USING SOCIAL MARKETING
TO BRIDGE THE GAP BETWEEN
SYSTEMATIC CONSERVATION PLANNING
AND IMPLEMENTATION
AT THE LOCAL GOVERNMENT LEVEL

Angelika Wilhelm-Rechmann

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by

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Declaration

I, Angelika Wilhelm-Rechmann, student number 207049451, hereby declare that this thesis, "USING SOCIAL MARKETING TO BRIDGE THE GAP BETWEEN SYSTEMATIC CONSERVATION PLANNING AND IMPLEMENTATION AT THE LOCAL GOVERNMENT LEVEL", submitted in fulfillment of the requirements for the degree of PhD is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

Signature: _____

Date: 25 January 2011

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Summary

The study presented here describes an attempt to bridge the gap between systematic conservation assessment and decision-making for land-use planning in the Eastern Cape province, South Africa. The aim was to investigate how to effectively convince officials concerned with land use planning processes in the local municipal sphere to include conservation priorities meaningfully in their processes. The approach used to reach this aim was social marketing, the use of marketing technologies and concepts to effect behavior changes to further societal good. So far social marketing is not commonly used in the conservation domain; I therefore aimed also at proving the usefulness of this approach for conservation. Following the introduction which provides background to the project and a more detailed summary, Chapter 2 provides a detailed and comprehensive review of the considerations and concepts regarding the use of social marketing in a context geared at protecting nature. The research on the primary target group for this study, officials concerned with land use planning processes in the local municipal sphere is described in Chapter 3. The main outcomes were that land use planners perceive few needs with regards to implementing the incorporation of biodiversity conservation issues in the land use planning process, and that the deficiencies in the land use planning process *per se*, as well as the lack of recognition in the political sphere (the domain of elected councilors), represent the core barriers to adopting the conservation priorities. I conclude that to effect behavior change towards adoption of conservation priorities the land use planning processes need to be supported and the political sphere need to be included in the behavior change process.

Chapter 4 therefore focuses on the new target group that emerged as essential in the previous chapter, locally elected councilors. I found that councilors do actually consider land use planning procedures as being important, but also as being dysfunctional. Councilors do value their natural environment for themselves as well as for its tourism value, but most councilors had little understanding of what the term "biodiversity" means and did not connect the term "sustainability" with the natural environment. It became also evident, that councilors do not see conservation in a predominantly positive manner. Chapter 5 therefore yields insight on councilor's perception that environmental protection and development are mutually exclusive, and the negative frames attached to the conservation endeavor as being socially unjust, disrespectful and utopian. In Chapter 6 I investigated the usefulness of a tractable and well established measure of environmental attitudes or beliefs. I assessed my target audience's responses to the New Ecological Paradigm scale and the Inclusion of Nature in Self scale. I conclude in Chapter 7 with an account of the difficulties I encountered during the project, an assessment of my project from a social marketing perspective, components of my project that did not yield the results expected, and a proposal for future research.

Keywords: Social marketing,
            Systematic conservation planning,
            Customer orientation,
            Conservation psychology,
            Framing,
            Formative research,
            Communication,
            New Environmental Paradigm scale,
            Sustainability science.

Dedicated to

Rhea,
clinging to the shimmer of hope for her future

and to

Richard

without whom none of this would ever have
happened, nor had any effect.

Acknowledgements and Preface

First and foremost I owe a lot of gratitude to my husband Werner Rechmann for having financed the largest part of this project and for accepting the financial loss incurred by my not working during the number of years I've spent on developing, conducting and writing up this project and thesis. Rhea, my lovely daughter had to accept her mother's absence on numerous occasions and I deeply hope that the additional time I could dedicate to her because of the flexibility of the project can make up for this disadvantage. Hopefully what I have learnt here will be a positive contribution to her development too.

Many people have contributed to this project to various degrees and I am indebted to all of them to varying degrees. Still, there is space to dedicate no more than a number of words to each and I apologise for that. I simply proceed in chronological order.

I should likely start with Bob Pressey, arguably the starting point of this project. With his friendly and warm reception he contributed much to my choosing this project over the numerous others I had browsed at my first conference of the Society for Conservation Biology in Brazil. He, and also Andrew Knight, directed me towards Prof. Richard Cowling.

Then I owe a lot and an apology to Ed Witkowski at Wits University, likely also to Bahrend Erasmus, for his courageous standing up for me in what I would

call today a clear case of female to female harassment. I apologise to any other females who lived the same experience for not having stood up when I could have, which is a disgrace to those who actually did follow "right" rather than "might". Ed did so without any personal gain and I deeply appreciate that he prevented the collapse of a project that had not even been born yet. Luckily, however, this action resulted in Prof. Richard Cowling becoming my supervisor.

Prof. Cowling was not only kind enough to provide me with advice with regards to my developing project, he also clearly identified my strengths and subsequently steered the focus of the project towards these strengths, and my interests – of which I was little aware at the time. I am very grateful that he eventually agreed to take the entire project on as a supervisor and that he continued to support it throughout the various difficulties on both of our sides.

I also owe gratitude to Shirley Pierce for her contribution to conceiving the thinking that paved the way for my project and likely, I assume, for having weathered one or the other storm.

During the development phase Alex Weaver greatly supported me in affirming the validity of my ideas. I am also grateful for his persevering conviction that I could contribute a meaningful chapter to his book on sustainability.

I am proud of the work presented here. I have thoroughly enjoyed the tremendous amount I have learned about how we humans function, and I hope it to be a truly meaningful contribution to real-world conservation.

The project would plainly not have been possible without Prof. Cowling's outstanding capacity to adopt new insights, challenges and criticisms provided by a student, and his capacity to truly listen. I consider this to be an extremely rare characteristic at his status level. I have had the pleasure to work with numerous high-status individuals in my former position in the European Commission.

However, I honestly cannot recommend any student to venture into a similar situation in which no defined system of reference provides structure. My own experience was not grounded in the conservation context, the social sciences concepts I have been working with have rarely been applied in the conservation context. The perceptions of how the world functions are very different indeed between the natural and social sciences, and to be operating constantly at the boundary - or rather the gap - between the two is a tedious exercise and often does not reflect positively on the student. Concepts that appear simplistic in the one world are often simply too far away from the perception of reality of the other world to be easily adopted. With all willingness on both sides it remains a permanent up-hill battle in which the student first has to test and ascertain which component of the social sciences concepts used is understandable and conceivable for the natural scientists and which ones go too far. Necessarily one is oscillating between the concepts being simplistic in the one world and too complex to be understandable in the other world – a situation that is little supportive with regards to publication in highly specialised scientific journals. Even terminology may be interpreted quite differently. Naturally, a large part of what the student has worked on goes unnoticed: the student has to achieve a

certain degree of mastery in a (sub-) discipline to judge what is appropriate for the developing project, but only a fraction of this will be adoptable in the work delivered on the other side of the gap. I thoroughly enjoyed the degree of freedom I was accorded in my dealings, but will not deny the difficulty, degree of uncertainty and amount of additional work connected thereto. I wish to clearly and strongly highlight that this is not a criticism. Introducing social science ideas and concepts into the natural sciences world is an obvious case of diffusing innovations and Everett M. Rogers aptly describes the difficulties associated with such processes. Prof. Cowling clearly is at the forefront of adopting and introducing innovations in conservation science (still defined in practice as very much a natural science) and I have clearly pointed out his exceptional qualities above. Still, the process is connected with considerable amounts of effort to overcome our in-built tendencies to dismiss as "wrong" all concepts and messages that do not align with our worldview, and the messengers with them. Note also that this is a necessary condition even for those who actually do venture to adopt new ideas from external sources: if a chance is sought that the ideas be mainstreamed in the society, a high degree of sensitivity is required to ascertain how much innovation this society is able to embrace. As Rogers notes: "The respect with which the opinion leader is held can be lost, however, if an opinion leader deviates too far from the norms of the system." (2003, p 27). Clearly, the differential of credibility between student and professor is not supportive in such an endeavour. My own project could easily have collapsed at some point had I not had the support in form of a positive appraisal of my work from a social scientist. Bridging the gap between natural and social science worlds should, I suggest, be accomplished

at a level of similar strength. Established scientists should agree on projects in which natural and social scientists co-operate, only then students should be introduced in the processes – at least those students who are young and inexperienced. I surely would not have completed this project without the experience I have gained in my previous work.

This being said, I need to point out equally that my work has – so far – always been received with much acclamation, not only in the form of publications that have been well received but also by my interviewees who, without fail, have been kind, open and very receptive for the insights and arguments I provided them with. In addition and owing again to Prof. Cowling, my findings have been discussed in various conservation settings. This provides me with a feeling of having contributed the share I was capable to provide to an endeavour I consider of utmost importance – this was my personal aim of this project and its fulfilment fills me with gratitude.

Chapter 1

General Introduction

The Subtropical Thicket biome, most of which is located in South Africa's Eastern Cape Province, forms part of the Maputaland–Pondoland–Albany biodiversity 'hotspot' (Steenkamp et al., 2004). In July 2000, the Subtropical Thicket Ecosystem Planning (STEP) project commenced (Knight et al. 2010). The STEP project aimed at improving the conservation status of the subtropical thicket biome by developing planning products that prioritized sensitive biodiversity areas using systematic conservation planning software (Rouget et al. 2006) and to ensure the mainstreaming of these products into land use decision-making processes. Pierce et al. (2005) describe the development of training materials on the basis of the STEP conservation planning exercise and the training efforts implemented to mainstream the use of the maps in land use planning procedures.

