

# **An investigation into the relationship between information and environmental behaviour: a case study of Cape Town's Smart Living Campaign**

**Master's Dissertation**

by

**Karl Buckton**

**(bckkar003)**

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**Supervised by:**

**Dr. Zarina Patel**

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Environmental Geographical and Sciences Department



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## **ABSTRACT**

Environmental campaigns have generally relied upon using information alone as a way to get messages across to the public. This approach is based on the assumption of a linear relationship between information and behaviour: it is believed that educating people will lead them to be more environmentally responsible. An example of this is the information-deficit model. The information-deficit model (Blake, 1999), suggests that experts inform individuals about the environment in order to achieve behaviour change. Contrary to this model, dissenters claim that the information-deficit model is not participatory or deliberative and that human behaviours are determined by factors such as individual lifestyle. This dissertation tests the assumption behind the idea that added information leads to improved environmental behaviour. The research used a case study of an urban South African environmental education program: the Smart Living Campaign in the City of Cape Town. The study is split into two sections, the first which focuses on the workplace of the companies. The second which is aimed at the households of the employees of the companies. The study focused on two variables, the impact of waste management in terms of recycling, and energy usage in terms of electricity consumption on their behaviour. Data was collected in two ways: 1) Interviews with management at three companies, as well as two stakeholders from the City of Cape Town and 2) Survey questionnaires with employees at two of these companies. The study found that waste management strategies, such as reducing and re-use of waste are dependent on structural resources which are more readily available at the workplace than in the household. These structural resources include colour-coded bins, LED light bulbs etc., materials which generate positive environmental behaviours. The value-action gap in which attitudes and values are not reflective of the individual's behaviour is central to this project. The information-deficit model indicates that positive environmental behaviours are generated through information but that external factors such as structural facilities can limit environmental behaviour of individuals at the household and not the workplace. This is mainly due to the resources available at the workplace than at the household. Deficits in the household include lack of resources and facilities for individuals to display environmental positive behaviours. This dissertation suggests that although the information-deficit model facilitated the implementation of infrastructure at the workplace, the model is too simplistic to replicate in the household as it

does not take into account the structural conditions of the household, and the extent to which services and facilities are available.

# **1. INTRODUCTION**

## **1.1 Background and Rationale for the study**

South Africa, a country which is socially and environmentally diverse, is focusing on delivering environmental resources which are equitable and feasible for all citizens and the protection of the environment for future generations. This is quoted in Section 24 of the Constitution, which states that “South Africans have a right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. The Constitution compels everyone to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources” (Department of Environment Affairs and Tourism [DEAT], 2012: 8). In order to people to take reasonable steps, appropriate environmental behaviours need to be inculcated. The focus of maintaining and having equitable access to environmental resources is to improve the awareness of the problems that the environment is encountering. An essential component of improving environmental awareness for the public is access to information. Information is a critical tool to bring awareness to current problems in order to influence behaviours (Hungerford and Ford 1990). The behaviours associated with the above statement are environmental behaviours. Hungerford and Ford (1990) relate information to the linear approach of environmental behaviour.

There is some debate about the relationship between environmental information and behavioural change. Historically, it was assumed that increased knowledge will result in improved environmental behaviour (see Hungerford and Volk 1990). This linear approach over time was contested by Kollmuss and Agyeman (2010), who suggested that there is no definitive relationship between environmental knowledge and pro-environmental behaviour. Globally, there has been much research completed on the relationship between environmental knowledge and behaviour change. The UNESCO conference of 1977, which contained the Tbilisi Declaration was one of the first intergovernmental conferences dedicated to changing citizens’ approach to environmental issues (United Nations [UN], 1977: 5). The conference highlighted that “citizens should possess knowledge, values, attitudes and practical skills to solve environmental problems” (Cited in Robelia & Murphy,

2012: 301). This was followed by the ground-breaking Local Agenda 21 which highlighted that the public and individuals have an important role to play in addressing environmental problems (Robelia & Murphy, 2012: 301). The value-action gap (Blake, 1999) states that there is a gap in individuals when their values and attitudes are not parallel to the actions of that individual. The information-deficit model is one approach that was designed to generate positive environmental behaviours to bridge the value-action gap. The information-deficit model is the model that is based on the assumption that environmental interventions, such as environmental information campaigns are needed for individuals to change their behaviour towards the environment. The assumption is that individuals do not have the information to be transferred into positive environmental behaviours. Therefore the interventions are required to change the behaviours of the individuals.

The information-deficit model of changing behaviours was proposed to the public to generate awareness on the issues. The information-deficit model suggests that providing more information to the public through interventions such as campaigns would automatically lead to positive environmental behaviour. The model is similar to the linear approach by Hungerford and Volk (1990). In this research, the Smart Living Campaign is based on the interventionist principle of the information-deficit model and will test the effectiveness of the campaign on the employees of the companies who participated in the project. The project will test the assumption that knowledge is required to ensure positive environmental behaviours to bridge the value-action gap. The Going for Green program in the United Kingdom is an example of a campaign similar to the Smart Living Campaign in which knowledge was assumed to be the main issue for people not having positive environmental behaviours.

Local environmental literature on the relationship between environmental information and human behaviour is not extensive. This means there is a need for this particular type of research especially in the local context. South Africa has an environment with considerable natural resources. The question is how these natural resources are managed in order to maintain a healthy environmental future. Using the framework of the value-action gap and the information-deficit model approach to environmental knowledge, this dissertation will test the assumption that providing more information to the public will translate into

improved environmental behaviour. The assumption will be tested using a public environmental campaign in the City of Cape Town called the Smart Living Campaign, which was run to provide information to the public in order to promote positive environmental behaviours. The City of Cape Town's 2014 Environmental Agenda, a document aspiring to goals of educating the public on the environment attempts to "communicate a general environmental awareness message to the citizens of Cape Town at least four times per year" (City of Cape Town, 2009: 8). The purpose of these environmental messages is to ensure commitment from the citizens of the city to act sustainably.

## **1.2 Approach to the Study**

The Smart Living Campaign is a public campaign initiative, run by the City of Cape Town in the Environmental Capacity Building Unit. The campaign was designed to inform individuals and companies of the role they can have in affecting environmental change. A selection of corporate companies were invited to participate in the campaign as a means to improve environmental awareness in the workplace, with the expectation that employees will transfer their knowledge from the workplace to the home. It is a strategy designed to meet the requirements of the City of Cape Town's basic message around environmental awareness using the 2014 Environmental Agenda. The corporate aspect of the campaign contained a practical component which was facilitated by an external consultant employed by the City of Cape Town. The Smart Living Campaign will be used to examine the validity of the information-deficit model by using information to inform the public about environmental issues. This dissertation will incorporate two variables of the Smart Living Campaign, waste consumption and energy consumption. This will be measured from the participation of two companies, Fairfield Tours and Khayelitsha Cookies. Additionally, Vineyard Hotel provided data from a management perspective. There are four themes covering the Smart Living Campaign, that being waste, energy, water and biodiversity. The rationale for using two variables is that although covering all four variables for this project would be important, for the purposes of this study two variables would be analysed. Two companies were selected from a sample of 16 companies for this study, based on size. Both of the companies selected are small to medium sized companies, thereby having a comparison of companies of similar size and employees ensures consistency of the data analysis.

Waste and energy consumption are becoming serious issues for the City of Cape Town. The rising demand to meet requirements to reduce waste and the strain of energy consumption on the electricity gridlines are concerns. These concerns are related to the effect that increasing waste consumption and energy usage can have on the workplace and households. Eskom has scheduled rolling blackouts over the course of the past couple of years, indicating the strain on the national energy supply. In Cape Town, waste reduction and energy consumption reduction are issues that need addressing. The waste consumption in the City of Cape Town is leading to a shortage of space for the waste to be managed and stored. It is becoming increasingly difficult to find geologically suitable sites for landfills in Cape Town (City of Cape Town, 2011: 5). This means there is a shortage in the near future of where waste can go when the current landfill sites reach capacity. When the landfill sites reach capacity, vacant land would need to be located to store waste. In terms of energy there are three challenges facing citizens. Eskom tariffs and fuel prices are rising, the usage of oil and coal which is our dominant resource to generate energy are limited resources which will eventually run out and pollutants are impacting on the environment (City of Cape Town, 2011: 41). Due to the nature of South Africa's economy, there is an intense usage of energy. Due to the amount of Carbon Dioxide emissions per capita in South Africa, which is double the amount of the global Carbon Dioxide emissions in the world and 10 times that of Africa, most of the climate change mitigation strategies in South Africa are focused on reducing energy consumption (Holgate, 2007: 474). In addition, the City has targets to "reduce city-wide electricity consumption by 10% by 2012 on unconstrained use, with a 10% renewable energy supply by 2020 (City of Cape Town, 2011: 49). A recent report from Statistics SA indicates that electricity consumption dropped by 0.5% in 2013 compared to 2012 (Macfarlane 2014).

The campaign includes practical suggestions for the public on how to reduce waste and energy consumption in the household. The campaign is not just limited to the household but also corporates, getting the involvement of the companies to educate their employees. Therefore the two variables in the campaign were utilised.

### **1.3 Measuring Data**

The methods by which the data was to be collected were two fold.

The first part of the data collection was a survey questionnaire, this contained questions on waste and energy. The questions on waste focused on waste behaviour and activities in the workplace and the household. Questions consisted of waste activities in the workplace and how the training from the campaign has led to any changes in the behaviour of the employees. The energy questions are similar to the structure of the waste questions, asking the employees about any changes they have witnessed in the workplace post-campaign, their experiences using the information from the campaign and how the information on energy behaviour translated from workplace to household. The survey questionnaire is derived from aspects of the Smart Living Campaign training. These aspects are related to the information provided in the campaign handbook. For the waste section, aspects like reuse and recycling of waste and waste collection were used to form questions in the survey. Energy questions were based on aspects such as changing of energy patterns such as changing light bulbs to LED, reducing energy consumption at work.

Secondly, interviews were held with senior management of the companies, whereby the focus is on understanding the rationale for bringing the campaign to the companies and to the employees. The questions in these interviews were focused on the themes of waste and energy and consisted of questions to understand the rationale behind the campaign. In addition to the interviews with senior management, two interviews with consultants from the City of Cape Town were conducted to understand their views and experiences of the campaign.

The three companies that participated in the study were Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel. Fairfield Tours is based in Parow, Khayelitsha Cookies is based in Ndabeni and Vineyard Hotel is based in Claremont. Fairfield Tours and Khayelitsha Cookies are situated in the northern suburbs of Cape Town while Vineyard Hotel is based in the South. Further analysis of the companies is provided in the Methodology section of the study.

#### **1.4 Research Questions**

The following are the questions being tested based on the assumptions of the information-deficit model approach to environmental knowledge and behaviour.

Specific questions for this dissertation are:

- I. What is the nature of the relationship between the information provided by the Smart Living Campaign and the environmental behaviour of the participants in the workplace?
- II. What has been the impact of the campaign on environmental quality in the workplace?
- III. To what extent have practices in the workplace been transferred to the household?

The rest of the dissertation structure is as follows:

Chapter 2 provides an overview of the theoretical and conceptual ideas underpinning this study and includes a review of the literature on the information-deficit model, environmental behaviours as well as criticisms of the information-deficit model and framework for alternative models. The alternative models include a more participatory approach to environmental behaviour. Chapter 3 provides a comprehensive breakdown of the methodological approach of the dissertation, the introduction of the companies involved and how the data was collected. Chapter 4 presents the findings of the study. These findings are derived from the data collected during fieldwork and interaction with the companies who are participating. Chapter 5 discusses the findings of the study. Chapter 6 presents the recommendations and conclusions of the dissertation.

## **2. LITERATURE REVIEW**

This section of the dissertation will cover the literature of the themes relevant in this study. There are three sections of the literature review. The first sections are public involvement in environmental actions, which will draw on calls for local action in addressing environmental problems as well as introducing the information-deficit model of public involvement. The second section concerns environmental management strategies and behaviours specifically linked to waste and energy behaviour. The third section will challenge the information-deficit model, will offer critiques of the information-deficit model and provide alternatives.

### **2.1 Public Involvement in Environmental Actions**

This part of the literature reviews will cover the role of the public in environmental actions, and how this has come about. Environmental actions over time from the public have been seen as insufficient/inadequate for addressing the concerning issues of the environment i.e. pressure on resources by the human population having detrimental effects on the physical environment. Local Agenda 21 highlighted the need for governments to get their citizens to act accordingly with regards to the environment. Chapter 28 of Local Agenda 21 stated that “through consultation and consensus building, local authorities would learn from citizens and from local, civic, business and industrial organizations and acquire the information needed for formulating the best strategies” (UNCED 1992 cited in Eden, 1996: 184). Local agenda 21 presented the framework for governments to enact change through policy making change globally. In the South African context, the end of apartheid resulted in a new legislative and administrative system, one founded on the principles of democracy. There was a need to include public engagement due to the pre-existing structures of the apartheid regime, which stifled public participation due to its segregationist politics. The Bill of Rights made provisions for environmental actions. Chapter 2 of the Constitution of South Africa states that “everyone has the right to an environment that is not harmful to their health or well-being” (Act, No. 24 of 1996: chap2). The Constitution makes provisions for the provincial and local authorities of each province in South Africa to protect the environment for their citizens.

