSWMP, because of their relative

success, has been able to maintain a satisfactory level of safety equipment, there were

still complaints from members of the organization of deficiencies in supplies such as face

masks to protect from inhaling dust, rubber gloves, and gum boots (Interview #10,

September 28, 2005). In observing the community-based SWM work that was being

carried out in Maweni, the other community-based SWM project in Malindi, it was noted

that the workers did not have any protective clothing on at all, with many working in

sandals, shorts, and short sleeve shirts. An inadequacy in the protection of the

community-based workers hinders the sustainability of the projects themselves as the

workers are exposed to the materials they are attempting to protect the community from.

Cointreau (n.d.), points to the following SWM jobs that can create health concerns:

- The composition of raw waste and its components
- The decomposition of wastes and their change in ability to cause a toxic, allergenic or infectious health response;
- The handling of waste with or without protection
- The processing of wastes
- The disposal of wastes (p. 2)

In addition to Cointreau's concerns, issue of handling such things as medical waste,

including needles, razors, and broken glass, or possible toxic waste, including industrial

pollutants, all raise additional concerns that need to be addressed.

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In Malindi, it is the responsibly of the Public Health Department to ensure that the KNSWMP is adhering to the safety regulations, including wearing protective clothing (Interview #9, October 4, 2005). A member of the Public Health Department is supposed to conduct random inspection of the two SWM projects to determine if they are complying with city safety standards. Although it is evident through observation that this is a rule very leniently applied, possibly due to a lack of resources, if it is found that a project is not complying with the regulations they will then be denied access to the city tractor which they use for waste collection. This restriction will continue to be imposed until the problem has been satisfactorily solved (Interview #8, October 4, 2005). These and similar regulations, whether enforced or not in practice, need to be properly recognized by community-based SWM groups, to ensure that their safety is maintained and that there are not any problems with outside governing authorities.

CBOs certainly provide a more desirable solution to the alternative of doing nothing about the ever growing levels of solid waste, their efforts are, nevertheless, limited due to such factors as a lack of resources and a poor understanding of environment consequences. For example, the KNSWMP many times was unable to secure access to the garbage truck from the MCM due to a variety of reasons, including a lack of fuel, drunkenness of the driver, and the garbage truck being broken down (Interview #10, September 28, 2005). This meant that garbage collected was left until it could be properly disposed of, allowing it to fester *in situ*, potentially causing environmental damage to water supplies, air quality, and the local marine park. In addition to this, although the KNSWMP was fortunate to have some training in environmental problems

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created by solid waste, this is not true of all CBOs and informal groups within Malindi, Kenya, and the developing world. The combined effects of a poor understanding of environmental issues coupled with the negative effects of inadequate resources to deal with solid waste could in fact lead CBOs involved in SWM to create similar if not worse conditions for the environment then if nothing was done at all.

4.4.2 Economic prosperity and Community-based SWM

Thompson (1979) and Lynch (1991) clearly demonstrate that what is considered 'waste' is simply the perception of those who are discarding it. In a similar vein, van de Klundert & Anschütz demonstrate that waste can be "regarded both as a negative and as a useful material providing a potential source of income" (2001, p. 9). This attitude is also evident in many forms in Malindi, in particular with the KNSWMP who have been able to capitalize on the waste that is created in their community. The waste that people throw out has a perceived value to the KNSWMP in the form of fee collection for garbage services, compost, and reusable items (Interview #10, September 28, 2005). However, the value of waste does not end with the KNSWMP. The waste that they collect and carry to the municipal landfill also supports scavengers. These scavengers help unload the truck and sift through the rubbish choosing items that have value to them, whether it is food, plastics, rubber, or clothing (Observations, October 3rd, 2005). This recognition of the value of waste is important because it "can in fact be the only free resource available to poor people." (van de Klundert & Anschütz, 2001, p. 9).

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A further component that contributes value to waste is technology, specifically recycling technology (Interview #6, November 11, 2005; NEMA, n.d.). With the increase in technology for the recycling of consumer goods, such as plastic bottles, plastic bags, and metal cans, value in waste is created. This, in turn, could help spur both a cleaner environment and economic growth by allowing CBOs or small businesses to be created to meet the demand of recycling clients (Interview #6, November 11, 2005). This is a situation that can be built upon throughout the developing world, including Kenya, to improve waste collection and would contribute to a more sustainable approach to development.

There is clear value in waste and the development of community-based SWM projects to utilize it. This is because waste has value either through waste collection services, recycling, composting, or reuse. With current levels of waste going uncollected in Malindi and elsewhere in Kenya and the developing world, it is apparent that economic gain can occur in a manner that can contribute greatly to all components of sustainable development. In addition, with the increasing levels of disposable income, increased consumerism, and ever growing levels of solid waste, there is a sizable and growing market that can and needs to be tapped. However, there are many factors that need to be taken into account in order for this to happen in a manner that contributes to sustainable development, most notability the need to bridge the gap between formal and informal sectors.