My research was initiated in response to some of the issues raised by Pierce et al. (2005). Despite their overall positive assessment of the mainstreaming processes, they conclude:

"We propose that stakeholders be involved in identifying and mapping different forms of critical natural capital, and also in communicating its importance for sustainability to government and civil society. While economic assessments of the value of this capital would be welcome, we believe that impassioned narratives (Johns, 2003), fierce lobbying, effective social marketing and other normative actions are likely to be more effective than often dubious monetary values (Chiesura and De Groot, 2003) in integrating the conservation of these features into land-use planning. Ours is a tentative step to bridge the gap between systematic conservation assessment and land-use planning, and to ensure the integration of our products into land-use decision-making." (Pierce et al. 2005, p. 455)

This study addresses the next step in the attempt to bridge the gap between systematic conservation assessment and decision-making for land-use planning. The aim was to investigate how to effectively convince officials concerned with land use planning processes in the local municipal sphere to use the conservation assessment products meaningfully in their processes.

"Conservation assessments" in the wider sense are procedures for identifying areas that have priority protection value for reaching conservation goals. In this thesis, we refer more specifically to conservation assessments as defined by Margules and Pressey (2000), which use GIS-based computerized systems to integrate a variety of informational layers and produce maps of priority areas.

"Land use planning" broadly speaking comprises the processes of decision-making about future landuse and the allocation of resources, facilities

and services connected thereto. Here I refer primarily to the branch of public policies and laws that aim at regulating the use of land in form of the land use rights a municipality accords to individual landowners.

The "local municipal sphere" I have been working with here has been established in South Africa through the municipal structures act (no. 117 of 1998) and the municipal systems act (no. 32 of 2000) following the first democratic elections. Local councils and administrations hold the primary responsibility for land development in the municipalities, but are bound to a co-operative government approach and to respect national and provincial legislation.

The most common and intuitively appropriate approach to influence people towards pro-environmental behavior is environmental education. However, when reviewing the literature on environmental education it emerged that the link between environmental education and actual pro-environmental behavior is not intensively investigated and not as clear-cut as most people assume (Zelezny 1999, Bamberg 2003, Hunter and Rinner 2004). In the few cases where outcomes of environmental education exercises are measured at all, the measures most often include environmental knowledge, attitudes or concern, and in those publications that measure behavioral outcomes, most refer to self-reported behavior, which often is not mirrored by the actual behavior.

In their paper - "Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?" - Kollmus and Aegyeman (2002) review the development of thought and behavioral models

that were most common and influential in environmental education, and

provide insight into the variety of factors affecting pro-environmental behavior.

They state *"the question of what shapes pro-environmental behavior is such a*

complex one that it cannot be visualized through one single framework or

diagram." (p 239). They further point to very promising approaches to

behavior change for reaching sustainability, which *"arose out of concerns*

about the ineffectiveness of environmental campaigns that relied solely on

providing information." (p 240). One of these approaches is social marketing.

Social marketing has a number of characteristics that make it more

effective in specific situations than traditional educational or awareness raising

methods. First, it is a pragmatic approach: social marketers strategically

choose one key behavior that needs to change in order to achieve a specific

outcome (Andreasen 2006). Second, it uses a reverse logic: it starts with the

behavior and then works backwards to identify the drivers for that behavior

(Hastings 2007). To effect change the benefits and barriers connected with

the behavior are analyzed and then modified (McKenzie-Mohr 2000). Third, it

uses tools to effect change of behaviors from any psychological or other

discipline: social marketing is not an approach limited to some specific tool but

demands that the tool likely most effective in the circumstances of the project

be used (Hastings, 2007). Stern et al. (2000) note that using a combination of

approaches to effect a specific behavior change will considerably enhance the

chances of success. Fourth, social marketing places great emphasis on using

the insights provided by communication sciences for effectively reaching the

target audience (Kotler and Lee 2008). This does not only refer to the choice

of which facet to use from the multitude of possible perspectives associated

with a problem. Other important considerations are the format used, appropriate timing, and the channel through which the target audience can best be reached. Lastly, social marketing is predicated upon rigorous monitoring and ideally provides for pre- and post- intervention assessment of the behavior change project. A detailed description of how the social marketing approach can be used in a conservation or sustainability science context is provided in Chapter 2.

Various approaches to delimiting phases in a social marketing project are used. As we refer mostly to Andreasen's definition of social marketing we point out his six phases (Andreasen 1995, p 72): The social marketing project starts out with a "listening" phase, the formative research phase, with the aim of unraveling insights into the behaviour in question, the drivers of the behaviour, the possible new behaviour and the barriers and benefits connected with the behaviour change. Based on these insights, a second planning phase develops possible interventions to enable behaviour change. In the third phase these interventions are organised into a structured program of interventions. This program is pre-tested in a fourth phase to ascertain if the results from the previous stages effectively speak to the target audience, supporting behaviour change. After adopting the program to the insights provided through pre-testing, in the fifth phase the program is implemented and applied to the entire target audience. Simultaneously the sixth phase, the monitoring component commences, which, as a circular system feeds back into the first phase of formative research.

Whiteman (1999) suggests that social marketing should be embraced by environmental scientists and academics and argues for the "*mobilization of*

marketing efforts". However, at the outset of this project (which officially started in February 2007), I could not identify any articles published in the primary literature on conservation biology that address the use or usefulness of social marketing in the conservation sector. The situation today (January 2011) is little changed. A web search in some key conservation biology journals, using the search term "social marketing", yielded the following results:

- *Conservation Biology*: 10 hits, of these three were book reviews, three were from 2010, and all articles mention social marketing just once or twice; ("marketing" yielded 887 hits).

- *Biological Conservation*: 3 hits, all three use "social marketing" just once; "marketing" yielded 10 hits.

- *Ecology & Society*: 3 hits, 8 for "marketing" including Whiteman (1999) and two responses to her article.

As a comparison, a free search for "social marketing" on the "Sciencedirect" site produced 2 479 papers, predominantly citing articles from the public health domain. On the other hand, "conservation biology" delivered 11 020 papers. Clearly, at the outset of this project the usefulness and applicability of social marketing in conservation had not been established in the realm of conservation biology.

The literature on conservation psychology – an emerging research discipline - discusses the use of social marketing as a promising approach (McKenzieMohr 2000, Monroe 2003, Saunders 2003). However, no papers in this discipline deal with the potential or actual use of social marketing in the conservation domain. A search in the grey literature provided few results,

most of which referred to processes of "advertising" rather than including the entire marketing concept; none used the behavior change target described above. For example, interventions of "RARE", a conservation NGO that propagates "social marketing" since the 1980s could be seen as an exemption in practice from this statement. However, RARE has adopted behavioral targets and models only in the last two to three years and therefore, when using the common social marketing definition of the preventive health sector, would not have been classified as "social marketing" in 2007. Therefore, I expanded the aim of this study to more than bridging the gap between systematic conservation assessment and land use planning. Indeed, the aim became far more general: to assess the usefulness of social marketing in the context of conservation projects.

The literature on social marketing includes few articles on conservation issues (Landers et al. 2006); most deal with social marketing as strategy for engendering behavior change in the public health sector (Stead et al. 2007). In Chapter 2 I describe in detail the rationale, components, and considerations of social marketing, and how it could be used in a context that is geared towards protecting nature.

In July 2008 the government social research unit (GSR) in the UK (Darnton 2008) published an extensive "overview of behaviour change models and their uses". Of the plethora of models addressed, only the following eight are classified as "applied approaches to change", all others are classified as "understanding behaviour" or "understanding change".

1. Andreasen's Six Stage Model of Social Marketing (1995).

2. McKenzie-Mohr's Four Steps of Community Based Social Marketing (CBSM) (2000).

3. Gardner and Stern's Principles for Intervening to Change Environmentally Destructive Behavior (1996). - These principles are noted only to highlight their parallels in the other applied approaches.

4. Bartholomew et al's Intervention Mapping (IM), (1998) - Darnton (p 58) notes: "IM sets behavioural models at the centre of the policy planning process; the intervention strategy followed through all the subsequent steps is shaped by the particular model selected at the beginning."

5. Defra's 4Es Model (2005) – This is a model for developing comprehensive policies rather than interventions for a specific behaviour change goal

6. Knott et al's Cultural Capital Framework (2008) – Which is a further development of the previous model.

7. Department for Communities and Local Government's Model of Community Empowerment (2008) - Which is still in development, and

8. Implications from Chapman's System Failure (2004), - Also principles that provide general rules for policy development.

My project clearly aimed at addressing and changing behaviour rather than merely understanding it. This overview shows that few other models exist that provide a comprehensive and systematic approach for truly applied behaviour change interventions and therefore provides a further rationale for choosing the social marketing approach over other approaches. I have not

further considered any models for social change per se as the focus was on individual behaviors, conservation assessments and local government processes.

To my knowledge – based on the above review of the literature - this is the first comprehensive assessment of the use of social marketing in conservation.

In that part of the Eastern Cape, which falls in the STEP planning domain, the coastal areas are under the severe pressure from increasing population density and urbanization (Palmer et al. 2010). The degree of development varies considerably between municipalities. My research, therefore, encompassed three different levels of local (as opposed to district) municipal capacity and development, and used two municipalities for each tier to ensure a comprehensive and representative assessment. Koukamma and Great Kei (Fig. 1) are the least developed and least capacitated municipalities. Nelson Mandela (centered on Port Elizabeth) and Buffalo City (centered on East London) municipalities are the two metropolitan municipalities on the Eastern Cape Coast and have a comparatively high level of development and capacity. The capacity and development levels of Kouga and Ndlambe municipalities are intermediate between the two aforementioned classes.