The information-deficit model is one of the key tenets of this project. This model is based on the assumption that environmental interventions, such as environmental information

campaigns are needed for individuals to change their behaviour towards the environment. The Smart Living Campaign is a campaign based on the ideas of the information-deficit model in that the campaign attempts to use information to improve knowledge of the environment and thus change behaviour. The idea of the information-deficit model is to develop a linear approach to achieving positive environmental behaviour. The value-action gap highlights that values and attitudes of an individual are not synchronous with their actions (see Blake 1999). The attempt of this dissertation is to use the information-deficit model and determine whether information in its simplest form resulted in changing behaviours of the employees of the companies that participated. The value-action gap is designed to challenge the information-deficit model in that using information alone as a bridge to achieve positive behaviours is too simplistic and that peoples' values need to be taken into account. Values and attitudes for each individual are different and therefore testing the information-deficit model in the context of changing behaviours is necessary to understand if information provision alone to achieve positive environmental behaviours is still relevant.

This dissertation uses the idea and principles of the information-deficit model, via the Smart Living Campaign in the City of Cape Town, to test employees who have been exposed to the Smart Living Campaign and determine whether there were substantial behaviour changes post-campaign. Blake's study on the Going for Green program in the United Kingdom is an example of a campaign applying the information-deficit model to achieve positive environmental behaviours. The Going for Green program is an environmental awareness initiative which was started in 1998 to provide information to the public in order to change environmental perceptions and involve the public in making a positive contribution to the environment (GFG 1998: 3, 5). The central message of the campaign is that "the everyday decisions of people, as individuals and in communities, can have a large aggregate effect on the environment" (Blake, 1999: 259). The Going for Green initiative applies the principles of the information-deficit model to generate environmental behaviours.

The information-deficit model is a model designed to generate positive environmental behaviours through the medium of information. The model is not designed to overcome the value-action gap but to explore the gap in determining whether individual behaviour can be altered positively. In most cases, the model is used by governments to inform the public

about environmental issues, an example being the Going for Green program. The premise of the model is to identify core facts about the environment and then deliver messages to the public using that information. In most instances, the model is in the form of a campaign to transfer those messages across to the public. That is the assumption of the model in terms of filling the supposed “information-deficit” that exists within the public’s understanding of environmental change (see Burgess et al 1998). The linear approach of environmental behaviour adopted by Hungerford & Volk (1990) espouses the interventionist principles of the information-deficit model which are designed to generate positive environmental behaviours. The information-deficit model presents an opportunity for governments to address the gap between policy and the public. Eden (1996) argues that policies fail to understand the gap between information and action (Eden, 1996: 198). Bulkeley (2003: 148) suggests that the information-deficit model “sees public education as the way forward for improving participation”. Barr (2008: 97) highlights that information intensive approaches are advocated by policy-makers as they are “grounded in key assumptions regarding the nature of behaviour change and the belief that raising public awareness will result in a linear transformation from attitudes to behaviour”.

The rationale for the information-deficit model is designed with good intentions but the critiques of the approach have led to calls for a more participatory and deliberative call for environmental policy action. There are criticisms of the model in that the model is too simplistic, failing to bring into account that each individual is different to each other and that values and external factors are not considered. This insulates the model to just information and does not highlight factors which could influence behaviours. Blake (1999) highlights the factors that can inhibit behaviours or what he terms barriers. Additionally, criticism that the information-deficit model has flaws which manifest by “the persistent refusal of the public to have their allegedly irrational conceptions of risk corrected by providing them with more information” (Owens, 2000: 1142). Barr (2008) highlights that the key assumptions that the Going for Green program attempted to achieve and failed on were based on behavioural change and public commitment to that change. The assumptions the Going for Green initiative failed on were that the problem of awareness would be recognised by individuals regarding unsustainable forms of behaviour and that the basis of this information would lead to responses to the messages provided by the Going for Green

campaign (Barr, 2008: 87). The overriding criticism underlying these assumptions is that the framework underpinning the information-deficit model is too simplistic. Barr stated that the Going for Green campaign was too simplistic in that the information-deficit model lacked “theoretical rigour and omitting to acknowledge the role of different social and community groups and the different types of responses individuals within these groups were likely to have” (Barr, 2008: 88). This analysis from Barr (2008) highlights the need for a deliberative approach. Eden (1996: 183) critiques the information-deficit model acknowledging that the problems of “policy tends to assume that providing environmental information and education will secure behavioural change, when behaviour is in fact intimately dependent upon public interpretations of the issues”. The final section of the literature review will focus on an alternative model to the information-deficit model.

## **2.2 Challenging the information-deficit model**

This section will provide a critique of the information-deficit model and calls for an alternative approach when engaging the public on environmental actions. There are calls that the model is too simplistic (see Blake 1999), as well as being criticised on “epistemic grounds and for its failure to take account of the social, cultural and institutional contexts in which attitudes and behaviours are formed” (Owens & Driffill, 2008: 4413). The model was considered to lack account of social and cultural understanding of individuals, as the interpretation of the information is different for each individual. In addition to this, understanding of lifestyle choices was also not acknowledged and is included as one of the critiques of the model.

The failure to understand the way in which individual lifestyles are understood and merely adding information-based models for the purposes of changing behaviours is problematic for many reasons. The Going for Green program in the United Kingdom was based on the information-deficit model, used as a campaign to highlight environmental issues to the public. This was facilitated through the use of information without considering external factors. Blake (1999: 266) highlights that people “who did not own their own property do not see why they should be responsible for household environmental improvements which would not necessarily benefit them directly”. Blake suggested three barriers in which the information-deficit model is undermined, namely individuality, responsibility and practicality (Blake, 1999: 266). For the purposes of this dissertation, the barrier of practicality will be

utilised as the barrier focusing on constraints which is relevant to the issues present in South Africa as well as Cape Town. Practicality refers to the social and institutional constraints that prevent people from acting pro-environmentally regardless of their attitudes or intentions (Blake, 1999: 268). These institutional constraints are manifested by the failure to understand the social, cultural aspects of individuals and communities. Owens (2000: 1141) states that the information-deficit model approach has proven to be “flawed” through experience and research therefore a “growing body of opinion points instead towards the need for more deliberative and inclusionary procedures”.

There have been calls for a civic approach to participation to include a deliberative form of environmental action in changing behaviours. Bulkeley and Mol (2003: 151) champion a model of participation by stating that it has an “important learning component for the participants which is reflected in the enhanced quality of, and the support for, environmental decision making”. In the South African context, it is important to understand the socio-economic issues of the public as well as the environmental issues that most of the poor are situated in. Mohan and Stokke (2000: 253) state that “there is a broad consensus that people should no longer be treated as the passive objects of development but actively participate in development processes”. The consensus was based on the EIA process, which is the impact assessment process whereby the participation component requires input from the public. This component is still considered a top-down process and decisions are made from the top which are not considered in the interests of the public.

A comparative way to look at how the information-deficit model is not considered a realistic model to change behaviours was evident in a local air quality management strategy in the United Kingdom, making the requirement for a deliberative form of environmental action a viable alternative (Petts and Brooks 2006). The public was increasingly concerned about the linkage between air quality and respiratory diseases. The process was that the public would be involved in the decision making process but the information provided by the government was presented by experts who were the only individuals capable of understanding the messages they were trying to translate to the participants. The experts were adamant that the public were not able to identify the linkages due to the scientific nature of the process in which air quality is analysed. Petts and Brooks (2006: 1051) stated that “air quality officers were concerned that public perceptions based on local and personal experience differed

from their own understandings which derived from scientific evidence, and contextualised this lay understanding as misunderstanding”. This example indicated that the knowledge used by the experts was a structural constraint to the actions they required by the community. Owens (2000) states that “top-down information, especially when it depends on the framing of the problem not widely shared by lay publics, is at best insufficient” (Owens, 2000: 1144). The information was only understood by the experts but the community failed to incorporate this due to a lack of scientific experience with the translation of the knowledge.

The experiences of the local community in the UK highlighted the practicality barriers which Blake describes as a constraint towards the implementation of the information-deficit model. A shift towards a participatory approach was necessary. Individual action towards environmental issues cannot be overcome just by using an information approach. Barriers exist which compromise the model. Participatory approaches which involve the public from the beginning phase and the end phase of the environmental strategies are growing. Owens (2000: 1146) suggests that a participatory form of changing environmental policy to inform the public “may be better at revealing constraints and might point to possibilities for removing them, thus enhancing capacity in particular local contexts”.

### **2.3 Environmental Management strategies and behaviours**

Environmental knowledge is continually linked to environmental behaviours. Environmental behaviours are complex to understand because there are underlying factors in which human behaviours are formed. Providing a conceptual definition of behaviour and pro-environmental behaviour is useful in this context. Eden (1993: 1744) states that behaviour “represents the commitment to or repetition of certain acts as well as a disposition towards forms of behaviour which are not necessarily undertaken”. Pro-environmental behaviour “denotes behaviour or attitudes which are intended to produce environmentally favourable outcomes, regardless of whether they do in fact do so” (Eden, 1993: 1744). Stern (2000) defines pro-environmental behaviour as “behaviour that intentionally pursues reduction of the negative impact of people’s actions on the natural world” (cited in Unsworth et al, 2013: 212). This dissertation will use Stern’s definition of pro-environmental behaviour as the aim of this dissertation is to understand if the information-deficit model will change the behaviours of the people who participated. The Eden definition of environmental behaviour

is designed at an outcomes based approach whereas the Stern definition of environmental behaviour provides clarity in relation to the actions needed to reduce the impact of the intended behaviour. This intended behaviour should be influenced by the information that is provided by the Smart Living Campaign.

The two variables which the study will cover are waste and energy. In Cape Town, the issues of waste and energy are related to the increasing lack of space available to send waste in the City, which will result in possible health problems in the future. Energy consumption is too high in the country (City of Cape Town, 2011: 15), placing the existing infrastructure in which electricity is supplied to each province at risk. The source of environmental concern are the cumulative impacts of businesses and individuals on the environment due to local air pollution and Carbon Dioxide emissions. Eskom is struggling to cope with demand for electricity in the country, this has been noticeable for the power crisis in 2008 and recently in 2014 when residents have been plunged into blackouts which is called load shedding (Wilkinson, 2014: 1). The public need to understand the types of waste behaviour and energy behaviour strategies that have been utilised to provide a framework for understanding why it is needed to reduce waste and energy consumption.

In terms of waste behaviours around the world, waste to landfill is still the dominant form of waste technology, therefore the encouraging of using other waste strategies such as recycling is encouraged. For a definition of recycling, Barr states that it is an “activity of mechanically reproducing a product or an alternative commodity from its existing state, such as paper or glass recycling” (Barr, 2008: 109). What this entails is that any waste that is of the paper or glass variety which can be recycled is utilised to generate materials which can be brought back into society instead of laying as waste in a landfill. A landfill is a “scientifically chosen, designed, engineered and managed location” which stores waste (City of Cape Town, 2011: 4). All waste that is not needed or cannot be used for recycling is taken to a landfill site. Waste management strategies over time have continually focused on recycling and recycling activities. In terms of using a comparative city to Cape Town or the country to South Africa, an integrated waste strategy in the city of Porto Alegre in Brazil was a unique way of highlighting the ways in which the public and the local government can enforce a change in waste behaviour. The city of Porto Alegre has had public participation as a key facet of the way the city is run. The city has been managed since 1989 with the

adoption of a participatory budget in which citizens and local government divide the responsibility to designate the municipal budget (Borteieto & Hanaki, 2007: 281). This participatory budget led “to a reduction in the quantity of solid waste deposited in landfill and has introduced income generation from recycling as a method to decrease local poverty” (Borteieto & Hanaki, 2007: 281). This type of behaviour allowed the citizens of Porto Alegre to become more involved in the way that solid waste is managed in the city.

In African cities, there is a challenge to address waste management and this is due to the complexities involved with infrastructure provision in these cities. Adedipe (2002: 176) is concerned by the “lack of a clear conceptual and strategic framework of organisational and institutional empowerment for waste management”. Further problems in Africa with regard to the waste problem is the inability of African governments to match generation rates with collection and disposal rates (Adedipe, 2002: 179). From a City of Cape Town perspective, the problem of waste is that the public is “creating waste at a much faster pace than the population growth rate” (City of Cape Town, 2011: 9). The consequence of waste volumes increasing is that this leads to landfills filling up at a faster rate, putting strain on capacities to store waste. This strain results in further land required to store waste which has the knock-on effect of interfering with land which could be used for the housing crisis in the country. Managing waste consumption and able to re-use waste has less knock-on effects and less strain on resources. Therefore the consequences would not have an environmental effect but also a social effect should the situation worsen. Larney and Aardt (2009: 42) urge caution in relation to the state of our landfill sites and the consequences not just of an environmental perspective but also a social one indicating that “especially in South Africa, where housing is inadequate, it is irresponsible to use precious land for landfill”.

Waste strategies such as the Zero Waste campaign in Kwazulu-Natal highlighted the effects of having a waste management campaign to inform citizens. Zero Waste is a strategy that “maximises recycling, minimises waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the market place” (Matete and Trios, 2008: 1481). The concept of the campaign may be applicable to any part of the waste stream but specifically focusing on maximising recycling and minimising waste as a fully integrated system (Matete and Trios, 2008: 1482). The model was tested on two communities in Kwazulu-Natal, Mariannhill Park and Nazareth. The strategy of the campaign

was based on post-consumer waste with particular emphasis on domestic solid waste. The benefits of the campaign are both environmental and economic for the communities in the long-term. Economic benefits of the campaign “arise from the sale of recyclables, resulting in revenue from the scheme” while environmental benefits include “less waste being disposed at the landfill” (Matete and Trios, 2008: 1490). The Smart Living Campaign is not as comprehensive as the Zero Waste strategy but has similar intention to get waste minimisation messages and recycling messages through to the individuals.