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4.4.2.1 Formal and Informal sectors

The important role that not only the formal but also the informal sector plays in general in the economies of the developing world, including the economy of Kenya, is well known. It has also been demonstrated, both in the literature and the case study evidence, that the informal sector is important in providing SWM solutions. However, in applying this to the idea of sustainable development, the role of the informal sector, although valuable, must be seen as limited (Briassoulis, 1999). This is because the state, usually an important player in the development of a sustainable agenda, is unable, in practice, to fully regulate the actions of informal groups (Briassoulis, 1999). This inability to adequately regulate informal groups means that these groups can, in effect, work outside the law. In referring back to the discussion on the understanding of sustainable development, many people interviewed stated that their environmental concerns only extended as far as the laws that regulated them (Questionnaire #1-#10, October 20th, 2005). It can be inferred, therefore, that with the informal sector working outside the law, little if any consideration would be given to the environment at all.

As was shown with the requirements for becoming a recognized CBO in Kenya, it is important, not only for the state to have an understanding of the role and structure of the organization, but also for the community leaders, including the Assistant Chief and Chief. This process also allows the CBO itself to have an understanding of how it is structured and what exactly each person's role in it are (Interview #2, October 18th, 2005). In addition, the creation of a formal group, in Kenya, allows for the legal sourcing of funds,

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which can be held in a bank under the CBOs name, factors that cannot be accomplished legally by an informal group (Interview #2, October 18th, 2005).

There is an evident dichotomy created between formal SWM CBOs and the informal sector in providing SWM solutions. The informal sector makes a significant contribution to SWM, however informal actors are not bound by any rules or regulations and have limited opportunities to legally access financing and capacity building activities. It is therefore essential, as Wilson, Veils, & Cheeseman (2005) argue, and as was effected by the MGTM and the KNSWMP, to bridge the divide between the formal and informal sectors that have been created. The benefits of doing so will allow for a more unified approach to SWM between CBOs and the municipality, limit the impracticalities of creating and organizing new groups, and also build upon the skills and experiences that are already in place within the informal groups (Wilson, Veils, & Cheeseman, 2005).

4.4.3 Capacity building, social capital, and Community-based SWM

Capacity building has become a popular approach in addressing issues of development in many countries, including Kenya. Although there are many different ways of understanding what it entails, based on the UNDP understanding it is the "sustainable creation, utilization and retention of that capacity, in order to reduce poverty, enhance self-reliance, and improve people's lives" (UNDP, 2006 [A]).

Helping the KNSWMP to build its capacity, thus allowing it to offer more effective and sustainable services, was the task undertaken by the MGTM. During a period of 16

months, the MGTM provided many of the tools, both physical and mental that would help the KNSWMP become self-reliant (Interview #1, September 27th, 2005). In so doing, the KNSWMP was able to improve their capacities, a necessary factor in increasing social capital (Pargal, Gilligan, & Huq, 2000). As was shown above, social capital was arguably improved upon in the Kisumu Ndogo and within the KNSWMP. Much of this success can be related to the improved capacity of the CBO who were able to increase their capacity in communications, knowledge, and skills, translating them into effective SWM services (Interview #10, September 28, 2005; Interview #1, September 27th, 2005).

However, what is also evident is that capacity building is a dynamic and on-going process (Crisp, Swerissen, & Duckett, 2000). With regard to the KNSWMP and its success as a CBO, a concern that can be raised is the lack of current capacity building initiatives, which arguably could lead to a stagnation of social capital and even a potential decrease. The issue of building capacity needs to be a concern that is addressed from within the community group, because of their intimate knowledge of their organization and its needs. That being said, the KNSWMP may lack the capacity to secure such things as funding for initiatives, demonstrating the need for the KNSWMP to seek help from the MGTM or the MCM and participate jointly to address such concerns. This, in turn, will ensure that SWM services continue, thus maintaining the potential for positive impacts in economic growth and environmental salvation.

Chapter 5

Conclusions and Recommendations

5.1 Introduction

It is evident that community-based development, more specifically community-based SWM, can contribute in a positive manner to a sustainable development agenda. In the case-study example of the KNSWMP, the desired characteristics of sustainable development, including economic growth, environmental and health improvement, and increases in social capital, were all apparent. However, the study also indicated that there are areas of concern that remain to be addressed, weaknesses that need to be improved upon.

5.2 Conclusions on what is going well

There are many positive indications suggesting that attempts to deal with issues of solid waste at a community-level are contributing positively to the sustainable development of countries in the developing world, including Kenya. Conclusions on the positive indicators of community-based SWM as a contributing factor to sustainable development include: CBOs; Value in waste; Third party involvement; and Applicable solid waste solutions.

5.2.1 Community-based organizations

A primary conclusion of this study is the recognition of the positive contributions that CBOs, like the KNSWMP, make to sustainable development. In response to the arguments raised by Mansuri & Rao (2004) and Cleaver (1999), it is necessary to

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recognize that although these commentators have raised many legitimate issues of concern, the failure to include a community-based approach in the development agenda of multilateral agencies, international development agencies, and all levels of government, would be synonymous with the failures of development over the past 50 years. It is evident that failure to resolve development issues, such as SWM, has resulted from top-down approaches, therefore indicating that the solution lies in the community's ability to contribute their unique insight into the problem.

Recognition of the positive gains to be made by allowing and indeed encouraging communities to contribute to a sustainable agenda is now coming to be the norm for development practice. This sentiment is clearly demonstrated in the literature. The actions of multilateral agencies, and various levels of government in the developing world, further highlight the shift in development practice that recognizes CBOs as a contributing force in a sustainable development agenda.