Figure 1: Municipalities that were investigated in this study. NMMM = Nelson Mandela
 Metropolitan Municipality Also shown are the boundaries of district municipalities in
 the study domain. Map provided by the South African Municipal demarcation board,
 available online from:
 http://www.demarcation.org.za/new_site/pages/default_new.html

The primary target group for this study, namely land use planners
employed in local municipalities, was circumscribed by the development of the
conservation assessment products described in Pierce et al. (2005) where the
aim was to mainstream the effective use of these products (conservation
priority maps) in the municipal land use planning procedures. In Chapter 3, I
describe the formative research phase and its results on this primary target
group. The main outcomes were that land use planners perceive few needs
with regards to implementing the incorporation of biodiversity conservation
issues in the land use planning process, and that the deficiencies in the land
use planning process *per se*, as well as the lack of recognition in the political
sphere (the domain of elected councilors), represent the core barriers to
adopting the conservation maps. To effect behavior change towards adoption
of the conservation maps and associated products the land use planning

processes need to be supported and the political sphere need to be included in the behavior change process.

Given that Chapter 3 identified councilors as a key target group, Chapter 4 focusses on the formative research conducted with councilors. I investigated their perceptions of the land use planning processes, if they accord value to their natural environment, how they perceive the conservation endeavor in their municipalities, and to what degree they understood and related to the terms "biodiversity" and "sustainability". I found that they do actually consider land use planning procedures as important, but also as dysfunctional. Councilors do value their natural environment for themselves as well as for its tourism value. Most councilors had little understanding of what the term "biodiversity" means and did not connect the term "sustainability" with the natural environment. With regards to councilors' perceptions of the conservation endeavor it became evident, that conservation is not seen in a predominantly positive manner.

These critical perceptions of councilors about conservation represented an underlying, tacit barrier to behavior change, and I elaborate on this in Chapter 5. My analysis yielded insights on one of the root causes of the seemingly inexplicable refusal of councilors to support the protection of their nature, namely: environmental protection and development are perceived as mutually exclusive, and the negative frames attached to the conservation endeavor as being socially unjust, disrespectful and utopian, further undermine conservation efforts.

It is unlikely that an analysis of the depth provided in my study will be

feasible to include in social assessments for most conservation projects. Therefore, in Chapter 6 I assessed my target audience's response to a tractable and well established measure of environmental attitudes or beliefs, namely the New Ecological Paradigm scale (Dunlap et al. 2000). My aim was to investigate if this tool is useable in the South African context, and if it would enable conservationists to differentiate the full array of stakeholders into distinct groups with varying levels of eco-centricity. The NEP-scale performed well in my target audience. However, the results of the Inclusion of Nature in Self scale administered only to the councilors subset of my dataset, indicated that the underlying dynamics between environmental attitudes or beliefs and the connectedness to nature are more complex.

I conclude in Chapter 7 with an account of the difficulties I encountered during the project, components of my project that did not yield the results expected, and some proposals for future research.

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Chapter 2

Social marketing as a tool for implementation in complex social-ecological systems [1]

The need for behaviour change

Other chapters in the book "Exploring Sustainability Science – a Southern African Perspective" (see footnote 1) explore in depth the philosophical and conceptual underpinnings of sustainability science and social-ecological systems as well as tools for their investigation. In this chapter I explore an approach to sustainability science that is clearly oriented towards intervention and implementation – which brings into practical effect actions that are informed, for example, by sustainability science.

Sustainability science is concerned with the sustainability of both social and ecological systems. However, the primary locus of action to influence such

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[1] This chapter has been published as chapter six in: M. Burns and A. Weaver, editors. Exploring sustainability science: A Southern African perspective. SUN Press, Stellenbosch. The text has been slightly modified to suit the format of this thesis.

sustainability resides within the social system aspects, and more specifically human actions. Ehrlich and Kennedy (2005: 562) note that it is the "…collective actions of individuals that lie at the heart of the dilemma". The behaviour of humans is, therefore, fundamental for achieving more sustainable social-ecological systems.

It has long been assumed that providing the 'right information' will influence people to adopt more environmentally friendly and sustainable behaviours (Robinson, 2006). However, despite 20 years of improving information and information provision, for example within the discipline of conservation biology, the commonly shared aim, which is "sustaining the diversity of life and the health of ecosystems" (Meine et al., 2006: 647) has been achieved only in instances (Balmford and Cowling, 2006).

Environmental and conservation psychology (Saunders, 2003) have long established that providing information alone has limited influence on human behaviour (Winter and Koger, 2004). Numerous factors, for example attitudes (Ajzen, 2001), beliefs, values, norms (Stern, 2000), knowledge (Winter and Koger, 2004), awareness (Monroe, 2003), culture (Ehrlich and Feldmann, 2003), behavioural control (Bandura, 1986) and social, political and economic factors determine people's behavioural displays. Conversely, it is obvious that the physical effects on the natural environment are caused by the behavioural display itself, irrespective of the root causes of this behaviour. The unit of analysis I concentrate on here is thus the manner in which humans behave.

Sustainable or "environmental behaviour" can be defined by its impact, directly or indirectly, by the "…extent to which it changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself" (Stern, 2000: 408). This definition emphasises outcome- orientation, which accords closely with the aim of this chapter; i.e. to understand how the physical preservation of natural features can actually be achieved. Although I investigate and use the psychological and other determinants of environmental or conservation behaviour, they are functionalised for the goal of achieving sustainable behaviours, instead of being the focus of attention themselves.

"Environmental behaviour" can also be defined, for example, as behaviour "… undertaken with the intention to change (normally, to benefit) the environment" (Stern, 2000: 408). According to this definition, the primary dimension of analysis is the intent to benefit the environment – where the actual preservation of natural features may or may not ensue from such "pro-environmental" behaviour. Preservation of natural features, therefore, becomes a secondary aspect of the definition, and as a result exploring pro-environmental world-views is emphasised rather than the actual achievement of sustainability.

Unsustainable behaviours can be performed by people with positive environmental intentions, for example because their effects are too remote or not salient enough, or because the awareness is lacking (Stern, 2000; Monroe, 2003). Defining pro- environmental behaviour by intent furthermore

excludes unconscious behaviours from consideration (Courtenay-Hall and Rogers, 2002).

Conversely, sustainable behaviours can be caused by a range of drivers other than "environmental intent" or pro-environmental world-views: For example, energy- saving light bulbs or thermal insulation of homes will yield the same result if installed with the intent of either preserving the environment or saving money. Indeed, a primary aim of financial gain may, by virtue of displaying behaviour that is generally considered to be pro-environmental, feed-back and result in increased pro-environmental attitudes (Bandura, 1986, McKenzie-Mohr and Smith, 1999; Winter and Koger, 2004).

The core question for sustainability science in my view is, therefore: how can people be influenced to act in a sustainable manner?

I acknowledge the complexities involved in defining which behaviours are to be considered "sustainable" (Gough, 2003; Monroe, 2003) – depending, for example, on how a social-ecological system is defined. However, I assert that, given many of the trends in the human and environmental condition worldwide, there are behaviours that are obviously more sustainable than existing practices.

While rejecting the psychology-centred definition of environmental behaviour for the purposes of this chapter, I also clearly acknowledge the importance of research aimed at investigating how humans relate to nature (Saunders,

2003). Maintaining or restoring the connection humans experience with the natural world (Schultz, 2000; Miller, 2005) will likely determine the long-term development of human interaction with the environment. However, sustainable behaviours will have to be achieved in the short-term to ensure that humans, or at least a considerable number of other species, will be able to persist in the long-term.

Behaviour, behaviour change and marketing

Gardner and Stern (1996) distinguish between four general typologies of interventions that are commonly used to influence environmentally significant behaviour: religious-moral approaches targeting general worldviews; education- information approaches; incentive-based approaches of a monetary and non- monetary nature; and, community management approaches to establish common conventions. They clearly point out that any of these approaches can be successful in changing human behaviour, but often yield disappointing results. Importantly, "by far, the most effective behaviour change programs involve combinations of intervention types" (Stern, 2000: 419).

I would like to draw attention here to marketing as an approach that strategically utilises any of these and other methods to shape human behaviour. Marketing as such is nothing less than applied behavioural science (Kotler and Zaltman, 1971).

Commercial marketing unquestionably dominates many of our daily behaviours (Kotler and Keller, 2006). Commercial marketing and advertising are omnipresent; for example, they shape our buying behaviour and, consequently, much of our everyday activities – our choice of clothes, what we eat, entertainment, etc. We may start our day with Cornflakes instead of porridge, wear Levis not simply jeans, drive to work in a 4x4 SUV (on city roads). We are incessantly subject to various forms of marketing, for example through the radio, newspapers, TV, billboards or the variety of branded products in our households.

Marketing is formally defined as "…an organisational function and a set of processes for creating, communicating and delivering value to customers, and for managing customer relationships in ways that benefit the organisation and its stakeholders" (Kotler and Keller, 2006: 6). This definition of commercial marketing focuses largely on "delivering value" to serve customer "needs", and on ways of doing this in a profitable manner. However, the underlying assumption of exchange – the process of obtaining a product from someone by offering something in return – reveals that the actual goal is to solicit desired responses from the customer. In other words, "marketing consists of actions undertaken to elicit desired responses from a target audience" (Kotler and Keller, 2006: 7).