Energy is a resource which is used by all sectors of society. Commercial, residential, industrial sectors use considerable amounts of energy (Figure 1). Constanza et al (1986) highlight three theories underpinning energy conservation behaviour. This was determined from an information campaign in the state of California in the United States of America. The three models that they deduce were the attitude model, the rational-economic model and the social-psychological model. For the purposes of this dissertation, the attitude model was based on the approach of energy companies’ understanding of energy conservation behaviour. The rational-economic model “assumes that people will perform conservation behaviours that are economically advantageous” (Constanza et al, 1986: 521). The social-psychological model is based on how the information is perceived, how the individual favourably evaluates the information, the way it is understood and how the information is remembered (Constanza et al, 1986: 524). The social-psychological model is similar to the way energy conservation behaviour is encouraged in Sweden. The basis for energy conservation behaviour for households in Sweden is “that the individual has to take responsibility for their own choices, and that it was through these choices that the energy system could be changed, in any direction” (Gyberg & Palm, 2009: 2809). The choices described by Gyberg and Palm are related to the way individuals can change their energy behaviours through knowledge of energy practices by companies and knowledge of information to changing behaviours. Gyberg and Palm (2009: 2810) state that using money on other things in the household is an attractive side-effect of the choice in improving or reducing energy usage in the household. The responsibility of the individual is considered important in this context in changing behaviours.

In the South African context, the energy situation is concerning with reference to the demand for energy and the capacity to supply and meet that demand. Most of the

electricity used in Cape Town is by the commercial and residential sectors as seen by Figure 1 below:

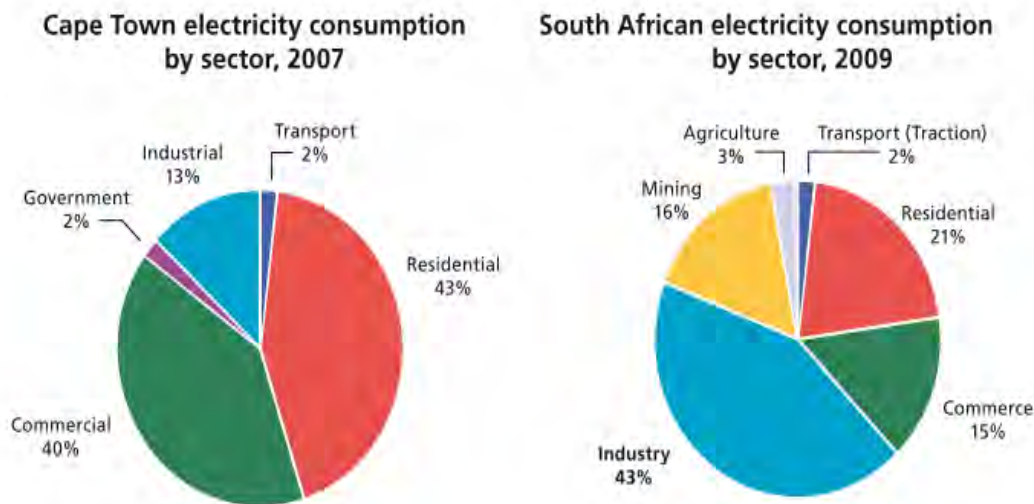


Figure 1: Cape Town electricity consumption by sector (City of Cape Town 2011; pg 28)

The figure above indicates that energy usage is most demanding in households. This puts a strain on energy resources in all sectors. Reducing the residential figure of 43% energy usage is imperative in terms of electricity and changing behaviours regarding energy usage. The State of Energy and Futures Report (SEEFR) of 2011 states that South Africa, including the Western Cape is “dependent on coal based electricity to meet its energy demands. 61% of all energy requirements in South Africa are met by coal, and 85% of all electricity is generated through burning coal” (City of Cape Town, 2011: 6). The main forms of individual usage of energy is electricity so it is important to focus on that aspect. There are glaring inequalities in how energy usage is distributed. Low-income households in Cape Town, which make up 44% of all households, contribute only 24% of total residential energy use while high to very high-income households, which make up only 24% of total households, use 43% of all energy (City of Cape Town, 2011: 6). This clearly indicates that there is an imbalance in the way in which energy is utilised in Cape Town. There are two electricity systems which are in operation in the City of Cape Town that measures electricity usage of electrified areas in the residential sector: the credit-meter system and the prepaid-meter system. The credit-meter system follows that you pay a monthly bill to your electricity

provider for the use of electricity while the prepaid-meter system is when consumers pay upfront for electricity, which has become more popular with consumers (City of Cape Town, 2011: 52). The systems offer individuals and their households differing options in terms of the context of their household energy behaviour.

The introduction of information campaigns is one option of changing behaviours as the adoption of new technologies and opportunities to reduce energy usage can be utilised. This adoption is not a guarantee of success as each individual is different and the transferring might not translate to all individuals. Constanza et al (1986) are sceptical of the way in which technologies can be adopted by the public. The development of “energy-conserving technologies is a necessary but insufficient step toward reduced energy consumption unless “adopted by a significant segment of consumers, the impact of technological innovations will be negligible” (Constanza et al, 1986: 521). In Australia, the adaptation to transition communities to move to low carbon usage through the medium of 100 energy programmes found that “channelling policy and programme development towards individualised behaviour change is misguided without also addressing the broad regulatory, institutional and social setting in which those behaviours form” (Moloney et al, 2010: 7622). What this indicates is that policy and programmes/campaigns dedicated to changing behaviours will be compromised if not addressing broader contextual issues. In Sweden, the sender-receiver model is one model whereby individuals could change energy behaviours. This model suggests that energy “information is provided and the relationship between the informer and the guided individuals consists solely of persuasion and the transfer of knowledge” (Gyberg & Palm 2009: 2808). The persuasion refers to using information to change energy behaviours to the public during the transfer of the energy knowledge. There has been criticism of the model as being too elitist in that the transfer of knowledge and the process of learning this knowledge is seen as too simplistic (Lave & Wenger, 1991 in Gyberg & Palm 2009: 2809). The sender-receiver model is similar to the linear approach of environmental behaviour in using information alone to achieve environmental goals.

Energy behaviours in Cape Town, whether this be commercial or residential, have forced the City of Cape Town to look at future models for sustainable energy usage and behaviours. The optimum energy future model has been advocated as a model which would alleviate the pressure of coal usage and use alternative forms of energy. The optimum energy future

scenario will increase the “contribution of renewable energy to Cape Town’s electricity supply mix while simultaneously reducing the dependence on fossil fuels in a carbon constrained future” (City of Cape Town, 2011: 50). The key to changing these behaviours is to understand how information encouraging change will be presented to the public to reach the target of the optimum energy future model. Burgess et al (1998) highlight that government campaigns “in the energy and environmental fields have often been predicated on a rationalist information-deficit model” (cited in Owens & Driffill 2008: 4413). Steg 2008 mentions that people are “less likely to reduce their energy use when saving energy involves high behavioural costs in terms of money, effort or convenience” (Steg, 2008: 4450). The literature review has provided the framework for the study through the conceptual terms and models used in the information-deficit model through the understanding of waste and energy behaviours. The next chapter will provide the methodology for the dissertation which will show how the data was to be collected, which methods were used and why the methods chosen were used.

### **3. METHODS**

This section introduces the case study for the research, why the case study was chosen for this particular research project, the methodology that was implemented in the research, the sample chosen, the instruments used and the type of analysis utilised for the research.

#### **3.1 Introducing the Case Study**

The Smart Living Campaign was implemented by the City of Cape Town to establish awareness around environmental issues including waste, water, biodiversity and energy. The rationale for campaign included, was both establishing awareness and encouraging behavioural change amongst participants that have taken part in the training. The Smart Living Campaign was implemented as part of the City of Cape Town's planned environmental message for citizens in the City of Cape Town. Corporates were asked to participate in the campaign to ensure that companies take the initiative to implement environmental strategies at the workplace and to ensure their employees transfer the information they have acquired to their households. The basic feature of the campaign is using information as a tool to promote resource conservation (saving energy, reducing waste consumption via recycling, using water only when it is needed, and protecting plant and animal species). For this study, waste consumption and energy usage are the two themes that were focused upon.

The Smart Living Campaign was specifically used for this project because it represented the idea of the information-deficit approach to environmental awareness. The information-deficit approach concerns the idea that information alone will lead to behaviour change among participants. The Smart Living campaign is similar to the Going for Green campaign implemented in the United Kingdom in 1996 which ascribed to the idea of the Going for Green campaign in terms of providing information to participants. The Going for Green campaign proposed the idea that behaviour change is best achieved by offering people easily understood information and appropriate support to generate and turn interest into action (Blake, 1999:260). The Smart Living Campaign proposes that by using information and support through training to establish environmental awareness, behaviour change would follow.

Three companies were chosen from the Smart Living Campaign as part of the research sample. The Smart Living Campaign had three phases whereby companies were asked to participate in the training by the local government. The three phases took place over a period of three years. The companies who participated in this project were involved in the campaign training. There were two aspects to using these companies. The first aspect was to access the employees of participating companies and obtain data to understand the relationship between the campaign information and knowledge of the employees. The second aspect was to obtain information from the management personnel responsible for bringing the campaign to the company, to understand the reasons why the campaign was brought into the company and effects that the campaign has imprinted on the company.

The companies taking part in the study are Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel. Fairfield Tours and Khayelitsha Cookies provided access to the employees as well as senior management. The employees of these two companies participated in the survey questionnaires. Vineyard Hotel provided access to the senior management but the employees were not available as the turnover of employees is high resulting in difficulties of accessing staff that participated directly in the campaign.

## **3.2 Methodology**

### **3.2.1 Mixed Methods**

The methodology that was utilised for data collection is a mixed methods approach. The use of mixed methods allows a wider range of sources and methods to deepen the analysis (Clifford & Valentine 2008: 489). The approach of using mixed methods was to incorporate both qualitative and certain aspects of quantitative analysis. The mixed methods approach consisted of a quantitative and qualitative approach to data collection. The quantitative aspect of the research consisted of a survey questionnaire of 57 questions. This survey was provided to the employees of the companies that participated in the survey questionnaire aspect, that being Fairfield Tours and Khayelitsha Cookies. The research questions in the survey attempts to generate data on the nature of the relationship between the information provided by the Smart Living Campaign and the environmental behaviour in the workplace of the employees. In addition the survey would generate data on the extent to which the practices in the workplace have been transferred to the household.

The survey consisted of questions related to the Smart Living Campaign; waste practices in the workplace; energy usage in the workplace; and workplace and household behaviour related to the campaign information. The questionnaire consisted of both descriptive and analytical questions. Descriptive questions were related to questions whereby the participant was asked to describe their experiences of the information provided by the campaign and how that information was utilised with regards to waste and energy. The survey consisted of close-ended and open-ended questions. An example of a close-ended question would be a question requiring a yes or no answer, would be required while an open-ended question requires the participants to elaborate on particular questions, to expand their responses in as much detail as possible. All participants in the study who responded to the questionnaire were assured of anonymity to ensure confidentiality. All respondents to the questionnaires were ensured anonymity when completing the survey in a discussion with the employees before the surveys were delivered. Clifford and Valentine (2003: 127) highlight that participants need to be assured that data collected will remain secure, that information supplied will remain confidential and participants will remain anonymous. Although the respondents were anonymous, each respondent was assigned a number on the survey in order to transcribe the data effectively.

### **3.2.2 Interviews**

The second aspect of the methodology is the use of qualitative methods to answer the research question of how the Smart Living Campaign has impacted on environmental quality in the workplace. These interviews consisted of questions prepared beforehand which consists of thematic questions relating to waste management, energy usage and employee environmental behaviour in the workplace. The research question for the interview section was focused on the management personnel of the companies. This is the person responsible for making the company accessible to the campaign. The companies whose management participated in this section were Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel. In addition to this, two consultants from the City of Cape Town who were involved in the campaign were also interviewed. One consultant was the person responsible for the roll-out of the campaign to companies and the other consultant is responsible for the training phase of the campaign. Confidentiality was granted via email by the person being interviewed

through discussion before the interview process. This section differs from the surveys in that the research question focuses on the workplace instead of the employees.

This is a study that focuses on human experiences with environmental information therefore there is a social context to the study in addition to the environmental study. Therefore the interviews are relevant in this setting in interpreting and extracting as much data as possible. The interpretive approach allows the researcher to identify issues from the perspective of the study participants to understand the meanings and interpretations related to behaviour (Hennink et al, 2011: 9). This approach allows flexibility with the management personnel as they are then able to tell their own story for the study. The interviews were recorded via a recording device and this will be further explored in the section on procedures.

### **3.3 Sample**

The sampling of the companies that participated was predetermined from the list of companies that was accessible through the Smart Living Campaign document. The companies were chosen based on accessibility and size (small to medium sized companies). The full list of companies who participated in the three phases is provided, see Appendix A. Accessibility in this instance is the availability of data that could be provided for the project. The companies that were not chosen were either too large to represent in this project or were not existing as a company anymore. Using purposive sampling techniques, a predetermined choice of companies was selected. Purposive sampling is also referred to as judgemental sampling. Purposive sampling are selected subjectively by the researcher on the basis of prior experience (Rice, 2003:233). The sample is primarily drawn from the Smart Living Campaign and the experiences of the employees as well as management of the companies that participated in the campaign.