5.2.2 Value in waste

Lynch (1991) and Thompson (1979) make clear that there is value in waste, a contention that is confirmed by what was observed on the ground in the actions of the KNSWMP and landfill scavengers. It is increasingly evident that there is a growing awareness in both the formal and informal sectors of the value associated with solid waste. This recognition has resulted in the creation of new SWM groups, which, in many cases, has led to promotions in economic gains, reduced environmental degradation, and increases in social capital.

5.2.3 Third Party Involvement

In the case study example of the KNSWMP it was evident that the role of the MGTM was of primary importance to their success. The ability of the MGTM to bridge the gap between the MCM and the KNSWMP resulted in both groups having a medium through which they could communicate effectively. This is a popular route for many CBOs who work in conjunction with locally run NGOs as a means of bridging the gap between the informal and formal sectors. The result is to increase the overall capacities of all involved, thus allowing for more effective implementation of community-based projects (Wilson, Velis, & Cheeseman, 2005). In addition, the inclusion of a locally run NGO in the actions of CBOs bridges the gap between such parameters as cultural differences, language barriers, and religious constraints; issues that maybe be preventing effective project implementation for an international development agency. Members of local NGOs, who are familiar with Western multilateral agencies, international and national governments, as well as the needs of CBOs and informal groups, can facilitate an easier and more effective transition for development directives (van de Klundert & Anschütz, 2001).

5.2.4 Applicable SWM solutions

A means of improving knowledge surrounding SWM and its role in development and development initiatives can be found in WASTE, a Dutch NGO, series *Integrated Sustainable Waste Management - A Set of Five Tools for Decision-makers - Experiences from the Urban Waste Expertise Programme (1995 - 2001)*. Through an extensive study of SWM management initiatives throughout the world, the contributing authors have

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created a document that "is designed to give municipal managers and decision-makers a set of tools for managing the waste problems in their cities" (van de Klundert & Anschütz, 2001, p. 7). Moreover, with respect to community-based SWM initiatives, a six step process is outlined that enlists "a neighborhood community as a partner in waste management" (Muller & Hoffman, 2001, p. 21). These six steps include:

1. The local authority opens a dialogue with community members in the interest of including their involvement in SWM.
2. Community leaders and a facilitating agency determine the actors with a direct stake in waste management services, the potential and current problems, and their resources.
3. Actors with the largest interest in providing SWM services join the formal sector group
4. An analysis of the issues surrounding the community-based groups will be carried out by a third party agency, with community and stakeholder involvement
5. Stakeholder and consultants or local experts outline and put into action SWM plan
6. The local authority makes the partnership official with the communities and other contributing partners (p.21).

The six steps outlined by van de Muller & Hoffman (2001), are very similar to what occurred in practice in the association between the MCM, the MGTM, the KNSWMP, and the MSWMP. In the case of the KNSWMP, the process was considered to be a success, with the KNSWMP continuing SWM services today. Unfortunately the same is not true for the MSWMP, where evidence indicates it is in a state of disorganization and is providing only minimal SWM services in Maweni. Although WASTE and its contributing authors provide a solid foundation on which to begin addressing issues of SWM, it is not perfect and failures, like the MSWMP, occur, thus highlighting the need for more discussion.

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5.3 Conclusions on areas needing improvement

There are clearly areas in which community-based SWM is benefiting local communities and contributing to sustainable development. However, it is also clear that there are areas where improvement can occur. Below will outline some of these areas of concern and proposed recommendations.

5.3.1 Information, discussion, and the priority of SWM

Based on a study of the relevant data, it is evident that there is a failure to recognize the significance of SWM as a major developmental concern. Baud, Grafakos, Hordijk, & Post (2001) express this succinctly when they state, "A major gap in the current literature on SWM in developing countries is that the system is rarely investigated in its entirety, and assessments combining ecological, environmental health and socio-economic considerations are still largely absent" (p. 4). A pertinent example, as shown in Chapter three, is found in the different interpretations of exactly what the situation of SWM is in Kenya. This observation is one that is also true for most of the developing world.

Because SWM is not seen as a priority of concern for many international development agencies, including the Water and Sanitation Program (WSP), national governments and municipalities in the developing world do not receive the necessary funding or encouragement to achieve the proper understanding of the SWM situation, the problems it creates, and solutions that can be implemented; all of which are requirements in tackling the issue properly (van de Klundert & Anschütz, 2001).

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Falling under the banner of water and sanitation, SWM and its potential problems are pushed aside as secondary issues in the interest of more immediate and seemingly pressing sanitation problems, such as the disposal of human and animal excreta. This is made evident not only by the difficulty of finding a definition of sanitation which includes SWM, but even from the ones that do. For example, the Water and Sanitation Program, as reported by Mehta & Knapp (2004), does outline SWM as an issue of concern for proper 'sanitation'. In the context of the MDGs, they define sanitation as "the immediate household and community need for human excreta management required for privacy, healthy living conditions and a clean environment. On a wider scale, it also encompasses wastewater and solid waste collection, treatment and disposal" (Mehta & Knapp, 2004, p. 3). This definition, it is clear, offers SWM only as an afterthought, implying that it is a concern of a secondary importance.