In the commercial sector the above definition refers primarily to buying behaviour. However, the power of the marketing tool-kit can also be harnessed successfully for the aim of societal benefit – for example, to

improve the personal health of citizens, for supporting child vaccination schemes or for curbing population growth rates (Kotler et al., 2002). Using the marketing toolkit for societal benefit, instead of commercial gain, has been branded "social marketing" by Kotler and Zaltman (1971). In the sustainability domain, marketing has been used successfully, for example, to increase recycling and energy saving behaviour (McKenzie-Mohr and Smith, 1999; Oskamp and Schultz, 2006).

Marketing is a tool that is used by large, small and medium-sized enterprises. It, therefore, can equally be used in individual, small scale as well as in large scale sustainability projects (Whiteman, 1999). Andreasen (2006: 219) points out that social marketing is "…more a way of thinking about and approaching behavioural challenges, not a way of spending money". This point is illustrated in the title of a recently published social marketing book: "Why should the devil have all the best tunes?" (Hastings, 2007).

Over the last 40 years, social marketing has delivered consistently tangible behavioural results, particularly in the preventive health domain (Stead et al., 2007). Following an in-depth review of existing practices of preventive health, social marketing has been endorsed in the UK as the approach that "…should be used to guide all future health promotion efforts…and it has begun to adopt a national approach to systematically applying social marketing principles" (French and Blair- Stevens 2006: 29).

Behavioural models and theories

I speculate that many scientists engaged in sustainability science are largely unaware of the theory of behaviour, and the practice of effecting behaviour change. Since this is central to social marketing I feel that it is important to provide a brief overview of some behavioural models and theories.

The science of psychology is concerned with the description and explanation of the human mind and behaviour (Weiten, 2004) and, accordingly, a large variety of descriptive and explanatory models have been developed in this discipline. To illustrate the particulars of social marketing interventions, and how they address the complexity of human behaviour, just a few of these models – some of those used most frequently in social marketing interventions (Lefebvre, 2000) – are outlined here.

<u>Knowledge drives behaviour</u>

Most of the early environmental interventions relied on the simplistic assumption that humans act on the information they have access to (Kollmus and Agyeman, 2002).

$$knowledge \rightarrow behaviour$$

or

$$knowledge \rightarrow awareness \rightarrow behaviour$$

Though still quite common in practice (Winter and Koger, 2004), this simplistic assumption is widely dismissed today.

<u>Theory of planned behaviour (TPB)</u>

A model used quite extensively is the Theory of Planned Behaviour (TPB), developed by Ajzen (1985). It is based on an earlier model, the Theory of Reasoned Action (Ajzen and Fishbein, 1980). TPB identifies three main contributing factors to human behaviour (Figure 1):

Behavioural beliefs about the likely outcomes of the behaviour, which are evaluated, including an affective appraisal and result in a positive or negative attitude towards the behaviour;

Normative beliefs about expectations of others, which will be integrated into a subjective norm, for example as perceived social pressure; and,

Control beliefs about factors that support or prevent the behaviour – their evaluation leads to the formation of the perceived behavioural control.

These three factors feed into the formation of the *intention to perform the behaviour* – the most important predictor of behaviour, which, circumstances permitting (e.g. having actual *behavioural control*), leads to the performance of the behaviour.
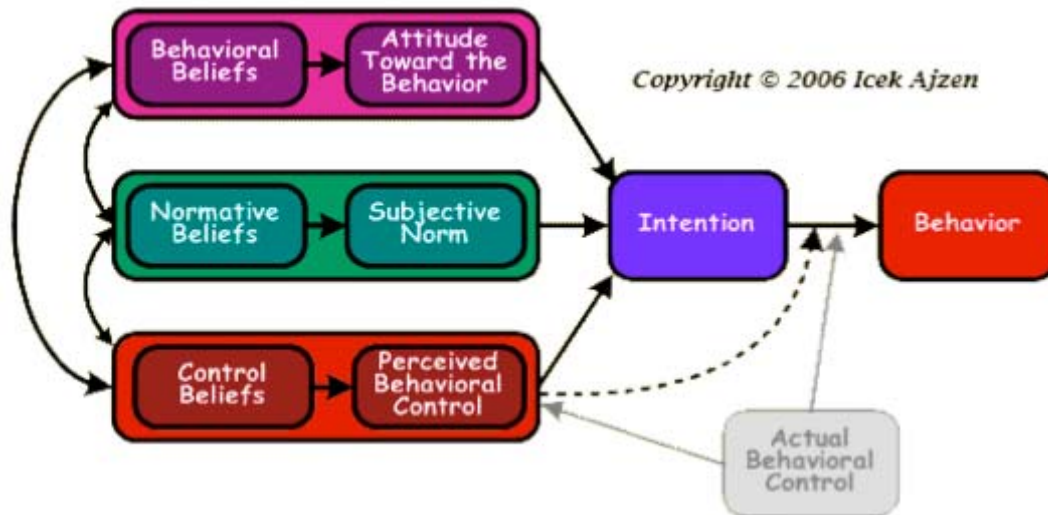
Figure 1: The Theory of Planned Behaviour. After Icek Ajzen (2002). Available online at:
http://people.umass.edu/aizen/tpb.diag.html)

The transtheorethical model: stages of change

Prochaska and DiClemente developed a transtheoretical model. It asserts that humans in a change process do not actually change from one instance to another, but go through the following stages (e.g. Prochaska et al., 1992):

Any person prior to being aware of their problematic behaviour, or of the possibility to change it (i.e. having no intention to do so), is considered to be in the "pre-contemplation phase" – "I really enjoy my house being so warm and cosy in winter!". By providing information and raising awareness, people can progress to the "contemplation phase" in which the problem is recognised and changing the behaviour is seriously considered – "Yes I know heating is really bad for the environment, but I am not quite ready to stop yet". Usually, in the early contemplation phase the affective evaluation of the benefits of the proposed new behaviour prevails – "Less heating would save me some money", while in the late contemplation phase evaluation of the costs

associated with adopting the new behaviour dominate – "But gosh, I really hate to come home to an unheated cold place!" If the weighting of the contemplation phase results in a positive overall appraisal, the individual may progress to the "action" stage – "Ok, I am turning off the heaters in at least two of the rooms"; or, "No heating except the living room for the past three days now!". At times, a "preparation for action" stage is differentiated prior to the action stage, in which the individual sets a clear goal for changing a behaviour within an explicit timeframe. If the behaviour has been performed successfully and its consequences gained positive appraisal, then the person can move into the "maintenance" stage, in which the new behaviour becomes part of norms and habits – "Yes I used to heat my whole house, but I sleep much better now and heat only where I am actually spending my time". Associated with each of these stages are appropriate actions that behaviour change agents can take to support the transition to the next stage. This model revolves more around influencing behaviour than actually explaining its constituent parts.

Diffusion of innovations

Diffusion of innovations (Rogers, 2003) explores behaviour change from the perspective of how different members of a society adopt a new behaviour. It divides the audience into five groups according to degree of innovativeness, and investigates the social network through which the novel behaviour disseminates in the society:

Innovators, who proactively look for "innovations" and, for this purpose, reach outside their society and function as "importing agents" – without usually

receiving the societal approval for this function. They usually value uncertainty and complexity.

Early adopters are more rooted in their local society and serve as opinion leaders, who facilitate or enable the transfer of the new behaviour from the innovator to the entire society, by simply adopting and thus approving the innovation.

Early majority members, amounting to more than one third of the society, tend to be well connected in their society and usually adopt willingly without taking on the original leadership role – still perceiving a personal need for innovation.

Members of the late majority, also amounting to more than one third of the society, are more hesitant and sceptical with regards to new ideas, and are more averse to uncertainty.

Laggards, the last to adopt an innovation, are extremely cautious and often suspicious with regards to innovations. They tend to resist adoption as long as is reasonably possible.

Another important aspect of diffusion research is that in many cases it is sufficient to achieve approximately 20% adoption of an innovation, beyond which point it "is often impossible to stop the further diffusion of a new idea" (Rogers, 2003: 274).

Social Cognitive Theory (SCT)

Bandura (1986) provides a very comprehensive account of the variety of factors that contribute to human behaviour. I include Bandura's theory to provide an impression of how complex the determinants of human behaviour actually are, much beyond the models provided so far. He explains human

functioning as a triangular system in which the person, the environment and the behaviour determine each other, reciprocally (Figure 2).

The key aspect of Social Cognitive Theory (SCT) is the acknowledgment of mutuality and interaction between all three components "personal factors", "environmental factors" and "behaviour": SCT acknowledges that human behaviour is influenced "from the outside" by environmental factors as well as "from the inside" by personal factors. In addition, it postulates that our behaviour is not only co-produced by personal and environmental factors, but itself has a feed-back effect on both.
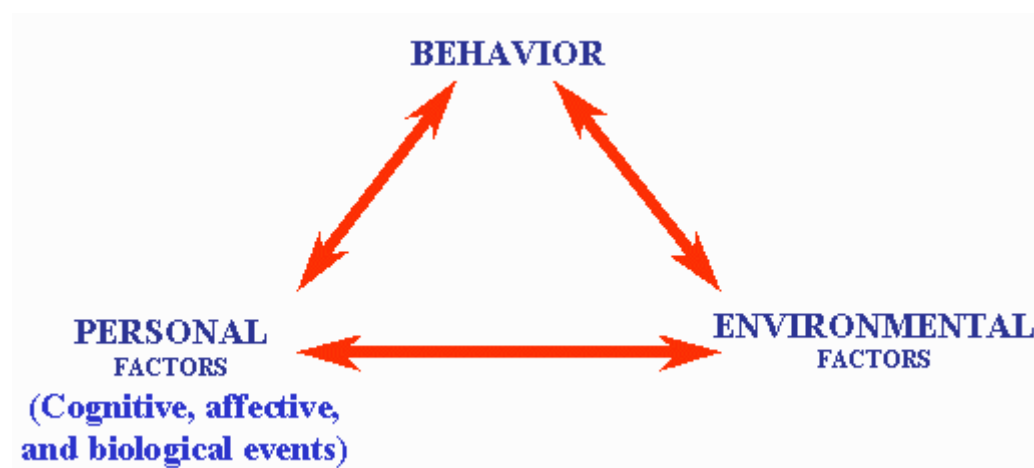
Figure 2: The three elements of the social cognitive theory. Adapted from Bandura (1986: 24; http://www.des.emory.edu/mfp/eff.html)

The personal and environmental factors also interact between each other, and this latter interaction encompasses Bandura's most prominent concept, which is observational learning theory: People learn by observing others and infer rules from the experiences others are making (Bandura 1986).