### **3.4 Background information on companies**

This is a background of the companies that are participating in the study. Fairfield Tours was established in 1996 and has grown to become one of the leading local Tour Operators in South Africa (Fairfield Tours background, n.d). Fairfield Tours are focused on tourism hospitality services. Vineyard Hotel and Spa is a 207 roomed hotel situated in six acres of

landscaped parkland along the banks of the Liesbeeck River in Cape Town (Vineyard Hotel and Spa background, n.d.). Khayelitsha Cookies is a company that “hire previously unemployed women from Khayelitsha and then train and skill them in permanent, affirming employment” (Khayelitsha Cookies background, n.d.). These are the companies that provided access to participate in the study. There were five companies who I approached with regards to participating in the study. Vineyard Hotel, Khayelitsha Cookies and Fairfield Tours provided access for participation. Additionally two companies were contacted, Santam and Spur Corporation. Santam provided access for an interview with the management but the resultant data from the interview did not provide sufficient details in order to be included in this study. Spur Corporation initially agreed to participate after telephone and email correspondence but then declined. Therefore the data from Vineyard Hotel, Khayelitsha Cookies and Fairfield Tours were used.

The rationale behind selecting these companies was based on accessibility to the project from the management and size of the companies. The contact details of the companies were provided by the City of Cape Town. The size of Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel are small-to-medium enterprises based on the number of staff employed. Fairfield Tours and Khayelitsha Cookies provided accessibility to their employees for the project. Vineyard Hotel, upon initial contact granted access to employees but issues arose when the list of the employees who participated could not be tracked and because of the high turnover of the employees in the hotel industry, it was suggested that it would not be viable for a data sample and management provided access instead for an interview. In terms of accessibility of employees, the senior management person of Fairfield and Khayelitsha Cookies provided a list of the employees who participated in the campaign. The surveys were then handed to the senior management person to be distributed to the employees who participated. The process followed that the surveys would be completed within a one week period in which the surveys would be collected by the management person. The surveys would then be provided to myself for collection. There was a 60% response rate to the surveys from Fairfield Tours and Khayelitsha Cookies. There were respondents who did not respond to the required time frame for the surveys to be completed.

The sample of respondents selected for the interviews were based on the companies that participated in the campaign. Vineyard Hotel was an exception as they initially included employees in the project but due to unforeseen circumstances, it was decided to continue with only the management interview. The representative from Fairfield Tours is the head of environmental capacity in addition to a role as head of the human resources department, combining the employee/environment relationship. The representative of Khayelitsha Cookies was the owner of the company while the person responsible for Vineyard Hotel was the head of sustainability who participated. The reason to include the companies that provided accessibility to the employees to participate in the interviews was to understand their motives for running the Smart Living Campaign at their companies and changes that have occurred. In addition to this, the assessment of the managers of the respective companies on the campaign would provide results on the effects of the campaign on the workplace. This is covered by question two of the research project on assessing the environmental quality at the workplace since the end of the campaign.

The inclusion of one official from the City of Cape Town and one consultant hired by the City of Cape Town to participate in the research was based on understanding the government motives for bringing the campaign to the companies, covered by the official; and the practical nature of transferring the campaigns into the workplace and the household from the second consultant. The consultant was responsible for training the employees about the environmental messages from the themes (energy, waste) of the Smart Living handbook. The household aspect is the employees transferring the information from the workplace to the household. Interview data was used to filter the data from the employees to get a first person perspective from the management in the workplace and local government compared to the employee perspective from the survey data. The combination of both surveys and interviews would provide a data set that would be consistent. This is why the questionnaires were designed to generate data to address questions 1 and 3 for the employee perspective and the interviews for the management in research question 2.

### **3.5 Instruments & Procedures**

#### **3.5.1 Qualitative**

The interview process for the management was initiated in a one on one setting in a room or office in the premises of the building of the companies. In the case of Fairfield Tours and Vineyard Hotels, the interviews were conducted in the premises of the building. The Khayelitsha Cookies interview initially was scheduled to take place at the company building but due to unexpected circumstances the questions were provided over email and the reply to the questions was sent via email. Confidentiality of the participants were ensured verbally and via email before the scheduled date of the interview. No names of participants were used in the project when referring to their data therefore to ensure anonymity.

A Dictaphone was used to record the interviews. The Dictaphone was visible to the participant and consent was provided by the respondent. Once the interviews were completed, the recording was transferred from the Dictaphone onto a flash drive to be used in the transcription process. The transcription process was two hours per interview. In relation to the interview from Khayelitsha Cookies, the response from the owner was presented on a word document. The questions designed for the long interviews were developed in general themes related to the Smart Living Campaign and specific questions based on previous studies including Blake (1999).

#### **3.5.2 Questionnaire**

The design of the questionnaire was based on the themes covered in the project (waste, energy) in order to generate data to respond to questions 1 and 3. These questions relate to the nature of the relationship between the Smart Living Campaign information and the employees in the workplace and how that information has been transferred into the household. The questionnaire consisted of 52 questions, and was qualitative in nature. The questions in the surveys were open-ended. The open-ended questions would allow the respondents to “express in their own words the fullest possible range of attitudes, preferences and emotions” (McLafferty, 2003: 89). The questions in the survey were divided into five themes. These themes are energy, waste, which is covered in the Smart Living Campaign while the rest of the themes are the workplace, household and the Smart Living Campaign/City of Cape Town. The workplace and the household themes are questions related to how the information from the campaign has filtered into the workplace and

household. The City of Cape Town theme covered general questions on the employees' perception of environmental campaigns in the City. The energy theme consists of questions on how much energy is used per month by the respondents, what appliances they own, energy behaviour in the household and the workplace. The waste theme is designed to focus on issues of waste minimisation and waste behaviour. The workplace theme consisted of questions related to waste strategies in the workplace and activities post-Smart Living Campaign. The household theme covered questions based around energy and waste. The reason for the focus on why waste management data from Fairfield Tours and energy conservation data from Khayelitsha Cookies was chosen will be described in the limitation section. The Smart Living Campaign/City of Cape Town theme highlighted questions asking employees for their opinions on environmental initiatives such as the Smart Living Campaign. The questionnaire is contained in an Appendix to this documentation, see Appendix B.

### **3.6 Analysis**

The analysis of the data from the qualitative interviews was completed according to themes and an inductive approach, which allows for new themes to emerge. The inductive approach is a way of generating understandings from the data itself towards the research (Clifford & Valentine, 2003: 555). The data from the interviews of the management was used to extract themes in the way the companies translated the information of the Smart Living Campaign into the workplace. The analysis of the surveys from employees at Fairfield Tours and Khayelitsha Cookies was descriptive. The aim of the analysis was to extract the information necessary for the research questions 1 and 3 which covers the relationship of environmental information from the campaign and the employees in the workplace and transferring that into the household.

### **3.7 Limitations**

As mentioned in section 3.5.2, there was a reason why waste management data from Fairfield Tours and energy conservation data from Khayelitsha Cookies was chosen in the household. Although this might suggest a narrow scope, there are valid reasons for this. In the case of waste management data for Fairfield Tours, the majority of employees at the

company resided in formal residential areas in the Northern Suburbs in which waste services were provided to the communities. In the case of Khayelitsha Cookies, most of the employees reside in informal residential areas whereby waste services are not provided, therefore most of the employees would not have the basic services required for waste strategies. The reasoning is mainly due to the formal and informal nature of waste strategies. Therefore the focus on energy data from Khayelitsha Cookies employees was more appropriate in relation to the strategies provided by the Smart Living Campaign. Although not all households in Khayelitsha have formal electricity provision, there are nonetheless a number of energy strategies employed in the household. The energy strategies in this instance would be easier to implement than the waste strategies. The translation of data from the surveys of Khayelitsha Cookies indicated that there were some issues from the employees with the framing of the questions. There were particular words in the questions which could have resulted in confusion with the question. The surveys were handed out to both Fairfield Tours and Khayelitsha Cookies and there is a possibility that as English is not the first language of the employees of Khayelitsha Cookies who completed the surveys, the translation of the questions in the surveys could have presented issues for the employees. In addition, the management person who participated in the interview had to decline the audio interview therefore her response was provided via email to the prepared questions. This section has explained the process of identifying the data sample, collecting the data using case studies and the method in which that data is analysed. The process of data collection will generate the results, which is the next section of the project.

## **4. RESULTS**

This section focuses on the interpretation of the results from the survey questionnaires that were provided to the employees of Fairfield Tours and Khayelitsha Cookies to generate data for question 1 which focuses on the relationship between environmental information and human behaviour, this being the employees of the companies. Additionally, the interviews with senior management will also be included in this section. These interviews were conducted with three management personnel, from the companies that participated in the campaign (Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel) to answer question 2 of the research project, that being whether there were changes to the workplace environment post-Smart Living Campaign.

The breakdown of the results section is as follows. The results will focus on the behaviour of the employee's post-Smart Living Campaign. The first part of the results section will contain results on the relationship between behaviour and environmental knowledge. These will be split into two sub-sections, behaviour at the workplace and behaviour at the household. The section on behaviour at the workplace will contain data from management in terms of how changes have occurred at the workplace environment after the Smart Living Campaign as well as data from the employees on whether they have seen any changes at the workplace. In addition to that, results on employee behaviour at work will also be included in terms of changes in employee behaviour itself. Household behaviour or home behaviour will focus on results related to any changes occurring in the household with regards to environmental behaviour. This sub-section will contain an emphasis on opportunities and barriers to the employees. Opportunities are the options to change their behaviour after the Smart Living Campaign and if any of the strategies from the campaign were implemented in the household. Barriers will consist of any constraints in the household that can impact their ability to change their behaviour.

### **4.1 Behaviour**

In this section, the results will contain instances of behavioural changes from the employees in the workplace and from the management personnel who were interviewed on the changes that may or may not have occurred after the Smart Living Campaign training. There

will be three categories which will be measured. These categories are policy, waste and energy. This section will indicate whether any new activities or behaviours have developed since the end of the campaign. Preceding the results will contain a section on the guidelines on waste and energy which is covered by the Smart Living Campaign.

#### **4.1.1 Smart Living Campaign guidelines on waste and energy**

In order to contextualise the results, there are guidelines on waste and energy that are presented in the Smart Living Handbook which contains all the details and themes which are covered in the campaign. For the purposes of this project, waste and energy are the themes investigated. Waste guidelines from the Smart Living Campaign highlight the need to reduce waste sustainability through effective waste separation. The Smart Living Handbook, which the campaign is based on, states that “starting with waste avoidance, and moving towards the three R’s (Reduce, Reuse and Recycle), each of us must become socially aware” (City of Cape Town, 2011: 13). Guidelines indicate that waste separation should be highlighted by colour-coded bins to ensure that individuals can discern the differences of waste. This can be viewed in paper, plastic and glass separation. The campaign guidelines focus on the need to reduce, reuse and recycle. Reduce refers to the amount of waste that is created. Reuse is related to how waste can be reused instead of recycling. Recycling is the sorting or collecting of waste materials for new use. Dry waste such as paper and cardboard as well as tins and cans are encouraged to be taken to a drop-off site (City of Cape Town, 2011: 15).

Energy guidelines from the Smart Living Handbook present information that is focused on saving energy through different methods. These methods include showing electricity users how to use geysers effectively. These tips include reducing the amount of hot water by “using water-efficient shower head, taking a shower instead of a bath” (City of Cape Town, 2011: 72). In addition to geyser-efficiency tips, there are guidelines regarding how best to light up your home. Saving energy is best resolved by purchasing LED (light-emitting diode) or CFC (compact fluorescent light bulbs). The handbook states that “normal (incandescent) bulbs are cheap to buy, but very inefficient and power hungry, making them quite expensive in the long run (City of Cape Town, 2011: 74). Tips on insulation of the home are also encouraged to individuals.

#### **4.1.2 Changes in work environment due to campaign**

This section will evaluate the changes in the work environment in terms of facilitating behaviour change in the workplace. The purpose is to determine if any changes have occurred in the work environment since the completion of the Smart Living Campaign. The focus on data collection focuses on the interviews with managers from the companies of Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel on the changes or possible changes that were introduced after the Smart Living Campaign was completed. The data for this section address questions 1 and 2. Question 1 focuses on the nature of the relationship between the information of the campaign and the employees who participated in the survey. Question 2 focuses on changes in the work environment post-Smart Living campaign.

##### **4.1.2.1 Policy**

The implementation of an environmental policy or guideline is one aspect of maintaining the commitment to having pro-environmental behaviours within the workplace. Environmental policy also has an added effect on the employees of the company at the workplace. Of the three companies that participated in the research, only one had a concerted sustainability or environmental policy before the implementation of the Smart Living Campaign, that being Vineyard Hotel. Fairfield Tours and Khayelitsha Cookies did not have an environmental policy in place. The extent to which the Smart Living Campaign was responsible for any changes in the workplace environment will be analysed below. In the case of Fairfield Tours, there was not a concerted effort pre-campaign to have any sort of environmental policy or guidelines committing the company to promoting pro-environmental behaviour messages. There was reluctance from the previous management in charge to drive environmental policy in the workplace (Management Fairfield Tours, 2013). All three companies have stated that the Smart Living Campaign facilitated change in the workplace environment or have added to the previous policy information on the environment in the case of Vineyard Hotel who had a pre-existing policy.

Fairfield Tours developed an environmental policy or guidelines following the completion of the Smart Living Campaign by using the guidelines of the campaign. The implementation of this policy created change at the workplace. The environmental policy changed the direction

of the company in terms of its focus on environmental messages at the workplace. The company management decided to make the environment a priority through the policy document. Management from Fairfield Tours stated that the implementation of the policy at the workplace resulted in direct changes at the workplace, as evidenced by the quote below:

“It has enhanced because there was nothing in place prior to the Smart Living Campaign, merely a discussion. This just made it easier to use the guidelines to put the implementation in place” (Management Fairfield Tours, 2013).