It is difficult to disagree that development issues, such as the management of human excreta and clean water, are major areas of priority for development. However, this concern should not come at the expense of the equally important need to address issues of SWM. Failing to recognize this to be the case has direct ramifications not just on issues of sanitation, but on all types of development projects. For example, *The Economist* points to a Kenyan micro-credit group whose efforts were hampered by issues of poor SWM. They state,

> The clients of K-Rep, an excellent Kenyan microfinance bank in a small town on the fringes of Nairobi, are a pretty resourceful lot, but when the government stopped repairing roads, picking up rubbish and spraying for malaria, some were at their wits' end. Drainage in the marketplace was plugged by uncollected garbage and customers stopped coming. Maria Njambi, a single mother with a ten-year-old child, used to have a viable business selling fruit and vegetables she bought with credit from

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> K-Rep, but she had to watch her inventory rot and has stopped repaying
> her loan (*The Economist*, November 5, 2005).

Without a proper attention to SWM, anticipated outcomes of seemingly positive

development projects will be adversely affected.

5.3.1.1 Recommendation 1

There needs to be a greater recognition from all of those involved in development

practice of the important impact that improper SWM is having. This includes

organizations as large as the WSP, and as small as the KNSWMP, defining or redefining

their understanding of 'sanitation' so that issues of SWM are addressed in a manner that

illustrates it as major contribution factor. To allow for this, more money and more

resources are required to better understand the effects of SWM. In the case of the MCM,

these resources should be directed to better understand SWM issues, such as:

1. Technical aspects
2. Environmental aspects
3. Financial/Economic aspects
4. Socio-cultural aspects
5. Institutional aspects
6. Legal and political policies (van de Klundert & Anschütz, 2001).

Doing so will increase the knowledge surrounding issues of SWM and improve the

effectiveness of the KNSWMP and similar groups, opening the eyes of many who fail to

give it the priority it disserves.

5.3.2 Sustainable Development

As mentioned in the previous chapter, the issue surrounding the understanding of

sustainable development is one that needs to be addressed at the national and local levels

so that as a development directive, it can be properly implemented. There are clear

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differences in how local actors interpret areas of importance in sustainable development, including the MCM, MGTM, and the KNSWMP. Having various interpretations can have direct implications on development initiatives possibly detracting from their success. At a national level, in implementing solutions to achieve such things as the MDGs, a consistent understanding of what sustainable development is, what it entails, and who is involved needs to be achieved so that its effectiveness is improved upon and its implementation is consistent. At a local level a similar approach is necessary so that organizations such as the MCM, the MGTM, and the KNSWMP are promoting similar goals and are tackling similar problems in the community in a manner that is sustainable.

5.3.2.1 Recommendation 2

A consummate effort must be made so that the understanding of the three primary elements of sustainable development, economic, environment, and social considerations, are recognized throughout all agencies at all levels that administer programs under a sustainable development agenda. A more unified and knowledgeable approach to sustainable development through education programs, much like what has occurred with the KNSWMP HIV/AIDS and drug awareness campaigns, would be an effective tool in this regard. This educational approach is echoed in the 2005 MDG Status Report for Kenya where one of the poverty interventions is stated as, "Promoting environmental education, public awareness and participation in pursuit of sustainable development" (Ministry of Planning and Development, 2005, p. 25 [B]).

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5.3.3 Capacity Building

An area of importance that needs to be addressed to ensure that development is sustainable is capacity building. In the case study example of the KNSWMP, original capacity development programs took place over a 16 month period. Although this has benefited them in that they are able to contribute more effective and efficient SWM services than before, it is not enough. Capacity is an ongoing and dynamic process that must be built upon consistently to improve upon services offered (James, 2002). However, capacity building goes beyond just improving the capacities of CBOs, it is also necessary to include communities as a whole as well as the municipal government so that more unified approaches are achieved.

In Kisumu Ndogo the involvement of the local community and the importance of building their capacity with respect to issues of SWM are essential because of their direct relation to issues of solid waste. A lack of knowledge about solid waste, its disposal, recycling possibilities, and the reuse of items, hinders efforts of the KNSWMP. In addition to this, the improved capacity of the MCM is a further area of concern. Their inability to properly address SWM issues because of a lack of resources, facilities, and know-how, places unnecessary burdens on the community and increase the probability of health problems and economic decline.

5.3.3.1 Recommendation 3

Improving the capacity of the MCM will have the greatest benefit for KNSWMP and the community. Being able to recognise and address SWM issues that take into account the

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environment, economic costs and benefits, health costs and benefits, and social issues

will contribute greatly to sustainable development. Basic areas of improvement

suggested by van de Klundert & Anschütz (2001) for municipalities include:

1. Know your waste
2. Know your city and relevant neighborhoods
3. Know your citizens and clients of the waste system
4. Know all waste management activities in your city (p. 17)

Following upon the improved capacity of the municipality, three areas can be specifically

identified as directly benefiting the community and the KNSWMP. They are:

- *Awareness building* – Raises people's environmental consciousness and encourages a 'group think' approach to issues of SWM. It also raises the awareness of the contribution that CBOs involved in SWM are making.
- *Education* – Improves individual and community understanding of solid waste issues, in particular with respect to health and safety. It also encourages household sorting and waste management practices.
- *Information campaigns* – Informs community members about what is occurring in their community in SWM, who is involved, where it is taking place, and how they can participate (Muller & Hoffman, 2001, p. 31).