With regards to personal factors, Bandura addresses, for example, the symbolizing capabilities of humans and those of forethought and prediction, for vicarious learning, and for self-regulatory and self-reflective processes. Any of these concepts are related to, and interfere with, psychological concepts referred to above, like values, beliefs, attitudes or knowledge. Environmental factors are not limited to ecological or physical features, but encompass the social environment – for example, interactions with other people, including all dimensions of communication.

Each of the described three components exhibits much variability and a number of sub-disciplines in psychology explore either. For example: Behaviourism deliberates on the effect of environmental factors; Freudian psychology and its descendents focus on certain personal factors.

Considering that in addition the strength of influence of either of the six influence- arrows (Figure 2) can and will vary, and that the causation between them is not fixed, this less than brief description of Social Cognitive Theory illustrates the complexity of human behaviour and functioning.

In this section I have provided some indication that the causes of human behaviour are very complex. The causes for the large variety of sustainable behaviours differ considerably between the different behaviours concerned as well as between different individuals. I regard social marketing as a tool that permits the reduction of this complexity by inverting the logic. Instead of relying on general levels of environmental knowledge, awareness or pro-

environmental values, with the hope that they will influence behaviour, social marketing starts out with specific individual behaviours, investigates the drivers for each behaviour and then uses a variety of tools, provided by psychology, to influence the behavioural display. The approach is highly strategic, targeting behaviours that relate to specific environmental impacts of concern and taking into consideration the expected complexity of the behaviour change process (McKenzie-Mohr, 2000).

It needs to be pointed out that the theories referred to above are some of the models that have been developed primarily in psychology. Environmental sociology, for example, explores the causes for human behaviour at the societal level and, consequently, offers a variety of other explanations for human behaviour. The reason for referring primarily to individual-psychological models is that social marketing works on an individual to group level.

What is social marketing?

Social marketing is a young field and is, therefore, still variously defined and debated. Most comprehensively, and with a clear behaviour focus, social marketing has been defined as "…the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behaviour of target audiences in order to improve their personal welfare as well as that of their society" (Andreasen, 1995: 7). Another simpler definition, is that it involves "…using marketing,

alongside other approaches, for the benefit of people, rather than financial gain" (NSMC, 2007: 15)

Social marketing tends to be more complex than commercial marketing, as it frequently entails the establishment of new and often complex behaviours – "high involvement behaviours" – rather than behaviours relating to relatively facile product brand choices (Monroe, 2003). It often faces disinterest or resistance with few or no opportunities to modify the 'product' being marketed. At times, it works with highly sensitive issues and for the most part it refers to intangible long- term benefits that may accrue to a third party. Social Marketing projects are often conducted with limited budgets and under a high level of public scrutiny (Peattie and Peattie, 2003).

The social marketing framework that I introduce next is structured around the concept of the "four Ps" of integrated marketing philosophy – product, price, place and promotion (Kotler and Keller, 2006) – interpreted from a sustainability perspective:

Product: the desired sustainable behaviour
The primary tenet of marketing is consumer orientation. "The consumer" or "the customer" in the context of what this chapter focuses on is any person or group of persons whose behaviour has a significant effect on sustainability. The aim is to modify such behaviour, for example, to increase social-ecological system resilience. Consumer orientation postulates that, in order to influence a person's voluntary behaviour, a deep understanding of the causes

and drivers of the behaviour needs to be developed – through scientific investigation (Andreasen, 1995). This marketing credo is based on the insight that the most important part of a business is the customer, not the business – because without the customer there is no business. Seen in the context of sustainability science, people and their impact on the environment are of primary concern. Without them modifying their unsustainable behaviours, sustainability cannot be achieved. Therefore, the frustration and attitude, "what is wrong with these people, why don't they understand the importance of sustainability?" must be modified as follows: "what is wrong with us and what don't we understand about these people such that we are incapable of convincing and giving them good reason to behave sustainably?" Social marketing imposes an empathetic approach towards the members of the target audience (Andreasen, 1995). In this regard, sustainability scientists need to always be aware that our perceptions, values and views are frequently fundamentally different from those held by the people we would like to motivate to act sustainably (Bixler, 2003; Monroe, 2003).

To gain a deep understanding of the drivers that determine a particular unsustainable behaviour, a social marketing project starts with a formative research phase. This typically takes the form of a desk-top study, followed by interviews (Gillham, 2005), surveys or engagement with focus groups (Morgan and Krueger, 1998). It can employ a number of creative tools to aid the investigation, illustrated, for example, by the approach adopted in a recent study which invited participants to use disposable cameras to photograph environments they personally considered most beautiful.

The formative phase of research encompasses "…the social, legal, political, economic, institutional and technological contexts that shape individual thinking, feeling and action" (Stern 2003: 178) – i.e. the internal micro- and the external macro- environment (Kotler et al., 2002). This first step is crucial, as humans tend to form, and then adhere to, personal theories and "insights" into why other people act in certain ways, which are frequently flawed – and can cause the failure of entire programmes (McKenzie-Mohr, 2000). The importance of this point is revealed in the example summarised in Box 1.

In the southern part of the United States a social marketing programme was devised with the aim of increasing the percentage of people using car safety seats for their children when driving. The most powerful reason for not considering the use of safety seats proved to be, that most of the mothers firmly believed that "if God wants to take my child, then there is nothing I can do about this. I would rather hold my child in my arms when it has to die". It is obvious that under such circumstances the distribution of statistical information about the usefulness of car seats will be of negligible effect on behaviour. The option of devising an entire programme of education and value change would have been costly and questionable both with regards to efficiency and ethics.

The social marketing project addressed the issue very successfully as follows: The marketers contacted the local priests and convinced them about the safety benefits of the car seats for children. In the sermons that followed, the priests gave their blessing to the car seats and framed them as being embraced by God. The marketers only provided further information about how to acquire and correctly use the seats (CDCynergy, 2004).

Box 1: The importance of formative research in behavioural change programmes

Once this insight is gained, the actual behaviour to work with is defined – illustrated by the following suite of questions: What exactly is it that people are doing that eventually leads to environmental impact and decreasing social-ecological system resilience; which is the actual behaviour having maximum effect/impact; and, whatis the alternative behaviour required? Consumer input is crucial, especially for developing the alternative behaviour – since the target audience may have surprising (novel) ideas about which new behaviour will help to achieve, for example, particular biodiversity conservation goals. In the marketing language, this new desired behaviour represents the actual product we are trying to sell (Andreasen, 2006).

Defining the product – the new, more sustainable behaviour – at the same time defines the primary target group to work with. This group includes the people displaying a particular behaviour of concern – and who appear to be reasonably unproblematic in terms of being influenced (McKenzie-Mohr, 2000). Clearly, the entire group of people that display the behaviour do not necessarily share similar drivers, and consequently will not respond equally to the same interventions. Therefore, to be effective, people with similar traits need to be grouped together – a process named "market segmentation". The activities of the ensuing intervention phase are tightly tailored to the wants and needs of each segment. Various approaches can be used to segment the target audience, ranging, for example, from age or ethnic group to the degree of endorsement of an environmental lifestyle (Hjelmar, 2005), or an assessment of the extent to which people are considering the adoption of the new behaviour (stages of change, see above). Market segmentation ensures

that the behaviour change programme(s) will be as effective as possible and that resources are used efficiently and economically (Lefebvre and Flora, 1988; Bixler, 2003).

Supplementary formative research for each of the market segments yields deeper insights into why members of each of the sub-groups act in the way they do. It also reveals the barriers to performing the alternative behaviour as well as some of the actual or possible benefits that people may perceive as being connected with the sustainable behaviour that is sought (Andreasen, 1995).

Having defined what constitutes the product we are trying to sell – the sustainable behaviour – the logical next step in a marketing approach will be to find out what other "products" – other possible behaviours – we are competing against (Hastings, 2003). So far we have addressed the current unsustainable behaviour and the alternative sustainable behaviour we are trying to promote, but to every behaviour there is a variety of alternatives that can be imagined. To illustrate this point, I refer to O'Farrell et al. (2008) who describe the different behavioural options of farmers engaged in raising ostriches at unsustainable production levels. For the farmers, the easiest option is to simply continue doing what they are used to. An alternative behaviour, which would be desirable in terms of building the resilience of the Little Karoo social-ecological system, would be for them to restore their rangelands and shift their livelihoods towards eco-tourism. However, low-intensity farming of merino sheep, shifting to beef production or to Lucerne

production might be equally viable alternative behaviours. However, these options present each particular pressures on the system's ecological capacity. Thus, for projects aimed at promoting sustainable land use, the multiple socio-economic signals and pressures that promote non-sustainable land use need to be analysed and adequately addressed.