The guidelines above refer to the Smart Living Campaign. In addition to implementation of the guidelines, the website of Fairfield Tours reinforces this commitment. These are the focus areas of the company’s commitments to the environment as illustrated on their website:



## Environment

Because it's our business to show you the wonders of Southern Africa, we'll do everything in our power to keep it clean and pristine. Our wish is to develop tourism in ways which do not have a negative impact on the environment. By supporting sustainable business practices and funding Green projects, we help off-set our carbon footprint and ensure a better world for the future.

- Eco procurement
- Waste reduction – Avoid, reduce, re-use and recycle
- Practice energy efficiency
- Water conservation
- Give preference to environmental best practice
- Support and promote locally made goods
- Poverty alleviation
- fairfield actively promotes FT TSA-certified establishments

Figure 2: Content of guidelines for environmental management from Fairfield Tours (Fairfield Tours Environmental Guidelines, n.d)

The figure illustrates that the environmental commitments are for a broad range of activities, from the environment to waste and energy behaviour, water reduction and more. The commitments are set out to guide the employees to think about the environment in different ways and make better decisions towards the environment.

Khayelitsha Cookies did not have any environmental policy in the workplace or commitments to the environment prior to the implementation of the campaign. The company have since followed the guidelines from the campaign on how to reduce consumption of waste, and on energy efficiency. Khayelitsha Cookies is a company in the food making industry specialising in biscuits, so there is a substantial usage of plastics which can contribute to waste pile-up if this is not controlled. Khayelitsha Cookies has a production facility on the premises to produce biscuits and this facility drives the water bill so there is a focus on reinforcing the need to reduce activities which have an environmental effect at the company. An interesting facet on the reasoning behind changing the focus on environmental issues in the company is two-fold. Firstly, the Smart Living training acted as a means to teach the staff to reduce waste, this being all forms of waste both at the company and at home (self-sufficient) and secondly, as part of the company's adherence to implementation of policies to ensure that larger accounts are obtained from clients (Management, Khayelitsha Cookies; April 2014). Khayelitsha Cookies is an SMME (Small, Medium and Micro Enterprise) and the implementation of the changes of waste management has resulted in setting up training procedures for the employees to become conscious of the environment. Vineyard Hotel is the only company which had an environmental policy before the implementation of the Smart Living Campaign training; therefore management indicated any changes that occurred were mainly to reinforce the previous environmental messages of the company and to use the information from the Smart Living Campaign as guidelines.



Figure 3: Sustainability policy of Vineyard Hotel (Source: Sustainability Policy Document Vineyard Hotel, 2013)

The policy is similar to Fairfield Tours in terms of the guidelines to reduce environmental consumption in the workplace but has been in effect for longer. Management at Vineyard Hotel indicated that there were significant indicators of success, specifically with regards to certification for their environmental efforts at the workplace. With regards to policy, one of the indicators of success for Vineyard Hotel in addition to the implementation of the Smart Living Campaign is that the company has been green certified. This green certification was awarded to the company by Green Leaf and the award is called the Green Leaf Eco-certification. The Green Leaf eco-standard "is specifically constructed as a sustainability and certification assessment tool for the performance management of any international organisation or property" (Green Leaf Eco Standard: n.d). Green certification allows the company to attract more clients to the business. Management at the company stated in the quote below how the green certification is facilitated in the policy:

"We do have a green procurement policy in place which ensures as much as possible that we buy local for example in our picnic hampers that is made out of biodegradable material so that we ask the guests to bring back into the hotel and then it is sent for composting" (Management Vineyard Hotel, 2013).

Vineyard Hotel has positioned the company to promoting local in terms of its environmental practices. The facilitation of a policy or guidelines promoting environmental messages and commitments to the employees is an important step in changing the mindset of the employees. Khayelitsha Cookies developed a policy based on maximising the cost saving of reducing the environmental impact to the benefit of the economic aspect. The usage of policy or guidelines does not always result in changes at the workplace but in the case of these two companies it has been beneficial.

#### 4.1.2.2 Waste

Waste is an important aspect of the Smart Living Campaign and the results from this section will indicate whether there was any changes in the workplace environment with regards to waste after the completion of the campaign. As stated in the previous section, the campaign facilitated policy implementation at the participating companies. Post-Smart Living, waste minimisation procedures were put into practice by both Fairfield Tours and Khayelitsha Cookies while Vineyard Hotel had pre-existing waste procedures before the campaign. Fairfield Tours introduced the separation and addition of colour-coded bins in the workplace post-campaign. The colour-coded bins are designed to indicate to the employees where particular waste should be placed. This has been beneficial to reinforcing environmental messages at the workplace. The process is summed up in the quote below:

“Noticeable on the premises is the recycling bins and then there are companies that come and fetch the recycling. What we can see is the recyclable paper is made into toilet paper for the premises” (Management Fairfield Tours, 2013).



Figure 4: Photograph of separation of bins for different materials, Fairfield Tours

The image above illustrates where the waste should be inserted into the specific bin at Fairfield Tours. In the image, the company has categories including glass and plastic waste as well as metal waste. In addition to the colour-coded bins, the company has a waste minimisation process which is completed on a daily basis. The quote below describes the waste process at the company:

“We do have a system in place where our paper that is no longer used goes into a recycle bin. There are two kinds of it. There is the one where you go shredding because it has sensitive information, that is locked and stored in a bin and is taken offsite bi-weekly. What we do with simpler things like containers, milk sachets that is compressed on a daily basis in our recycling bins” (Management Fairfield Tours, 2013).

The process of waste minimisation at the workplace incorporated the removal of liquid waste by an external contractor. The liquid waste is then safely taken care of and recycled by the external contractor. The importance of having a waste minimisation process has an economic effect on the company. Management stated that “for expenditure purposes, waste management is a priority” and highlights that the approach to waste reduction is to “reuse and recycle” (Management Fairfield Tours, 2013). Khayelitsha Cookies decided to focus on ways to reduce their plastic waste as it will facilitate a reduction of the economic impact to the company. Management stated that the company changed their packaging “so that it’s manufactured to size instead of us having to cut away half of the packets and creating plastic waste. We have reduced our waste by 90%” (Management Khayelitsha Cookies, 2014). Management did not specifically state the waste minimisation process at the company as they were still in the process of “setting up systems and procedures” (Management Khayelitsha Cookies, 2014).

In the case of Vineyard Hotel, the changes at the workplace environment since the completion of the campaign has merely been to reinforce the activities that were pre-existing before the campaign was implemented. From a waste perspective, management indicated that the environmental messages have been beneficial but “it is an ongoing

process of constantly reminding” (Management Vineyard Hotel, 2013). The reminding is directed at the employees of the company. In terms of the constant reminder of waste messages, the company has seen success. The quote below highlights the success of using the Smart Living campaign guidelines.

“We have had significant success in our recycling, separation of the waste at source and 94 percent of our waste is sent for recycling. That to a large extent is due to co-operation of staff” (Management Vineyard Hotel, 2013).

Vineyard Hotel has maximised the messages of the Smart Living campaign and have developed a system with the staff which will be further expanded upon in the section on employees in the workplace post-Smart Living campaign. Vineyard Hotel also has a waste minimisation process which operates on a daily basis at the company similar to Fairfield Tours. Vineyard Hotel employs an external waste company to collect the waste. The quote below describes the process on a daily basis:

“On a daily basis, all the outlets separate their waste and then it is brought down in separate bags to our recycling facility where the waste minimisation companies further separate it into the different types of streams. The company comes to collect the recycling and they take it to their site where they then sell it on and Vineyards get a portion back” (Management Vineyard Hotel, 2013).

The streams mentioned by Vineyard management above is related to liquid and solid waste.



Figure 5: Photograph of separation of bins for different materials, Vineyard Hotels.

Vineyard are generating money from separating their waste and promoting the need to recycle, suggesting that there is a possible link between the environment and economics.

#### 4.1.2.3 Energy

This section will focus on the changes that have occurred from an energy perspective in the workplace environment since the completion of the Smart Living Campaign. Fairfield Tours facilitated energy changes in the workplace through the use of the guidelines that they implemented. This is also illustrated by the emphasis of energy reduction in the workplace. Management of Fairfield Tours stated that they have seen a visible reduction in energy usage since the end of the campaign at the workplace. This is explained in the quote below:

“There is a visible change in the reduction of the power bill. We had to understand where it all comes from and how much energy has to be burnt to generate this power (Management Fairfield Tours, 2013).

The energy reduction has manifested from switching off lights that were not in use, not using geysers when necessary and using energy saving laptops. So they have educated their employees about the necessary requirements to reduce the energy bill. It is noticeable that there is an economic aspect to reducing the bill but the environmental and economics are intrinsically linked. There is a cost/benefit to both concepts.

Khayelitsha Cookies, as a company much smaller than Fairfield Tours and with a smaller economic output, stated that at the company, there was a focus more on the basic aspects of energy behaviour. This is basically switching off lights and appliances when it is not needed. Management made the point of the expensive cost of installing energy saving lights at the company premises. The quote below illustrates the difficulties:

“We wanted to replace all florescent tubes with energy saver LED lights but it will cost us nearly R100000 to do this swop, and for a small SMME who is just breaking even currently, and still have to repay a load of loans, it is not something we can afford right now” (Management Khayelitsha Cookies, 2014).

There were difficulties for Khayelitsha Cookies to implement an energy saving strategy but the basic messages of switching off lights at the workplace and appliances when not plugged in was implemented. The management stated that electricity consumption at the workplace was 15% of the overhead cost of the company on a monthly basis (Management Khayelitsha Cookies, April 2014). There is added importance for Khayelitsha Cookies to save money on reducing the electricity bill.

All three companies have had success in the workplace due to the Smart Living Campaign on various levels. Fairfield Tours and Khayelitsha Cookies have used the campaign to develop environmental policies or guidelines to drive the environmental messages to the employees and the impact of having a waste minimisation process at the workplace brought about a renewed effort in getting employees to participate in changing their environmental behaviour at the workplace. In terms of energy saving, the implementation of installing energy saving lights would have been expensive in the case of Khayelitsha Cookies therefore using basic messages with regards to switching off lights was more productive. In the case of Fairfield Tours, the company have extended their energy saving practices at the workplace to the vehicles on the premises. Management stated that “we prefer that our vehicles are filled up with biofuels. Our driver and our contractors will skip well known refineries and go to places that make biofuels from corn and crops” (Management Fairfield Tours, 2013). Vineyard Hotel management did not elaborate on their energy processes at the workplace but information was provided through a newspaper of the process that was occurring at the

workplace. It was mentioned in a local newspaper that the company installed approximately “6 400 LED lights last year, prompting an eight percent saving of energy consumption” (Nash 2014; 6). The company has taken the steps to reduce energy consumption at the workplace. The environmental messages of the Smart Living Campaign has been used for varying effect at Fairfield Tours, Vineyard Hotel and Khayelitsha Cookies.

## 4.2 Employees behaviour at work post-campaign

The preceding section provided results on the changes in the workplace post-campaign from the view of the management of the company. This section is focused on the employees’ behaviour at the companies post-campaign and what changes have occurred in their behaviours. As the employees of Vineyard Hotel were not able to participate, the data in this section will be from the employees of Fairfield Tours and Khayelitsha Cookies that participated in the surveys. This section will be separated into three sub-sections: general, waste and energy.

### 4.2.1 General

This study aimed to establish whether and how the behaviour of employees has changed since the Smart Living Campaign training ended. The research was completed post-Smart Living training so there is no information prior to the Smart Living Campaign on the behaviour of the employees. The results are therefore reported results from the responses of the employees.

Respondent	Yes	No	N/A
Fairfield Tours	16	7	5
Khayelitsha Cookies	15	0	0

*Table 1: Employees indicating whether there were changes in employee behaviour in the workplace post-Smart Living.*

Khayelitsha Cookies employees unanimously concurred that they have seen changes from the Smart Living Campaign since it ended. All 15 of the employees surveyed indicated positively on the question of whether they noticed any changes in employee behaviour post-campaign with no employees responding that they did not see any changes. The below quote highlights the majority of the responses from the employees at Khayelitsha Cookies:

“Plugging out appliances” (Respondent 6; Khayelitsha Cookies, 2014).

This quote highlights the two themes covered in this research that of, waste and energy. “Plugging out appliances” (i.e. unplugging them) seems elementary in nature but this was a change in mentality for the respondents. The majority of the workers at the company are from Khayelitsha and energy is in short supply at their households so this is a basic change which was simple but can have a massive long-term effect. Management at Khayelitsha Cookies stated that the change in behaviour at the workplace is responsible for greater awareness on electricity usage ((Management Khayelitsha Cookies, 2014).

At Fairfield Tours, there was also a majority of respondents who felt that there was a change in the behaviour of the employees since the end of the training. There were 28 respondents and of those respondents, sixteen (16) acknowledged there was a change in behaviour, this resulted in a 57% comparison compared to 100% of Khayelitsha Cookies. This is a lower percentage than those from Khayelitsha Cookies. Seven (7) respondents felt that there was no change in waste behaviour. Five (5) declined to respond on the survey sheet. This leads into the next section as the results from a waste perspective of the employees will be discussed with added quotes from the management.