5.3.4 Technology

An area of concern in relation to SWM is access to technology. The level of recycling

technology in the developing world is not keeping up with the growing levels of

consumption. For Malindi, this problem is heightened further as there is no recycling

facility in the town, with the closest one residing in Mombassa, more than 150 km away.

It is therefore necessary for developing countries, including Kenya, to improve the access

to recycling technologies, be it is simple composting methods or the promotion of

industrial recycling techniques. These actions will thus allow SWM issues to be dealt

with in a manner that is more sustainable to their environments, economies, and societies.

However, it is not only the responsibility of the developing world to ensure that these

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technologies exist; the developed world has an important role in ensuring the transfer of knowledge on technological advancements.

5.3.4.1 Recommendation 4

Increasing access to recycling in Malindi would lessen the negative effects of improper SWM and would increase the value of waste. This, in turn, would increase the amount of waste collected in Malindi, thus leading to a reduction in the total amount of waste ending up in landfills, being burned, or being indiscriminately discarded. To allow for this, the developed world, who have advanced recycling technologies, must be willing and able to not only transfer technological equipment, but also the technological know-how to the developing world.

Complementing this, more investment by multilateral agencies and developing world governments promoting and encouraging recycling technology is required. This is not only necessary at the industrial level, but also at the local level so that techniques such as 'briquette' making and local composting initiatives, receive the funding and the focus necessary to encourage their development.

NEMA concurs with the need to improve upon technologies to best deal with issues of SWM in Kenya. In this connection, NEMA states that the following technological improvements need to be made to ensure the environmental sustainability of solid waste:

- Provision of appropriate recycling technologies to ensure waste reduction
- Provision of commercial composting facilities for urban areas
- Provision of bio-compost units for outlying informal settlements
- Incinerators incorporated with energy recovery units

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- Establishment of properly engineered landfills with adequate leachate and gas recovery units (n.d., p. 194).

It is the role of organizations such as the KNSWMP and the MGTM to work with the MCM and NEMA so that they are able to acquire relevant technologies that properly address solid waste problems in their community, therefore increasing their contribution to sustainable development.

5.3.5 Social Capital

Although social advancement is a necessary consideration when addressing issues of sustainable development, the lack of information and know-how with respect to the idea of social capital, an important measure of social advancement, is a major drawback. Gleaser (1998) is correct in asserting that we are only at the beginning of an understanding of the idea of social capital. The inability to properly understand social capital has translated into a lack of available tools, thus preventing the researcher from moving beyond studies which simply make conclusions based on educated probabilities. This failure results in a lack of important and necessary socially based information for the implementation of sustainable development programs.

5.3.5.1 Recommendation 5

Drawing upon the recommendations set forth by Phillips (2002), as outlined in Chapter 2, we once again employ these areas of focus to improve the understanding of social capital, aspects of which can be taken up by both academics and community members. In this connection, the following approaches are required:

1. Identify, understand, and support current social capital in the community
2. Improve capacity in research and support mechanisms for social capital

3. Understand the relationships of social capital to local economic, social, and political concerns
4. Improve the capacity of community members to understand their social capital
5. Improve resources available to community members
6. Improved indicators of social capital (p.147-148)

The need to address these social capital concerns, and others, is essential if CBOs are to be more effective in contributing to sustainable development. Failure to take note of this will only further promote unsustainable practices which result from a limited understanding of social concerns.

5.3.6 Bridging the Formal and Informal Gap

The importance of bridging the gap between the formal and informal sectors was made apparent in Chapter 4. The benefits would enable a more sustainable approach to important development issues, such as SWM. It also minimizes duplicate organizations from competing with each other, possibility detracting from benefits that could otherwise be gained. An example of an informal group becoming a formal CBO is the KNSWMP. As a result of their actions in becoming a formal CBO, they are now able to collect fees legally, open a bank account, have a formal structure with a constitution, and are able to formally outline concerns and issues demands to the MCM. All of these factors have played an important role in their success.

5.3.6.1 Recommendation 6

Formalizing informal groups should be encouraged at both national and local levels. Utilizing examples such as the KNSWMP to illustrate the successes that can be

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recognized as a result, would encourage informal groups to follow in a similar path, therefore contributing directly to a more sustainable approach to development.

5.4 Conclusion

Through the case-study example of the KNSWMP and the relevant literature it can be surmised that, overall, community-based SWM does contribute to sustainable development. The elements that are necessary for this to be the case are summarised below:

1. ***Community-based development - Framework requirements***
    a. Participation
    b. Community
    c. Social capital

With the community-based initiative in place, in this case the community-based SWM initiative of the KNSWMP, contributions to sustainable development are made. For the purpose of this thesis, specific elements of sustainable development that were contributed to comprised of the following:

2. ***Sustainable development***
    a. *Economic Prosperity* – Recognized value in waste leads to increases in formal and informal community-based SWM projects
    b. *Environment Protection* – Health of participating communities is improved upon
    c. *Social Advancement* – Capacity development of community-based SWM groups leads to increases in social capital

This is not to deny that areas of concern inevitably remain which need to be addressed. Meeting these needs will not only ensure the continued sustainability of the organizations themselves, but will result also in the meeting the economic, environmental, and social requirements that accompany an overall sustainable development agenda. Failing to

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address these areas of potential improvement will only serve to hinder the overall project

of development, thus detracting from the resources and development possibilities of

future generations.