Price: benefits and barriers

Marketing is based on the idea of 'exchange': people act guided by a weighing process of the benefits of an action against the costs it implies – "Is the pain worth the gain?" (French and Blair-Stevens, 2006: 36). Costs act as barriers to the exchange, benefits drive the exchange. In social marketing, costs and benefits do not relate only to monetary considerations, but refer to a large variety of socio-economic and psychological factors (Zafirovski, 2003) – which are investigated through formative research.

This exchange paradigm can be applied to the behaviour change goals of a sustainability project. In order to convince a person to adopt a new sustainable behaviour, the person must perceive a benefit in doing so; i.e. they must be interested in buying the product. At the same time barriers to this behaviour must be lowered or removed; i.e. the price must be as low as necessary for enabling the behaviour change. Benefits as well as barriers need to be influenced by the marketer to make this 'exchange' happen. Two points are important here:

First, to increase perceived benefits, information provision, awareness raising and incentives are typically used. However, appeals to literally the whole spectrum of human needs and wants can be considered – which is epitomised by the quote: "…in the factory we make cosmetics, in the store we sell hope" (Kotler and Keller, 2006: 9). To illustrate this further: Mercedes Benz draws part of its popularity from the perception that owning this make of motor vehicle will satisfy needs for status and safety. Many environmental campaigns intend to activate the "need" to "do the right thing".

The task for the social marketer in sustainability science is thus to find out which needs of the target audience, sustainability-related or not, can be meaningfully satisfied and employed to make the alternative behaviour so attractive as to bring the customers to the point of choosing to change their behaviour. It is a task centered on discovering what can be provided to the target audience in order that they willingly change their behaviour in exchange for the offering that is made. In doing this, the social marketer remains aware of the original product – the sustainable behaviour – "…and tries to create various tangible products and services which are 'buyable' and which advance the social objective" (Kotler and Zaltman, 1971: 7).

The "product" has been defined above – essentially, the alternative, sustainable behaviour. However, the previous paragraph reveals that marketing expands this definition to encompass the entire mix of benefits – the sustainable behaviour and additional benefits the marketer may be able to deliver. It is these benefits that appeal to the consumer rather than the new

behaviour per se. The example presented in Box 2 illustrates this. It is clear that what the once-drunken drivers "buy" is the fun and experience of being driven in a limousine, the luxury of being served drinks while in the car, the recognition the behaviour gains from friends or from ladies they might be interested in, etc. It is not safety alone that is bought, since this aspect was obviously not strong enough to previously change behaviour. Note also that the benefits of behaviour change perceived by consumers do not have to be connected to sustainability considerations. Landers et al., (2006: 8) note that "…anyone who has ever promoted environmental behaviour change knows that trying to motivate mainstream target audiences by appealing solely to their sense of environmental consciousness is difficult, to say the least".

Second, to achieve the exchange as described above, the barriers need to be surmounted. Social marketing emphasized barriers research, because these barriers are often underexplored but decisive for the success of the program. Within the mix of costs associated with behaviour change, there are two overlapping sets of barriers to be overcome: actual and psychological barriers. Actual barriers include those that impede action even if the willingness to act is high. For example, products simply may not be available (e.g. condoms that permit safe sex), transportation to a vaccination clinic may be difficult (Andreasen, 1995), the time or childcare may be lacking to allow mothers to attend nutritional classes (John et al., 2004) or necessary financial resources may be unavailable. Unless practical, smart solutions can be developed to counter these barriers, for example by simply providing products (e.g. condoms) or by partnering with other institutions that will help provide a

service (e.g. banks for micro-credits) it is unlikely that a behaviour change programme will be effective (McKenzie-Mohr, 2000).

Psychological barriers include, for example, lack of interest (John et al., 2004), lack of knowledge and understanding, or conflicting personal or community norms (Rogers, 2003). The barrier of simply 'forgetting' is an important component in nearly all behaviour change projects. Another very important psychological aspect is "perceived behavioural control", which is the degree to which a person believes that he or she is actually capable of performing the required task (Bandura, 1986). It will be difficult to convince a person to perform a sustainable behaviour, if the person perceives and believes they are incapable of performing it. Changing this perception may require the social marketer to teach the behaviour, or to otherwise enable the person, which is an inherently empowering aspect of social marketing. Finally, an omnipresent psychological barrier is habit, or inertness: the simple act of changing an existing behaviour requires energy, and this presents a barrier to any behavioural change.

Not all barriers may be clear or even in effect at the initiation of a social marketing programme. This is illustrated by a programme designed to increase child vaccination rates in rural Africa (Andreasen, 1995), where several barriers to vaccination had been overcome. High levels of first vaccinations were achieved; however, the rate of second booster vaccinations was unsatisfactory. Formative research revealed that the issue was not a lack of understanding of the importance of the booster, but that the nurses treated

the mothers in such condescending manner that the first vaccination proved to

be such an unpleasant experience that the negative expectation of repeating

this unpleasant experience became a barrier.

The "road crew" project in Wisconsin, USA, has as its aim the reduction of
alcohol-related car accidents. Formative research brought to light the fact that
a primary reason for drunk driving was that no acceptable alternative transport
was available (better than leaving the car behind and having to pick it up next
morning). Driving home even when drunk was the social norm and the
behaviour was, therefore, considered acceptable. Aggravating this situation
was weak legal enforcement of laws relating to driving under the influence of
alcohol. Social marketers established a transport service to, from and
between bars. They added the "fun" element by using large attractive
limousines in which they even served drinks, while charging reasonable fees.
Needless to say, that the service quickly became very popular, thus modifying
the prevalent social norm and with the significant result of 17 % reduction in
car crashes in the first year of implementation.

Box 2: Understanding and responding to the target audience's needs: An
   illustrative example

Promotion: communication and persuasion

Once the various behavioural drivers referred to above have been brought to

light, the focus of the social marketing project shifts to the development of a

promotional strategy – i.e. "the communication-persuasion strategy and tactics

that will make the product familiar, acceptable, and even desirable to the

audience" (Kotler and Zaltman, 1971: 7). The strategy's aim is to guide the

target audience through the change process (Andreasen, 1995).

The behavioural models described in the previous section serve both as guiding principles and evaluation tools for the promotional strategy. The discipline of psychology also provides a number of practical tools that can be used in the strategy to support adoption of a new behaviour (McKenzie-Mohr, 1999), including, for example:

Foot in the door technique: This technique uses commitment. Humans are more easily convinced to commit to an action if they have committed to a similar but smaller action previously (Kotler et al., 2002). For example, agreeing to display a "be a safe driver" sign on the car considerably increased agreement to display large intrusive signs on the lawn in font of the house (Kotler et al., 2002). This effect is usually explained by the human need to be seen as consistent by both themselves and others. The first, small action establishes the concept "I am involved in the fight for safe driving" and this makes it easier to commit to more demanding actions.

Prompts: The most straightforward way to counter the human tendency of forgetfulness is to present clear-cut, salient prompts – e.g. signs, stickers and badges displayed as near as possible to the locus of action.

Norms usually act at a subconscious level and are powerful drivers: This can be illustrated by the human tendency not to litter an area that is litter-free. Conversely, people are intuitively less diligent in this regard where an area is littered, which communicates a social norm that littering is acceptable. (Winter and Koger, 2004). To be effective, norms must be made salient – for example,

"I voted" badges (Monroe, 2003) support the notion that voting is the normal behaviour.

A special form of communicating norms that makes use of the human capacity of observational learning (Bandura 1986) is *modeling desired behaviours*: For example, having someone in communal showers who turns the water off as soon as wet, then soaps and then quickly washes off again increases the likelihood of water saving behaviour by other attendants (McKenzie-Mohr, 1999).

Where behaviour needs to be reinforced, *feedback mechanisms* that support the desired behaviour are useful: These may simply consist of written feedback, and are more powerful when made public, for example, in local newspapers (Winter and Koger, 2004).

A natural part, and indeed often the primary or sole part, of promotion is effective communication through advertising materials, personal communication efforts, or other forms of publicity. The impact of a message depends on its quality. The most fundamental considerations include the need for messages to be "customer- oriented" (i.e. tailored to their audience), captivating and easy to remember (Kotler et al., 2002).

Framing messages according to the audience's values and perceptions will also influence its effectiveness (Lakoff, 2004). To illustrate, consider the different frames and emotions the word "logging" will elicit in an audience of wood-cutters (e.g. employment, provides for family, community economy,

wood products) as opposed to in an audience of environmentalists (e.g.
habitat loss, species extinction, ugly clear-cuts, watershed destruction)
(Winter and Koger, 2004: 156). Consider also, for example, the effect of using
the phrase "threat to the environment" when discussing humans or the
perceived unsustainability of their actions. Commonly, environmental appeals
are framed according to the values of the message-provider rather than those
of the recipient of the message (Schultz and Zelezny, 2003). The following
example shows how a conservation issue can be reframed to meet the values
of the target audience: "Save the crabs – then eat 'em", is a slogan that has
been used effectively in a campaign to reduce fertiliser run-off from private
lawns into Chesapeake Bay in the US. In this case, the formative research
had indicated that a crucial component of the biodiversity of Chesapeake Bay
that residents value are the famous crabs it produces – thus, the slogan
reframes a conservation issue into a personal culinary benefit issue.
Another key to effective communication is the choice of a credible source for
transmitting the message (Winter and Koger, 2004). Research on the diffusion
of innovations (Rogers, 2003, see above) suggests that in order to achieve
the wide adoption of an idea or behaviour, those people that serve as opinion
leaders in the social system are key targets that can substantially enhance
and speed-up the diffusion of a desired new behaviour in the system.