#### **4.2.2 Waste**

Changes in waste behaviour was identified by many respondents from Fairfield Tours, especially in how the waste has been used. This is emphasized by the following quotes on the changes:

“More paper is being saved and recycled. Separate bins are used for the different materials” (Respondent 1; Fairfield Tours, 2013).

“Placing a piece of paper in the paper recycle bin instead of the rubbish bin has become the norm, people are actually taking that 1 second to sort their waste” (Respondent 7; Fairfield Tours, 2013).

“People are throwing their waste into the different waste bins, separating what goes where. Re-using scrap paper for note paper etc.” (Respondent 9; Fairfield Tours, 2013).

The above quotes illustrate that the separation of waste bins at Fairfield Tours has provided the employees with options on how to manage waste at the workplace, by allowing the workers the chance to understand how different forms of waste should be sorted in different bins. Of the seven respondents who disagreed, two of the respondents started working at the company after the Smart Living Campaign was implemented so could not provide a viable response. The other five respondents claimed that employees were still wasting paper. The respondents did not go into detail but stated that wasting of paper was the main problem.

The management at Fairfield Tours recognised that there have been changes in the behaviour of the employees since the training ended and this has been manifested in the different type of bins visible at the workplace. The below quote highlights how beneficial the training has been to the workers.

“We have seen the change in staff member’s thinking when we talk about recycling for instance, waste that is thrown away and what happens to it. It has become beneficial in that they understand and we also, from a company point of view, talk about it, what is been done with our rubbish and furthermore, our output on our vehicles” (Management Fairfield Tours; 2013).

The management of Fairfield Tours have provided the means for the employees to change the environment at the workplace with regards to their behaviour towards waste. Khayelitsha Cookies management stated that the campaign was beneficial to the behaviour of the employees at work, but added that managers constantly had to remind the workers about doing the right thing (Management Khayelitsha Cookies, 2014). The reminders were not just an aspect from Khayelitsha Cookies but also in the case of Fairfield Tours. Constant reminders were fundamental in developing consistent environmental messages. The following quotes from Fairfield Tours employees describe the different types of reminders that were relayed to the employees:

“Constant HR reminders are sent; visible tips in all kitchens.” (Respondent 1; Fairfield Tours, 2013)

“Guidelines to saving energy is regularly sent off” (Respondent 7; Fairfield Tours, 2013)

“Pro-active discussion for cost savings” (Respondent 20; Fairfield Tours, 2013)

Different types of reminders were sent to the employees at Fairfield Tours in order to develop the consistent messages, whether this is for waste or energy. Figure 6 below illustrates the type of reminders that were placed in the workplace at Fairfield Tours.

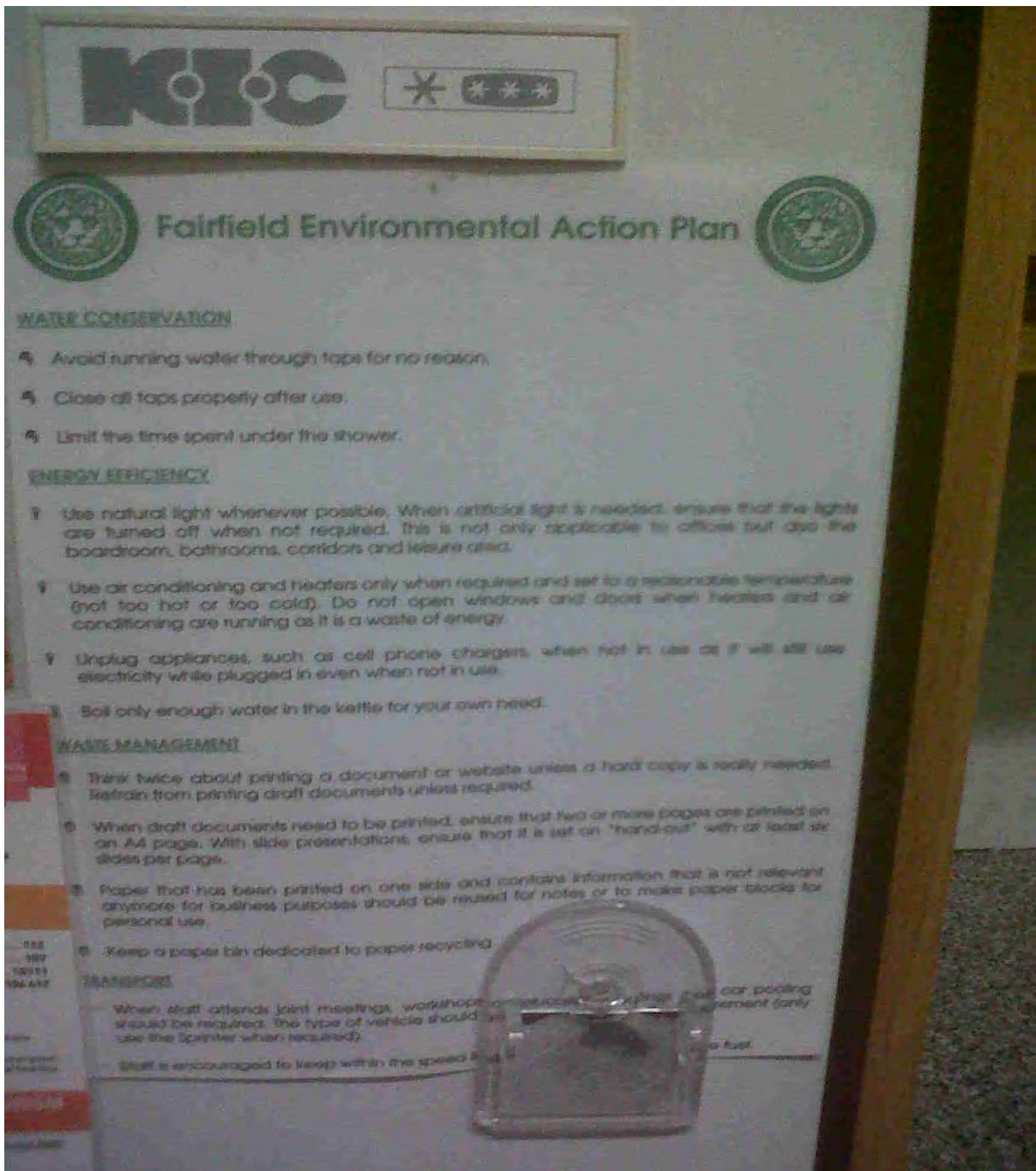


Figure 6: Fairfield Tours management placing environmental reminders in the workplace.

The document indicates to the employees that they should think carefully before printing paper if it is required as well as if it is required, print on both sides to save the use of paper. Furthermore, the company's environmental policy is visible to the employees on the website, so by accessing the website, employees are constantly reminded of their responsibilities.

### 4.2.3 Energy

Employees from both Fairfield Tours and Khayelitsha Cookies have highlighted the changes that have occurred at the workplace in terms of employee behaviour towards saving energy as well as company reminders. The employees of Fairfield Tours have noted the changes in energy reduction at the workplace and the following quotes highlight the role of employee behaviour towards energy reduction at the workplace:

“Lights are switched off when natural light is ample. The tumble drier is used as last resort.” (Respondent 1; Fairfield Tours, 2013).

“Energy saving bulbs is used and geysers are encased with blanket. Swimming pool pump doesn't run constantly” (Respondent 15; Fairfield Tours, 2013).

“Air-conditioning and washing machine are used less with energy saver lights put in” (Respondent 22; Fairfield Tours, 2013).

The employees indicated in the above quotes that the company has not just focused on basic energy reduction by switching off lights but by limited energy usage through alternative measures. Management at Fairfield Tours have witnessed the changes in employee behaviour since the completion of the campaign and the implementation of an environmental policy designed to maximise employee behaviour with regards to reducing environmental impact. The quote from management below states how employees have changed their behaviour:

“People will come into the building and switching off lights, not using the tumble dryer, air-conditioning is used sparingly because all of that has an effect on what is used to generate that power” (Management Fairfield Tours, 2013).

The employees at Fairfield Tours have recognised the need to change their behaviours and reduce their impact on energy resources. In terms of Khayelitsha Cookies, the majority of the employees have indicated that the biggest change in the workplace with regards to energy saving is the knowledge gained from the campaign in changing energy behaviour at the workplace. Many of the quotes from the employees at Khayelitsha Cookies highlight the need to “switch off appliances when not in use” (Respondent 3;

Khayelitsha Cookies, 2013). It was stated earlier in the results that Khayelitsha Cookies are still putting systems in place and the fact that they are a small company with limited resources, the basic messages of energy saving through the Smart Living Campaign became useful in this regard. This is the view of management at the company as one of the key changes that was visible with the employees at the workplace was switching off appliances and lights when it was not in use.

### 4.3 Home behaviour

This section will focus on the environmental behaviour of the employees in the household since the completion of the SLC. The conceptual idea of the Smart Living Campaign is to “start at home” (Stead, 2008:2). The results below will contain the possible changes that may or may not have occurred since the completion of the training. This section will start with understanding the opportunities and barriers to the employees. The opportunities and barriers is about carrying through behaviours from the workplace to the home. Barriers are obstacles that prevent employees from transitioning their behaviours from the workplace to the household.

#### 4.3.1 Opportunities

This part of the section will ask if they adopted any of the strategies from the campaign to facilitate that behaviour change in the household. For this section, results of waste strategies in the homes of employees of Fairfield Tours and energy strategies in the households of employees of Khayelitsha Cookies will be addressed.

This section will provide a summary of the results in relation to how the Smart Living Campaign has been beneficial in the household, whether this has been through awareness or in adopting the strategies itself.

Respondents	Yes	No	N/A
Fairfield Tours	18	5	5
Khayelitsha Cookies	15	0	0

*Table 2: Response to whether the Smart Living Campaign training has been beneficial in the household for Fairfield Tours and Khayelitsha Cookies*

The table above indicates that all of the employees of Khayelitsha Cookies responded that the training was beneficial to the household. Fairfield Tours employees have a majority of employees who responded that the training was beneficial. Recycling was mentioned in the majority of the responses from the employees who describe the waste strategies as beneficial. The following quotes summarise why the training was beneficial:

“We are more aware of recycling and waste reduction now and make an effort to help where possible” (Respondent 1; Fairfield Tours, 2013)

“I have started to recycle plastic and glass materials at my house” (Respondent 4; Fairfield Tours, 2013)

“Created awareness and an understanding of the importance of green living” (Respondent 7; Fairfield Tours, 2013)

The above quotes highlight the different levels of strategies employees have used in the household. The different levels are indicated in awareness of recycling to recycling in the household to taking those recycling materials to the correct bins. This demonstrates that the employees for this particular aspect of home behaviour have at instances adopted waste strategies in the household and by distinguishing between different types of waste, such as liquid (i.e. batteries) and glass. The employees of Khayelitsha Cookies in terms of adopting energy saving strategies in the household have stated that all of them have adopted energy saving strategies in the household. All fifteen (15) employees responded to the question with yes. The majority of the employees’ responses is summed up by the quote below:

“Use energy saving lights. Switch off unused appliances” (Respondent 7; Khayelitsha Cookies, 2014).

In addition to saving, management at Khayelitsha Cookies stated that the Smart Living Campaign would “enable the staff to become self-sufficient” environmentally (Management; Khayelitsha Cookies, 2014). Many of the employees have adopted the basic energy saving strategies. These are the basic changes individuals can make to save energy, in this instance; the end goal is to save electricity usage per month. The respondents of both

companies were also asked to state whether they used a pre-paid system or a monthly system of electricity usage.

Table 3 below describes which payment system was utilised by the respondents. In this instance, as there were 15 respondents from Khayelitsha Cookies, I used the first 15 respondents from Fairfield Tours to provide a direct comparison.

Respondents	Pre-Paid System	Monthly System
Khayelitsha Cookies	15/15 respondents	0/15
Fairfield Tours	6/15	9/15

*Table 3: Comparison of Pre-Paid and Monthly system of electricity usage by employees*

The comparison of the companies illustrate that the pre-paid system is favourable for the employees at Khayelitsha Cookies while the monthly system is more favourable with employees at Fairfield Tours. The usage of these systems is based on preference from the employees. Table 4 below shows the average monthly bill for employees who responded as well as the highest and lowest monthly bill.

Respondents	Average Monthly Bill	Lowest Bill	Highest Bill
Khayelitsha Cookies	R156	R100	R250
Fairfield Tours	R943	R250	R3 800

*Table 4: Electricity usage based on money*

There is a clear discrepancy in terms of energy usage from the two companies. This is attributed to the type of business the companies are situated in. The manufacturing industry and tourism/leisure industry offer different pay scales to their workers. The difference between the highest bill and the lowest bill for Fairfield Tours is in stark contrast to Khayelitsha Cookies. In South Africa, there are socio-economic realities and the majority of the employees of Khayelitsha Cookies reside in Khayelitsha, a township in Cape Town and proper structural services are few and far between in these areas therefore the realities are different for each individual in relation to the lifestyle of that individual.

The results of the research have indicated that the Smart Living Campaign has made changes to the way employees are aware of the environment and ways in which behaviour change can be facilitated, although this is better structured in the workplace than in the household.

#### 4.3.2 Barriers

The whole concept of the Smart Living Campaign is starting at home therefore understanding how the employees had any constraints in carrying through behaviours in the workplace to the household is important. Constraints are linked to the idea of practicality from Blake (1999) which highlights any social or institutional constraints. Social constraints are the lack of support, time, money, and other resources to carry out environmental behaviours while institutional constraints are the lack of facilities that inhibit environmental behaviours of an individual. Barriers are different for the workplace and the household. In the workplace, there is a support base for the individual or employee from the company in implementing environmental programs as the resources are generated from the company. At the household it is entirely dependent on the individual to provide the necessary conditions for positive environmental behaviour in the household. Therefore it is a difficult transition from workplace to the household.