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APPENDIX 1

Field Notes Volume 1

Interview #1, September 27th, 2005
Interview #2, October 4th, 2005
Interview #3, October 6, 2005
Interview #4, October 18th, 2005
Interview #5, November 29th, 2005
Interview #6, November 11th, 2005
Interview #7, October 4th, 2005
Interview #8, October 4th, 2005
Interview #9, October 4th, 2005
Interview #10, September 28th, 2005

Questionnaires in Kisumu Ndogo
Questionnaire #1, October 20th, 2005
Questionnaire #2, October 20th, 2005
Questionnaire #3, October 20th, 2005
Questionnaire #4, October 20th, 2005
Questionnaire #5, October 20th, 2005
Questionnaire #6, October 20th, 2005
Questionnaire #7, October 20th, 2005
Questionnaire #8, October 20th, 2005
Questionnaire #9, October 20th, 2005
Questionnaire #10, October 20th, 2005
Questionnaire #11, October 20th, 2005
Questionnaire #12, October 20th, 2005

Questionnaires in Maweni
Questionnaire #13, October 24th, 2005
Questionnaire #14, October 24th, 2005
Questionnaire #15, October 24th, 2005
Questionnaire #16, October 24th, 2005
Questionnaire #17, October 24th, 2005
Questionnaire #18, October 24th, 2005
Questionnaire #19, October 24th, 2005

Observation Notes – September 26th, 2005 – October 25th, 2005

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Research Questionnaire

**Contributions of community-based solid waste management to sustainable development:
The case study of the Kisumu Ndogo Solid Waste Management Project**

Martin Laycock

Departme   ent Studies

ʹ
ʹ

Introduction

"Good morning/afternoon. My name is Martin Laycock and I am a graduate student at St. Mary's University. I am conducting a survey for my Master's research that is seeking to answer the question "Does community-based solid waste management contribute to sustainable development?" I would like to ask you some questions that would assist me in my study. Your opinion is very important to my research. The questionnaire will only take about 30 minutes. All your answers will be treated confidentially and you will not need to give your name. You can refuse to answer a question at any stage if you wish to do so. Moreover, there are no wrong answers because everyone has a different opinion."

Respondent and household information

1. Gender of the respondent?
   a. Male
   b. Female

2. How long have you been a resident of this neighbourhood in Malindi?
   a. Less than a year
   b. More than a year but less than three years
   c. More than three years but less than ten years
   d. More than ten years

3. What is your age?
   a. 18-25
   b. 25-35
   c. 35-45
   d. 45-55
   e. 55-65

4. How many persons live in your household, *i.e.* how many persons eat, drink and sleep in your house on a regular basis?
   a. _____ Adults (18 years and older)
   b. _____ Children (under 18 years)

5. What is your level of education in number of years in school?
   a. _____ Years in primary school

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b. _____ Years in secondary school
c. _____ Years in university
d. _____ Years in professional courses
e. _____ Other
f. None

6. What does the principal income earner do?

a. Fisherman
b. Craftsman
c. Teacher
d. Owner of business
e. Driver
f. Cook
g. Worker on passenger boat
h. Unemployed
i. Other_____

7. How many other people in your household contribute regularly to the household income?

_____

8. What do other income earners do for employment?

a. Fisherman
b. Craftsman
c. Teacher
d. Owner of business
e. Driver
f. Cook
g. Worker on passenger boat
h. Unemployed
i. Other_____

9. What is the total income earned in your household per year?

10. Who makes decisions for the daily expenditures?
a. Father
b. Mother
c. Other relatives

11. I am going to list various household food products. Of these food items, how much and what types does your household purchase in a week.
a. Vegetables

b. Fruit

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c. Meats

....

....

....

d. Rice

....

e. Maize

....

f. Canned goods

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g. Goods in plastic

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....

h. Other

....

....

12. What additional items does your household typically purchase in a week

....

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....

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....

Institutions and their role in the community

13. Have you heard of the Malindi Green Town Movement?
   a. Yes
   b. No (go to 21)

14. If yes, what do you know about them?

....

....

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....

....

15. Has the Malindi Green Town Movement, in your opinion, helped in educating you about solid waste management
   a. Yes
   b. No

16. What have done or not done to help educate you?

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17. How do you assess their overall role in your neighbourhood?
    a. Helpful
    b. Detrimental
    c. Ineffectual
    d. They are not active in your neighbourhood (go to 21)
    e. No opinion

Explain your answer

....
....
....
....
....

18. Has the KNSWMP, in your opinion, helped with the removal of solid waste in your neighbourhood?
    a. Yes
    b. No

19. What benefits, if any, do you attribute to the KNSWMP involvement in solid waste collection in your community?

....
....
....

    a. Cleaner environment
    b. Improved health
    c. Higher wages
    d. Education about solid waste
    e. Community involvement
    f. Employment
    g. Other
    h. None at all
    i. No opinion

20. What problems, if any, do you attribute to their involvement in solid waste collection?

....
....

    a. Dirty environment
    b. Poor health
    c. Lower wages
    d. Lack of information about solid waste
    e. Poor community involvement
    f. Less employment
    g. Other
    h. None at all
    i. No opinion

Sustainable Development

21. Have you heard of sustainable development?
    a. Yes

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b. No - What if I told you that sustainable development is typically defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (go to 23)

22. What can you tell me about sustainable development?

....
....
....
....