Place: creating convenience for the customer

"Place" in marketing terminology refers to creating convenience for the
customer in two distinct areas (Kotler and Keller, 2006): First, the message
must reach the intended audience conveniently, at the right time, at the right

place and through the right channel. For example, it was found that when trying to increase the use of energy-saving light bulbs, it is important that the message relating to the benefits of their use is clearly displayed at the point of sales – where people take the decision to choose energy-saving bulbs instead of traditional ones. The effectiveness of communicating a message relating to sustainability will be limited if a target audience is busily engaged in workday activities. In contrast, audience receptiveness is likely to be enhanced, for example, whilst they are engaged in nature-oriented recreation activities (the importance of timing, place and channel). It is relevant to note that large commercial companies today invest two thirds of their marketing budgets into developing appropriate communication channels, and only one third into advertising campaigns (Kotler and Keller, 2006). The example of the message delivered by the priests in the case study summarised in Box 1 illustrates this.

Secondly, the behaviour we are promoting must be conveniently performable when the audience intends to do it. "Often, especially in the advocacy domain, people may be willing to support the goal advocated, but are left with no outlet for this willingness as they are not being given clear requests about what to do" (Kotler and Zaltmann, 1971: 8). For example, appeals to saving energy must point to actions that can be taken to save energy. In addition, when for example energy-saving bulbs are being promoted, they must be available in the shops. Promoting recycling makes little sense when no recycling facilities are available (McKenzie-Mohr and Smith, 1999). Often, this also relates back to defining the behaviour that is being sought – i.e. an important task of the marketer is to find out how exactly the target audience can achieve the goal

that has been set out, and which of the behaviours is most appropriate and effective.

Upstream versus downstream social marketing

Applying social marketing, as described above, to influence individuals that perform unsustainable behaviours is a "downstream strategy" – i.e. people who perform unsustainable behaviours are identified and targeted in behaviour change programmes. The scope of the downstream strategy is conceptually limited to the individuals as defined by their unsustainable behaviour. However, structural factors may be decisive in determining this behaviour, and indeed environmental sociology asserts that human behaviour is always at least co-determined by societal structures. Using the social marketing tool kit with the aim of changing these societal structures and framework conditions is termed "upstream" social marketing (Andreasen, 2006). By way of illustration, McKenzie-Mohr describes his experience with recycling behaviour, in which his enthusiastic willingness to compost organic waste is eventually undermined by considerable amounts of snow that obstruct the way to the composting heap (McKenzie-Mohr and Smith, 1999). He concluded that in order to effectively promote large scale recycling behaviour, curb-side facilities need to be made available – which represents a fundamental change in framework conditions.

Andreasen (2006) chooses the example of childhood obesity to illustrate how social marketing can be used in an upstream approach to effect change at the societal level. Campaigns typically start out with a downstream approach,

targeting youth that exhibit the "undesirable" behaviour – for example consuming high-energy food combined with little physical activity. However, the long-term success of such campaigns is undermined by competing and effective commercial marketing campaigns that include smart advertisements supported by convenient access to unhealthy food, within a societal context that undermines healthier lifestyles. To respond effectively to the issue of childhood obesity, a number of other societal groups need to change their behaviours. Parents, siblings and peers have considerable influence on a young person's behaviour. Teachers, school administrators and cafeteria managers can create an environment that at least offers the options of healthy food consumption and exercise. Media channels of various sorts can communicate the importance, and the "how to", of healthy nutrition. Ultimately, the fast food industry, food manufacturers and legislators need to be brought on board to effectively curb obesity at the scale that is required in the United States (Andreasen, 2006).

Similar deliberations are applicable to the promotion of sustainable behaviours. For example, shops are much more likely to sell sustainably produced fruit and vegetables in a wealthy suburb than in a poor one (Evans, 2004). Thus, the effectiveness of campaigns targeting sustainable food consumption patterns amongst the broader society will be limited as long as alternative, more sustainable lifestyle-choices are difficult to access and more expensive.

The key difference between upstream and downstream social marketing is, therefore, the approach to defining the target group. In downstream social marketing this group is defined as "individuals who display a particular unsustainable behaviour". Upstream social marketing is concerned with changing the societal conditions that influence the unsustainable behaviour. Therefore, in the upstream approach the target group is defined as "people that are key players in creating or maintaining these societal conditions". Where our aim is to steer our social systems towards a sustainable trajectory, the individuals of these key player groups will, necessarily, need to change their behaviour. Media, legislators, administrators, businesses and special interest groups are examples in point. Downstream social marketing is supported by general information on the socio-economic environment that is pertinent to the target audience. The primary source of information, however, is the target audience. To be applied effectively in upstream approaches, social marketing needs to form alliances with other disciplines that investigate the construction and functioning of societies including, for example, political sciences, sociology or economics – to name but a few. Co-operation with various disciplines will assist in both defining the target groups for upstream marketing and in developing effective behaviour change strategies.

I clearly acknowledge the difficulty inherent in developing a strategic programme, similar to the one set out with regards to childhood obesity, for reaching sustainability. Due to the inherent complexity of the sustainability concept and of socio-ecological systems it will be considerably more difficult to define sustainable behaviours and to determine the societal components to

be involved in the societal change process. However, implementation will be supported if sustainability science analyses are conducted with a mindset that takes into account what behavioural changes can be suggested to further sustainability. I therefore suggest that social marketing has a definite contribution to make in the field of sustainability science.

Critique and defense of social marketing

Social marketing is often perceived as manipulative. However, it needs to be pointed out that all social marketing interventions are conducted openly and with the consent of the addressees. Effective formative research requires intensive contact with the target audience and is fundamentally dependent on the truthful feedback of that audience (Andreasen, 1995). When audience contact undermines trust, it can be expected that there will be unfavourable word-of-mouth and other obstructions of the research aims.

Social marketing invariably works on the long-term change of behaviours, which depends on the continued co-operation of the target audience. Therefore, it cannot allow for short-sighted selling approaches. In addition, social marketing per definition explicitly requires voluntary behaviour change, which will occur only if the target audience is provided with sufficient benefit in the exchange equation. In most social marketing interventions the aspect of increasing "perceived behavioural control" implies an inherently empowering aspect for the target audience.

Marketing is at times perceived as unethical (Andreasen, 2001). It is incontrovertible that the ethical guidelines applicable for commercial marketing

are equally applicable for social marketing – e.g. AMA (2004). Beyond these guidelines, Andreasen proposes that for social marketing projects more stringent ethical guidelines must apply due to the higher social impact of such initiatives. This becomes more important where social marketing campaigns are conducted internationally and where the social marketer is not a member of the society in which the project takes place.

There is a clear difference between the social marketing tool kit and its technologies as such and the various instances in which it is applied. The fact that the toolkit can be abused cannot be equated with the ethicality of the toolkit itself – individuals who lead marketing initiatives take decisions pertaining to the ethical or unethical use of the toolkit. Therefore, social marketing is neither inherently good nor bad. Unlike in Nordic mythology, where Thor's hammer could only be used by "those most noble of heart and spirit", marketing as a technology can be used – and abused by any individual (Dann, 2007).

I would agree with reproaches against commercial marketing that identify it as the culprit for bringing about societal changes that are perceived as unjust and undesirable. Andreasen refers for example to mothers in developing countries that waste money purchasing infant formula, and overspending by poor families on acquiring "the right" brand names. The number of people dying in connection with tobacco use is a worldwide concern that is clearly connected to marketing efforts (Andreasen, 2006). The obvious success of commercial marketing, however, also proves to the effectiveness of the marketing approach. Therefore, ethical questions arise as to whether it would be

ethically negligent not to respond to the success of commercial marketing by using the equally promising social marketing approach (Hastings, 2007).

Commercial and social marketing cannot be judged according to different criteria. Commercial marketing is abundant worldwide. Therefore, marketing is factually a morally and ethically accepted tool. This necessarily pertains to commercial as well as to social marketing.

Social marketing has been criticised as being a reductionistic approach that promotes the privatisation of environmental responsibility (Goldberg, 1995). The argument contends that the problems of society, and with which individuals constituting society are faced, emanate to a large degree from societal structures that limit the choices of individuals. Social marketing explicitly, and by introduction of the upstream concept increasingly, responds to this challenge in two ways. First, it addresses specific structural barriers at the level of individual downstream projects and explores ways of removing these when they represent explicit barriers to the behaviour change. Secondly, "upstream social marketing" asserts that in order to change societal structures, the first step in the process is to address the behaviour of key players in the social system – for example, the voting behaviour of elected politicians, or by influencing administrators who draft legal proposals. To achieve effective social change, a co-ordinated series of behaviour change programmes will be necessary that target all key players: media, lawmakers, businesses, etc.

I am not aware of any other intervention tool that promises to effect the considerable social change necessary, in the short term, for reaching sustainability. I know of no other available and equally effective tool, which adheres to what might be regarded as a global value system (ethics), which can invite 'immediate' human actions that are sustainable (Darnton, 2008).

As an underlying rootcause for criticism to social marketing, I wish to highlight the tension that naturally exists in the social marketing domain: Social marketing clearly is a bottom-up approach with regards to the development and implementation of interventions. At the outset however, it is clearly top-down by the fact that the social marketer a priori defines what constitutes "societal good": e.g. health, or conservation.