Employees were specifically asked whether they were constrained in the household. Of the twenty-eight (28) employees at Fairfield Tours, thirteen (13) responded that they felt constrained in terms of adopting environmental strategies at the household. Two of the employees responded with yes/no answers. This is a considerable high number for the employees in terms of being constrained than the workers at Khayelitsha Cookies. Khayelitsha Cookies had two (2) out of the fifteen (15) respondents saying they were constrained. The percentage of Fairfield Tours employees constrained is 46% to 13% of Khayelitsha Cookies.

Constrained	Yes	No	Percentage
Fairfield Tours	13	13	46%
Khayelitsha Cookies	2	13	13%

*Table 5: Percentage of employees constrained in the household to adopt environmental strategies*

The reasons for Fairfield Tours' higher percentage of constrained households is variable. One aspect is that environmental behaviour is constrained in the areas where they reside due to lack of available facilities. The following quotes describe aspects of why the employees feel constrained in the household.

“There are no recycling facilities within the complex, and therefore I would have to transport my recyclable waste myself. Thus forcing me to pollute the environment with an extra trip in my car” (Respondent 19; Fairfield Tours, 2013).

“Without facilities it is hard to follow the message at home” (Respondent 20; Fairfield Tours, 2013)

This is the line of thought from the majority of the respondents who felt that their behaviour was constrained in the household. This was more to do with facilities surrounding the household, instead of barriers inside the household. These are external factors instead of internal factors preventing the employees from being constrained. The two employees from Khayelitsha Cookies who felt constrained failed to provide a reason for why they felt constrained. The majority of the Khayelitsha Cookies employees who did not feel constrained summed up their response by the following statement “I am implementing to save” (Respondent 8; Khayelitsha Cookies, 2014). The rationale behind this statement is the possibility the employees of Khayelitsha Cookies have already implemented saving strategies in the household prior to the Smart Living Campaign. One employee of Fairfield Tours who responded both yes and no had a very distinct response in that they felt constrained in one way but there was a facility close-by to adopt a different strategy. This strategy involves using an alternative source to drop off waste. This is illustrated in the following quote:

“...Yes. There is no place to take the garden rubbish and no, our local PnP and SPAR have drop off points for other recyclable items” (Respondent 12; Fairfield Tours, 2013).

This is an alternative method of using a supermarket as a drop-off point for waste. It is possible this is not available in other areas but it is different to other Fairfield respondents

using lack of facilities as a barrier to drop off waste. From an energy perspective, there were barriers with particular employees of Fairfield Tours in terms of the cost of energy saving lights. Some of the respondents highlighted the prohibitive cost of purchasing LED energy saving lights. These are some of the responses from the employees at Fairfield Tours in terms of the barriers of buying energy saving lights:

“Too expensive. Warm water system rebates still mean you have to spend huge amounts of money upfront. Certain energy saving lamps like LED's are priced at R110-R160 for 1 only” (Respondent 1; Fairfield Tours, 2013)

“The energy saver lights and the geyser wise elements cost lots upfront before saving you money” (Respondent 22; Fairfield Tours, 2013).

The expensive cost of energy saving lights was also stated by the management at Khayelitsha Cookies in that the cost of buying the LED lights were costly for a company as small as Khayelitsha Cookies. The employees of Khayelitsha Cookies highlighted no barriers in terms of implementing energy saving strategies at the household. The results have indicated that there have been significant changes to the companies' post-Smart Living Campaign. Policies have been developed using the guidelines of the Smart-Living Campaign and this has facilitated the need to implement waste and energy strategies at the workplace. Employees were receptive to the messages from the campaign and the programs set up by the workplace to improve the environmental behaviour of the employees at the workplace. Fairfield Tours and Vineyard Hotel have systems in place ahead of Khayelitsha Cookies who are in the process of implementing the procedures. The following section will discuss the results in relation to the relevant literature.

## **5. DISCUSSION**

This section will consolidate the relevant literature and results from the surveys and management interviews and attempt to form an understanding of the results in relation to the relevant literature. The results contained the surveys from the employees of Fairfield Tours and Khayelitsha Cookies and the management interviews of those companies and Vineyard Hotels. The discussion will provide analysis of the particular themes that formed part of the research, that being the themes of waste and energy. The research questions on which this project is based will be answered in this section.

### **5.1 Understanding the context of results**

There were two primary questions for this dissertation. The first question was to ascertain whether the Smart Living Campaign was effective as a campaign, in order to shed light on the relationship between knowledge and environmental behaviour through an environmental campaign. The management of both companies indicated that the campaign was a successful way of translating the environmental information to the employees in the workplace. This was facilitated through the training process and the subsequent policies/guidelines that were implemented by the companies. The management indicated that reminders of their environmental responsibility in the workplace are continuous so as to ensure the employees are kept informed.

The second question is whether the campaign's information extended from the workplace environment to the household. In this question, the translation from the workplace to the household for the employees were more difficult due to instances of a lack of structural resources even if the transferring of information from the campaign to the employees were effective. Employees adopted waste and energy strategies in the household from the campaign with differences between the employees on how they have utilised this. The discussion will contain sections on environmental knowledge/environmental behaviour and environmental strategies. The environmental strategies will discuss what companies did in response to the campaign.

## **5.2 Environmental Knowledge/Environmental Behaviour**

The results from the research indicated that both Fairfield Tours and Khayelitsha Cookies benefited from the Smart Living Campaign information and subsequent training. The training process allowed the companies to inform their employees that environmental behaviour at the workplace is important. The information provided from the Smart Living Campaign resulted in employees changing their behaviour in the context of their workplace environment. The transition from the workplace environment to the home environment was not as simplistic or linear and this will be discussed later on in the section. The theoretical underpinning of the linear model of environmental knowledge and environmental behaviour is characterised by Hungerford and Volk (1990), whose concept suggested that providing more information to the public or individuals would lead to changes in environmental behaviour. The linear approach assumes that due to added knowledge of the environment acquired by the individual, human behaviour would subsequently result in positive environmental behaviour. This is apparent in the surveys from the employees of Fairfield Tours and Khayelitsha Cookies who responded that the information from the campaign was beneficial to the employees in the workplace. The linear model of environmental behaviour is apparent in changing behaviours towards the environment but this is not as apparent in the household. The linear model assumes that the user would change their behaviour from added knowledge but how that information is interpreted to ensure actual change is not taken into account. The distinction between environmental behaviour in the workplace and the household is noticeable in terms of what is needed to consistently change those behaviours.

The information-deficit model is linked to the linear model of environmental behaviour and the idea of using policy to suggest changes in individual environmental behaviour is not straight-forward as there are externalities to take into account. These externalities are independent of the information driven/linear model and include practical elements that are not included in the information driven model. The results indicate that Eden's (1996) criticism of the assumption of using policy concerning educating the public with just information is valid in the case of the Smart Living Campaign. The employees of both companies admitted that their knowledge of environmental issues were improved as well as having new strategies to improve environmental behaviour in the household but the

hindrance resulted from the lack of structural resources that was available to the employees in the household. The information was beneficial but to the detriment of not taking into account the structural and practical deficiencies encountered in the household in comparison to the workplace. The structural differences are linked to the idea of practicality from Blake with regards to the social and institutional constraints that individuals can encounter independent of information. These differences will be explored further on in the discussion with regards to public commitment towards changing their behaviours.

In providing the information necessary to change environmental behaviour, information alone cannot be utilised to force change. There are externalities which need to be taken into account to understand how individuals react to making environmental behaviour a priority. One of the most important external factors is individual lifestyle. The majority of the employees stated that they implemented some of the environmental strategies from the Smart Living Campaign but those that didn't stated that they did not want to implement the strategies because their lifestyle in the household was already allowing the individuals to save. It is difficult to measure lifestyles in the workplace as individuals cannot implement strategies in the workplace, that is normally facilitated by management but in the household, these individuals can control what strategies they can adopt. The Smart Living Campaign was effective as a strategy in providing information and although the idea of using information as a tool to change behaviours can be effective, the information model does not take into account the structural issues that can arise when individuals attempt to change behaviours. Understanding the structural and practical difficulties of the employees is as important to the strategy as providing information to enact those changes. The results indicated that information alone is not a pre-determinant for success in transferring knowledge into behaviour.

Individual lifestyle choices is suggested as one of the barriers of the linear model, which is based on the information-deficit model. In terms of the differences of the linear model in the workplace and at the household is the structural barriers that are illustrated by the results. The results indicated that there are barriers or constraints that can derail the flow of information in order to change behaviours. This is highlighted by the concept of practicality

from Blake (1999). The concept of practicality suggests that there are social and institutional constraints towards implementing environmental behaviour through participation. This is evident in the results with regards to the constraints that were experienced by the employees. The results suggested that some employees felt constrained by the lack of structural facilities in order to participate and change behaviours in the household. Structural constraints such as facilities in this instance refer to the provision of materials in order to achieve the goal of changing behaviours.

From a waste perspective, structural difficulties were experienced by the employees with regards to having the necessary facilities to adopt environmental behaviours at the household. About half of the employees at Fairfield Tours had difficulties in adopting recycling behaviours at home due to the lack of recycling drop-off points at their residential areas. These employees felt that the lack of facilities not available at their residential area was counter-productive to promoting environmental behaviours. In terms of energy, the only issue that was considered problematic is the cost of the energy saving lights in the short-term. The information provided to the employees to save energy is useful but the cost of installing the required lights could be prohibitive for those who might need the money for other priorities in the household.

### **5.3 Consistent vs Inconsistent behaviour**

The results from the employees suggest structural differences in the workplace and the household are the main difference between environmental behaviours in the workplace and the household. These structural differences suggests that the information-deficit model of the Smart Living is effective to a specific point and does not take into account the role of practical factors which are required to develop these environmental behaviours. The means of the workplace to continually remind their employees of environmental messages while having the structures available to ensure employees are able to change their behaviour is a fundamental difference to the means of attaining the same structures in the household. Fairfield Tours and Khayelitsha Cookies have the means to consistently provide the relevant messages on a daily basis due to the company structures. Environmental policies at all three companies ensures employees are reminded of their environmental responsibility and have

to abide by these policies, ensuring that employee behaviour is held to the standard of the environmental policies.

Employees have stated that the workplace has provided the facilities to change environmental behaviour in the workplace. This facility includes providing recycling bins, constant reminders via email on reducing energy, and environmental messages. Employees who felt constrained in the household context stated the main problem is lack of facilities in order to help the employees. The results suggest there are socio-economic realities in the household which require that facilities to change behaviours are not focused upon if those structures are not made available. In relation to waste and energy, the results indicated that it was probably more convenient to adopt energy strategies than waste strategies as the basic energy strategies consist of changing light bulbs or switching off appliances in the home. Waste strategies are also related to consumption and although consumption is not related to specific facility requirements, these waste facilities allow employees to alter their behaviours at work. Vineyard Hotel uses specific colour coded bins for the staff to throw their waste into. Fairfield Tours label their bins for the specific waste in order for the waste service to collect the waste. Employees in the household do not have these resources, to drive to recycling places and drop off waste so the messages become inconsistent in the household from the campaign as the structures are not in place. Management in the City of Cape Town responsible for the distribution of the campaign to the workplace do not seem to grasp the realities (socio-economic) that individuals have in terms of responsibilities in the household. The quote below highlights the lack of understanding these realities.

“The problem is residents don’t put an effort to find out because if you look at the map and see all the facilities are, it is in close distance to the entire Cape Town population so it is a very easy way of saying it is not around the corner that is why it is not there. If people get the information, it is available from the website. It is readily available; it is not acceptable to say there is no information” (Management, City of Cape Town; April 2013)

This quote highlights the lack of understanding of individuals in terms of having the structures necessary to change behaviours. The majority of the employees at Khayelitsha Cookies reside in Khayelitsha and there are serious service delivery issues in the area.

Khayelitsha is characterised by high rates of unemployment and poverty, in addition to insufficient housing, infrastructure and municipal services i.e. roads, streetlights, running water, electricity, refuse removal and sewerage services (Phakathi, 2014:1). There are socio-economic issues in Khayelitsha and the inconsistent messages in the household are exacerbated by the comments from management at the City of Cape Town. The employees from Khayelitsha Cookies are probably not able to access a website in their household as they don't have the economic means to do that or the infrastructure so the assumption from the City of Cape Town is disingenuous and inconsiderate. Heimlich and Ardoin (2008) in a study of environmental behaviours suggest that local government infrastructure is responsible for individual frustrations. The management at the City of Cape Town believe that it is the onus of the individuals to make the required effort to act environmentally but what is the purpose of having a map of the facilities when there is no private vehicle to take waste to those facilities. This lack of consideration for individuals in their households and the different socio-economic realities they encounter results in inconsistent behaviour and environmental messages not been transferred effectively.