23. Do you consider it to be important?
     a. Yes
     b. No

24. Why?

....
....
....

25. Would you consider solid waste management to be important to sustainable development
     a. Yes
     b. No

26. Why?

....
....
....

Environmental Issues

27. Rank in order of importance the most important environmental problem in your neighbourhood?
     ___ Air pollution
     ___ Unsafe drinking water
     ___ Insufficient water supply
     ___ Inadequate sanitation (sewerage)
     ___ Inadequate solid waste collection
     ___ Unsafe solid waste disposal
     ___ Other

28. What is your reasoning for each of the rankings?

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29. I will now list general household waste materials. Tell me what your household does with these items once they have finished their original use.
    a. Glass

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....

        b. Metal Cans

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....
....

        c. Plastic bottles

....
....
....

        d. Plastic bags

....
....
....

        e. Other plastics

....
....
....

        f. Paper Products

....
....
....

        g. Food items

....
....
....

30. Who has primary responsibility for collecting your household's solid waste once it is brought outside?
....
        a. Local government/municipality
        b. Private company
        c. Neighborhood group
        d. Other _____
        e. Don't know

31. Where did you learn about what waste could be recycled?
        a. School
        b. Friends/neighbours
        c. Malindi Green Town Movement
        d. Government agency (which one(s))
        e. International organization (which one(s))
        f. Community group (which one(s))

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g. Media (TV, radio, newspaper, etc.)
h. Other_____

32. Where did you learn about what waste could be composted?
    a. School
    b. Other people
    c. Malindi Green Town Movement
    d. Government agency (which one(s))
    e. International organizations (which one(s))
    f. Community-based organizations (which one(s))
    g. Media (TV, radio, newspaper, etc.)
    h. Other_____

33. How much income per month on average do you get from selling these wastes?
....

34. What is your opinion about the current situation of the disposal of solid waste in your neighbourhood?
    a. It is adequate
    b. There will be problems in the end
    c. Nothing is wrong with what is happening
    d. No opinion/don't know

35. Why?
....
....
....
....

36. What do you consider the most urgent problem related to the disposal of solid waste in your neighbourhood?
....
....
....
    a. Personal health
    b. Pollution of living area
    c. Littering of solid waste in the neighbourhood
    d. It will endanger the local environment
    e. Negatively impact local businesses
    f. Nothing is wrong
    g. No opinion

37. Would you be willing to contribute to the safe disposal of the solid waste in your neighbourhood?
    a. Yes
    b. No

38. Why?
....
....

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....

....

39. (Skip if answered "No" in question 37)
How would you be willing to contribute?

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....

....

a. Bringing my own garbage to the communal container as whatever the
neighbourhood identifies as container
b. Bringing my own and my neighbour's garbage to the communal container as
whatever the neighbourhood identifies as container
c. Separate recyclables
d. Separate organic waste
e. Cleaning litter around the communal containers as whatever the neighbourhood
identifies as container
f. Cleaning litter around the site where the containers are emptied
g. Paying for an amount agreed upon by the community for a solid waste collection
system

Community Involvement

40. Are you involved in any community organizations/groups?
a. Yes
b. No (go to 46)

41. If yes, which one(s)?

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....

....

42. What is your role in this/these organization(s)/group(s)?

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43. How did you get involved?

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44. How long have you been involved?

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45. What factors led you to become involved? (Skip 46)

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....

      a. Health
      b. Employment
      c. Need for change
      d. Education
      e. Other_____
      f. None
      g. Don't know

46. If you are not involved in a community organization or group; why not?

....
....
....
....

Household Income

47. What is the status of your household income in the past year?
      a. Increased
      b. Decreased
      c. Remained the same
      d. Don't know (go to 49)
      e. Not willing to say (go to 49)

48. What factors do you think have contributed to this and why?

....
....
....
....
....

      a. Health
      b. Community involvement
      c. Employment
      d. Education
      e. Family contributions
      f. New business
      g. Government
      h. International organizations (if so, which one(s))
      i. Community-based organizations (if so, which one(s))
      j. Other_____
      k. No opinion

49. What is the status of your household income in the past five years?
      a. Increased
      b. Decreased
      c. Remained the same

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d. Don't know (go to 51)
e. Not willing to say (go to 51)

50. What factors do you think have contributed to this and why?

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    a. Health
    b. Community involvement
    c. Employment
    d. Education
    e. Family contributions
    f. New business
    g. Government
    h. International organizations (if so, which one(s))
    i. Community-based organizations (if so, which one(s))
    j. Other_____
    k. No opinion

Household Health

51. Were any members of your family ill in the past year?
    a. Yes
    b. No (go to 53)

52. What type of illness(es)?

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    a. Respiratory
    b. Cardiovascular
    c. Injury-related
    d. Tuberculosis
    e. Diarrhea
    f. Malaria/fever
    g. Cancer
    h. HIV/AIDS
    i. Other _____
    j. Don't know
    k. Not willing to say

53. Were any members of your family ill in the past five years?
    a. Yes
    b. No (go to 55)

54. What type of illness(es)?

....

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a. Respiratory
b. Cardiovascular
c. Injury-related
d. Tuberculosis
e. Malaria
f. Cancer
g. HIV/AIDS
h. Other _____
i. Don't know
j. Not willing to say

55. Has your family's health been improving in the last five years the years?
    a. Yes
    b. No
    c. Don't know (go to 58)
    d. Not willing to say (go to 58)

56. What factors do you feel contribute to this improvement/deterioration?

....

....

....

    a. Employment
    b. Environment
    c. Government
    d. International organizations
    e. Community organizations
    f. Other_____

57. Please explain your answer

....

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58. Do you associate illness with poorly managed solid waste?
    a. Yes
    b. No

End
"Thank you very much for your contribution to this survey. Do you have any questions or comments that you would like to ask me?"

Additional comments:

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....

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....

"Thank you very much for your co-operation. Good bye."

<u>Interview Questions</u>
Generic Interview Questions
**Contributions of community-based solid waste management to sustainable development:
The case study of the Kisumu Ndogo Solid Waste Management Project**

Martin Laycock

Departm   ent Studies

!

Introduction
"Good morning/afternoon. My name is Martin Laycock and I am a graduate student at St. Mary's University. I am gathering information for my Master's research which is seeking to answer the question "Does community-based solid waste management contribute to sustainable development?" I would like to ask you some questions that would assist me in my study. Your opinion is very important to my research. The interview will only take about 30 - 40 minutes. Again all your answers will be treated confidentially and you will not need to give your name. You can refuse to answer a question at any stage if you wish to do so. Moreover, there are no wrong answers because everyone has a different opinion."

Organizational Questions
What is the name of your organization?

How long has it been established?

How long have you been with your organization?

What role does your organization play in development?

Sustainable Development
What can you tell me about your organizations' view on "sustainable development"?

Do you consider a sustainable approach to development to be important? Why/Why not?

Does your organization facilitate a sustainable approach to development? How?

Can you give me an example?

In your opinion, is sustainable development a feasible approach? Why/Why Not?

What can be done to improve upon this approach?

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Environmental Information

What do you consider to be the largest environmental concern for Kenya? Why?

What do you consider to be the largest environmental concern for Malindi? Why?

Do you consider solid waste management to be an area of concern for Kenya's, as well as Malindi's, environment? Why/Why not?

In your opinion, what effects does inadequate solid waste management have on Malindi's environment?

How has your organization tried to address environmental issues as well as issues of solid waste in Malindi?

In your opinion, what does your organization need to improve upon to better address environmental and solid waste issue in Malindi?

Kisumu Ndogo Solid Waste Management Project (KNSWMP)

What is your organizations' relationship with the KNSWMP?

How long has your organization had this relationship with the KNSWMP?

What are your organizations expectations of the KNSWMP?

Have they been met? Why/Why not?

What do you consider to be the benefits of the KNSWMP involvement in solid waste management?

What do you consider to be the drawbacks of the KNSWMP involvement in solid waste management?

In your opinion, do the efforts of the KNSWMP coincide with your organizations understanding of sustainable development? Why/Why not?

Aside from increased funding, what improvements do you think would make the KNSWMP a more effective organization?

Community-based initiatives

What is your organizations' view on community-based development?

What are some examples of your organizations' involvement or support of community-based development, if any?

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Is it important that the municipal government, the private sector, and the community work together in dealing with environmental and solid waste issues? Why/Why not? Is it possible?

What approaches does your organization apply to ensure that various stakeholders address all concerns in an equal manner?

In your opinion, are the concerns of the community in Malindi regarding their environment and solid waste management being addressed? Why/Why not?

What are some examples that you can give?

What can be done to improve upon this?

Has your organization seen an increase in community involvement in environmental issues in Malindi, especially with regard to solid waste?

What are some examples of this?

What do you attribute to this increase/decrease?

"Thank you very much for your contribution to this research study. Do you have any questions or comments that you would like to ask me?"

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"Thank you very much for your co-operation. Good bye."

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Saint Mary's University

Certificate of Ethical Acceptability
of
Research Involving Human Subjects

This is to certify that the Research Ethics Board has examined the modifications to the previously approved research proposal submitted by:

Principal Investigator: LAYCOCK, Martin

Name of Research Project: Sustainable development and community based solid waste management: A case study of the Malindi Green Town Movement
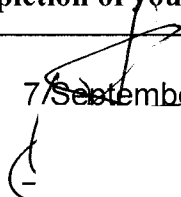
REB File Number: 05-073

and concludes that in all respects the proposed project meets appropriate standards of ethical acceptability and is in accordance with the Tri-Council Policy Statement on the Conduct of Research Involving Humans.

> Please note that for "ongoing research", approval is only effective for one year from the date approved. If your research project takes longer than one year to complete, submit Form #3 (Annual Report) to the REB at the end of the year and request an extension. You are also required to submit Form #5 (Completion of Research) upon completion of your research.

Date: 7 September 2005

Signature of REB Chair:

Dr. Veronica Stinson, Vice-Chair
Research Ethics Board