#### **5.4 Energy management**

In terms of energy management, both companies have developed strategies to remind their employees of their responsibilities towards energy management. Fairfield Tours adopted reminders via various communication channels. These channels included reminders via email, notice boards in the offices and having discussions on energy usage in the workplace. In the household, the rational-economic model espoused by Constanza (1986) assumes that people would perform conservation behaviours should it be advantageous economically. Employees have partly confirmed this model by using energy messages to save, but to an extent it is also dependent on how those messages are interpreted. The interpretation of saving electricity depends on the amount of electricity that is used per month and the lifestyle of the people inside the household with regards to the number of appliances in the household. Whereas the majority of employees from Fairfield Tours have stated that they own pools and utilise air-conditioning inside the home, Khayelitsha Cookies employees are using basic energy strategies to save, mainly switching off appliances not being used. There is a social and economic difference between the employees at the two companies. The majority of the employees from Khayelitsha Cookies also indicated using pre-paid meters

instead of monthly bills. This is not an indication of saving electricity per month but suggests that the employees are using the system as a way of convenience. A study by Steg (2008) indicated that people are less likely to reduce their energy use when saving energy involves high behavioural costs in terms of money, effort or convenience. The convenience of the meter system is recognised but there are costs involved in buying the requisite LED bulbs which are expensive. This is illustrated by the sender-receiver model of energy usage which assumes that “information is provided and the relationship between the informer and the guided individuals consists solely of persuasion and the transfer of knowledge” (Gyberg & Palm, 2009: 2808).

The discussion above has attempted to link the results to the requisite theories in the literature. There are structural differences between the workplace and the household which inhibit the individual in the household while delivering consistent behaviour in the workplace. This consistent behaviour is facilitated by the structures (colour-coded waste bins, recycling materials, energy reminders) in the workplace which are not always existent at the household. The information-deficit model has flaws which struggle to take into account the externalities independent of information. Values and attitudes are different in each individual and structural flaws exacerbate the challenge facing individuals who want to act environmentally.

## 6. CONCLUSION

This chapter will summarise the contents of the dissertation in relation to what has been found during the course of the research project. The research started by attempting to understand the relationship between information provision and environmental behaviour. This was facilitated by using an environmental information campaign from the City of Cape Town on the public. Three companies participated in the research, that being Fairfield Tours, Khayelitsha Cookies and Vineyard Hotel. The rationale and need for the research was introduced in the first chapter. The impact on environmental resources by humans and especially the demand for resources has resulted in consequences which in the long term would cause serious problems.

The conclusion for this dissertation will attempt to bring all of the above chapters together to provide implications for future research. The introduction highlighted the need of reinforcing the consistency of environmental messages in relation to environmental campaigns and specifically with the Smart Living Campaign. These messages have been consistently produced during the analysis of the Smart Living Campaign. There has definitely been a relationship between environmental knowledge and environmental actions within the workplace while the translation to the household has been somewhat problematic due to external factors. These actions manifest through the changing of behaviours with help from the increasing knowledge that is provided from the campaign.

In relation to the research questions, the findings of the dissertation are as follows. In terms of the workplace environment, there is definitely a relationship between human behaviour and environmental information. The Smart Living Campaign has been effective as a tool in providing environmental information to the workers of Fairfield Tours and Khayelitsha Cookies. The Smart Living Campaign as a form of the information-deficit model was effective in translating the information from the campaign to the employees, thus resulting in actions at the workplace. These actions were facilitated through the use of practical interventions such as colour-coded bins for waste, constant reminders through email, environmental messages on passageways, and installation of LED lights for energy reduction purposes. In addition to this, the development of waste strategies at Fairfield Tours to a more advanced

level than Khayelitsha Cookies suggests that without the introduction of the campaign, the waste strategies would not have gathered momentum in the companies. Vineyard Hotel had a pre-existing waste policy at the workplace which required the co-operation of all staff members and the effect of the Smart Living Campaign resulted in providing further environmental messages to the staff in this process. From an energy perspective, Fairfield Tours encouraged their employees to save as much energy as possible through the use of LED lights, saving electricity through switching off appliances and lights when not in use. This is the same strategy employed by Khayelitsha Cookies, save for the use of LED lights, which was too expensive to implement, for employees to translate the energy saving messages. Structural resources and support provided by the workplace allowed these behaviours to be consistent.

The information-deficit model in the household, in terms of transferring the information from the Smart Living Campaign workplace to household was more problematic. This stems from the lack of practical interventions in the household. The concept of practicality by Blake (1999), in which practical constraints/barriers influence behaviours are highlighted relates to the problematic nature of environmental behaviour in the household. The constraints are social or institutional by nature, therefore the workplace has a considerable advantage compared to the household as it is much easier to reinforce behaviours at the workplace than at the household. This is mainly due to the issue or resources made available. Social constraints as suggested by the concept of Practicality include lack of time, money, resources by individuals to achieve environmental goals. The institutional constraints include the lack of structural facilities in order for individuals to enforce these behaviours. The additional information provided by the campaign did not always result in actions at the household as individuals were not confronted by having the same structural resources as in the workplace. Half of the employees at Fairfield Tours specifically stated that there was a lack of waste drop-off points and recycling depots that resulted in lack of action at the household. The transition from workplace to household using the Smart Living Campaign in some instances highlight the flaw of the information-deficit model. The model struggles when adapted to the household level.

The interventionist principles of the information-deficit model are designed to generate positive environmental behaviours through a linear approach. In the case of the household, this approach does not always hold. Additionally, the relationship between the value-action gap and the information-deficit model is that the model is one approach, amongst others, that were designed to bridge the gap between attitudes and behaviours or values and actions. In the case of the household, the information-deficit model is too simplistic and does not take into account external factors such as structural resources that might not be available as per the workplace. Therefore the finding is that the information-deficit model in itself can become a barrier towards bridging the value-action gap by its simplistic nature of focusing on one factor: information.

In recommendations, this research project was completed with the use of a small sample of companies. A broader, cross-sectional study incorporating individuals at the household using a campaign that highlights the effects of structural difficulties (lack of bins, drop-off points, cost-effective LED lights, energy efficient appliances) would be useful in understanding the social-economic realities and structural differences that are visible in a city such as Cape Town in promoting environmental behaviour. The employees of the two companies that participated in the study, Fairfield Tours and Khayelitsha Cookies, have contrasting employee profiles. Most of, if not all of the employees at Khayelitsha Cookies reside in Khayelitsha so there are socio-economic realities which can inhibit environmental behaviour. This is not to suggest that there are no socio-economic realities faced by workers at Fairfield Tours but the realities are more profound in Khayelitsha.

The Smart Living Campaign is a useful tool in providing information to the workplace and individuals. The information-deficit model appears to be too simplistic in relation to the modern realities of individuals. Lack of time, money, space, resources (vehicles) to achieve environmental behaviour are not included in this particular model. Achieving sustainable environmental behaviour requires more than just information but also the practical facilities or safety nets that can provide the necessary development of environmental behaviour. A linear approach to environmental behaviour is no longer valid therefore a more complex approach which incorporates the modern requirements of achievable sustainable environmental behaviour is necessary.

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## APPENDICES

### Appendix A

Company that participated in Smart Living Campaign	
Company	Size
Fairfield Tours	Small
Khayelitsha Cookies	Small
Vineyard Hotel	Medium
Santam	Large
ACSA	Large
Coca-Cola Canners	Large
Colour Tone	Small
CTICC	Medium
Engen	Large
Pick 'n Pay	Large
Woolworths	Large
Handyman Group	Small

## Appendix B

Respondent Number \_\_\_\_\_

### Smart Living Campaign Questionnaire

**Project Name: Evaluating the impact of information on environmental behaviour using the Smart Living Campaign.**

Department: Environmental and Geographical Science, University of Cape Town, in conjunction with the City of Cape Town: Department of Environmental Capacity.

Project Manager: Karl Buckton

Degree: MPhil in Environmental, Society and Sustainability.

Supervisor: Dr Zarina Patel

Date: April 2014

**Instructions:**

- 1.) There are 52 questions.
- 2.) Please answer all questions.

**Waste**

Number	Question	Selection	Response/Comments
1	Do you think that information on waste minimisation is important?		
2	Can you rate the importance of the following waste minimisation processes:		
3	Waste Reduction	1. Low 2. Average 3. Good 4. High	
4	Recycling	1. Low	

		2. Average 3. Good 4. High	
5	Waste Reuse	1. Low 2. Average 3. Good 4. High	
6	Do you think there are any financial benefits with implementing waste management processes in the workplace?	1. Yes 2. No	
7	Elaborate		
8	Are there any other benefits associated with implementing waste management processes in the workplace	1. Yes 2. No	
9	Elaborate		

### Energy

10	How do you pay for energy usage at your household?	1. Monthly Bill 2. Pre-Paid System	
11	What is your average monthly energy usage in Rands?		

11	Have you implemented any of the energy saving strategies from the Smart Living Campaign in the household?	1. Yes 2. No	
12	If yes or no, please elaborate		
13	Do you think there are barriers preventing individuals from implemented energy reduction strategies in the household	1. Yes 2. No	
14	If yes or no, please elaborate in detail?		
15	Which of the following appliances do you have in your household	1. Dishwasher 2. Vacuum Cleaner 3. Washing Machine 4. Tumble Dryer 5. Geyser 6. Electric Stove 7. Kettle 8. Microwave Oven 9. Hair Drier 10. Computer	
16	Of the following appliances, what do you think is the appliance that	1. Dishwasher 2. Vacuum Cleaner	

	uses most energy?	3. Washing Machine 4. Tumble Dryer 5. Geyser 6. Electric Stove 7. Kettle 8. Microwave Oven 9. Hair Drier 10. Computer	
17	Is energy reduction strategies visible at the workplace?	1. Yes 2. No	
18	If yes, what strategies are visible?		
19	Is the company actively trying to change the way energy is managed at the workplace?	1. Yes 2. No	
20	Please elaborate		

### Workplace

21	Is waste management a priority at the workplace?	1 – Yes 2 – No	
22	Elaborate		

23	Have you seen any changes from employee behaviour towards environmental awareness in the workplace since the training ended?	1 – Yes 2 – No	
24	Elaborate		
25	Is the information provided by the Smart Living campaign applicable for the workplace?	1 – Yes 2 - No	
26	Elaborate		
27	Have there been any new activities introduced to the workplace post-Smart living?	1- Yes 2- No	
28	Elaborate		
29	How effective has these new activities been?		

30	Do you think it is more important for companies to focus on profit than implementing environmental strategies in the workplace?	1. Yes 2. No	
31	Elaborate		

**Home**

32	Were you aware of the Smart Living Campaign before the roll-out at your company?	1 – Yes 2 - No	
33	Elaborate		
34	Do you have recycling processes or waste drop-off points in the area where you reside?		
35	Do you think it is important to have waste reduction services in	1 - Yes 2 - No	

	your area?		
36	Elaborate		

### Smart Living Campaign and City of Cape Town

37	Has the Smart Living Campaign training at the workplace been beneficial in your household?	1 – Yes 2 – No	
38	Elaborate		
39	How do rate the level of environmental awareness initiatives in the City of Cape Town?	1 – Low 2 – Average 3 – Good 4 – High	
40	What is the reasoning behind that particular rating?		
41	Would you like to see more initiatives such as the Smart Living Campaign from local government in future?	1 – Yes 2 - No	
42	Elaborate		

43	Do you have any constraints in adopting environmental behaviour at home?	1- Yes 2- No	
44	Elaborate		
45	Is finance important in adopting environmental behaviours at home?	1. Yes 2. No	
46	Elaborate		
47	The Smart Living Campaign is aimed at the workplace; do you think similar strategies are suited to the household?	1. Yes 2. No	
48	Elaborate		
49	Do you think the message of the Smart Living Campaign in	1. Yes 2. No	

	educating people about the environment is an appropriate message?		
50	Elaborate		
51	How do you think the campaign should be delivered?	<ul style="list-style-type: none"> <li>1. Courses</li> <li>2. Handbook</li> <li>3. Radio</li> <li>4. TV</li> <li>5. Tips on Rates Bill</li> </ul>	
52	What is your takehome message of the training of the Smart Living Campaign?		

**Energy Questionnaire**

**May 2014**

**Respondent Number:** \_\_\_\_\_

**Karl Buckton (University of Cape Town)**

1	How do you pay for energy usage at your household?	<ul style="list-style-type: none"> <li>1. Monthly Bill</li> <li>2. Pre-Paid System</li> </ul>	
2	What is your average monthly energy usage in Rands?		
3	Have you implemented any of the energy saving strategies from the Smart Living Campaign in the	<ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ul>	

	household?		
4	If yes or no, please elaborate		
5	Do you think there are barriers preventing individuals from implemented energy reduction strategies in the household?	1. Yes 2. No	
6	If yes or no, please elaborate in detail?		
7	Which of the following appliances do you have in your household?	1. Dishwasher 2. Vacuum Cleaner 3. Washing Machine 4. Tumble Dryer 5. Geyser 6. Electric Stove 7. Kettle 8. Microwave Oven 9. Hair Drier 10. Computer	
8	Of the following appliances, what do you think is the appliance that uses most energy?	1. Dishwasher 2. Vacuum Cleaner 3. Washing Machine 4. Tumble Dryer	

		<ul style="list-style-type: none"> <li>5. Geyser</li> <li>6. Electric Stove</li> <li>7. Kettle</li> <li>8. Microwave Oven</li> <li>9. Hair Drier</li> <li>10. Computer</li> </ul>	
9	Is energy reduction strategies visible at the workplace?	<ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ul>	
10	If yes, what strategies are visible?		
11	Is the company actively trying to change the way energy is managed at the workplace?	<ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ul>	
12	Please elaborate		
13	Does the company actively engaged with employers about the importance of energy usage?	<ul style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ul>	
14	Elaborate		

15	Do you think energy usage in the household is determined by lifestyle choices or by necessity?	<ul style="list-style-type: none"> <li>1. Lifestyle Choices</li> <li>2. Necessity (Enforced upon you)</li> </ul>	
16	Elaborate on your choice		