Conclusion: sustainability science and social marketing

In drawing this chapter to its conclusion, I consider the alignment of social marketing with some of the fundamental characteristics of sustainability science as described, for example, by Burns and Weaver (2008).

Clearly, social marketing is a tool that is applied in order to practically influence the sustainable trajectory of human society – i.e. its aim is to effect change and not, for example, to explore the theoretical foundations of sustainability. In this regard, it is use-inspired, underpinned by basic research and focused on influencing the sustainability of complex social-ecological systems (by effecting human behavioural change). Its formative research

phase delivers insights on the functioning of social- ecological systems, thereby enhancing understanding of the role of people and their behaviours within such systems.

Social marketing, in particular its upstream application, integrates knowledge originating from a variety of disciplines. It focuses on "…the social, legal, political, economic, institutional and technological contexts that shape individual thinking feeling and action" (Stern, 2000). Although primarily centered on the use of psychological tools in the promotion phase, elements of other disciplines, for example political sciences, are integrated into its processes as circumstances demand.

Social marketing projects are clearly part of the social, rather than ecological, aspects of social-ecological systems. However, as explained in the introduction, the environmental or sustainable behaviour, the target group and thus the entire social marketing project are defined by the impact on the ecological system aspects (Stern, 2000). Social marketing, therefore, clearly operates at the human-environment interface, providing a bridging intervention mechanism for promoting sustainable social-ecological systems.

I would like to refer to the concept of strong transdisciplinarity, as defined by Max-Neef (2005) and offer the following considerations: I contend that in order to develop successful social marketing projects, the very combination of what Max-Neef calls for is necessary – the integration of knowledge and intuition, which leads to understanding. Thorough formative research procedures within

social marketing will yield objective data regarding the measurable drivers of human behaviour of the specific target group (for the specific behaviour). These facts alone however, are unlikely to yield clear indications about which factor is to be used effectively to reach behaviour change. In making this decision, the marketer must have developed an empathetic understanding for the target audience. This must depart from pure objectivity to include intuitive approaches that provide the insight, the understanding necessary for engaging the target audience through an aspect of importance to them. Referring to this distinction between knowledge and intuition drawn by Max-Neef (2005), formative research represents one way of perceiving the world. Intuitively tuning in to the target audience's needs represents another way of perceiving. Envisioning a new concept of how to perceive the new, sustainable behaviour must be based on an integration of both objective and intuitive approaches.

Both logics, the factual formative research that produces knowledge, and the intuitive understanding that leads to inventing a new behavioural reality, are complimentary organizing languages employed in the course of social marketing. In this sense, skilful social marketing may well be seen as a case of applying strong transdisciplinarity by trying to integrate knowledge and intuition – moving from knowledge to understanding.

Therefore, social marketing clearly acknowledges the validity of multiple epistemologies, extending beyond those that might be defined in terms of science. It clearly integrates various dimensions of human psychology, and

proactively investigates and responds to different systems of understanding and perceptions of the world. Its respectful and empathetic approach to the target audience's perceptual reality ensures that the impact of the behaviour change programme is reduced to, and as far as possible limited to, the behavioural display.

It is a clear limitation of social marketing that many aspects of complexity theory can not be accommodated in social marketing projects. Social marketing is based on the assumption of clearly defined individual behaviours with clearly defined ecological impacts. This stands in contradiction to the acknowledgement that social-ecological systems (in particular the role of human agency) cannot be defined through reference to simple linear cause-effect functioning. However, social marketing responds to the complexity of social-ecological systems in two pragmatic ways.

First, social marketing dissects the complex social-ecological system into sub-systems along general lines of defined behaviour, and then acts on these sub-systems. I acknowledge that many interactions between these sub-systems may not be taken into account. However, through monitoring and evaluation and learning about controlling influences, feedback relationships between sub-systems are revealed and their significance is integrated in the project development. Social marketing thus presents itself as a tool to organize components of social-ecological systems into entities of manageable size, for example, to enable exploratory assessment of apparently demarcated

cause-effect relationships and to design interventions aimed at promoting sustainability.

Second, it acknowledges and responds to the psychological insight that human actions are not necessarily reasonable, or even conscious, and accommodates the inconsistencies in human thought and behaviour as well as our lack of understanding them. The car seat example (Box 1) illustrates that humans are not guided by scientifically sound insights and that "irrational" drivers can be addressed and used to effect behaviour change.

Social marketing is a tool that can be used to influence how people interact with the ecological aspects of the systems of which they are part. Given the powerful agency role of humans in determining the functioning of social-ecological systems, changing such behaviour can significantly influence system resilience.

I emphasise that social marketing is not a theory of behaviour change as such, but rather a process for usefully integrating and applying the knowledge produced within a large variety of disciplines. Social science disciplines deliver much of the insight regarding human behaviour; however, the natural sciences contribute critical knowledge regarding the implications of such behaviour for the ecological functioning of social-ecological systems. The behavioural models referred to in this chapter provide useful guidance within the four aspects of the marketing approach that is advocated: product, price, promotion and place (Lefebvre, 2003). The entire social marketing approach,

however, is a tool for extracting, interpreting and using a larger pool of knowledge (not only generated through scientific expertise) in a deliberate systematic way – such that particular dynamics of individual or societal human behaviour can be understood and, thereby, changed. The most important aspect of social marketing is that it is informed and driven by an audience-based perspective, not from the expert viewpoint. I therefore believe that social marketing can be a highly effective tool to translate concepts of sustainability science into real world applications to effect real change.

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Chapter 3

The role of conservation in local land use planning and an example of how to analyze opportunities to strengthen this role[2]

Abstract

Conservation is essentially a social process that requires specific people to take pro-conservation actions. Local land use planning processes are increasingly recognized as pivotal for conservation: the integration of spatial conservation assessments in these processes has been proposed as an effective approach to conserving biodiversity. However, understanding of the role conservation has or could play in local government processes is scarce. I used social marketing, a strategic and analytic approach to influence people's behavioral choices, to investigate how biodiversity conservation maps are currently being used, why they fail to provide the biodiversity protection envisaged and how land use planners could be convinced to use the maps

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[2] This chapter has been prepared for submission to *Biological Conservation*

effectively. With regards to the use of conservation maps, I found that in large municipalities they are used and promoted by environmental units, whereas in intermediate and small municipalities they are used primarily by the consultants that elaborate municipal planning documents. The land use planning system emerged from my interviews as being not fully functional with regards to biodiversity protection, owing to lack of capacity and importance accorded to the issue. Enquiring about the benefits land use planners could perceive as being connected to using the maps and the major difficulties they face, I could not identify any needs specifically with regards to conservation and found the relationship to the political hierarchy to be pivotal. To further the use of conservation maps I propose engagement with land use planners in the land use planning domain including conservation assessments, and to include the political hierarchy in the behaviour change processes.

Introduction

Local land use planning procedures are increasingly being recognized as a strategic location for the conservation sector to impact land transformation, a major driver of biodiversity loss (Theobald and Hobbs, 1998, Theobald et al. 2000, Green et al. 2005). Using conservation assessment software, scientists have developed for many parts of the world spatially explicit maps that indicate which areas are most valuable for biodiversity protection. One aim of developing these maps is to steer development away from areas with high biodiversity value (Pressey, 1999, Pierce et al. 2005). Most of these conservation assessments are conceptualized in the systematic (target-driven) mould (Margules and Pressey, 2000) and framed in terms of

biodiversity concepts. However, while conservation assessments become increasingly precise, knowledge of how decision makers at local government level perceive or use these products remains scarce (Miller et al. 2008, Stokes et al. 2010). Such knowledge is pivotal for effective implementation.

Most conservation assessments fail to be implemented, largely because researchers who conduct the assessments fail to become involved in the often messy social processes that are required for effective implementation (Knight et al. 2008). However, in the Subtropical Thicket Ecosystem Planning (STEP) project, a conscious effort was made to tailor conservation assessment products to the needs of end-users in an effort to mainstream them into routine decision making by land use planning agencies at the local (municipal) government level (Pierce et al. 2005, Knight et al. 2010). STEP was located in the Western and Eastern Cape provinces of South Africa, and was aimed at identifying priorities and implementing actions for safeguarding subtropical thicket ecosystems. These ecosystems are rich in endemic species and comprise the south-western part of the globally recognized Maputaland-Pondoland-Albany hotspot (Steenkamp et al. 2004). Since 2009, a new product, the Eastern Cape Biodiversity Conservation Plan - an entirely computer-based system - has complemented the efforts by providing a conservation assessment for the entire Eastern Cape Province, including the STEP conservation priorities (Berliner et al. 2007). However, land development along the coast in the Eastern Cape in recent years suggests that the promise of the products has not fully been achieved.

Here I report on research aimed at assessing if and how the systematic conservation assessment maps (hereafter conservation maps) are currently

used by municipal land use planners, and to explore why the efforts invested into mainstreaming them appear to not yield the degree of protection for biodiversity hoped for. In line with the social marketing approach I am using (Andreasen and Tyson, 1994, Whiteman, 1999, Wilhelm-Rechmann and Cowling, 2008), the project ultimately aims at finding avenues to positively influence this situation.

Social marketing is an approach to promote behaviour change and can be defined as "…the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare as well as that of their society" (Andreasen, 1995, p. 7). The primary tenet of marketing is customer orientation and its fundamental paradigm is exchange theory: what value can the marketer, in this case the conservationist, provide to the customer in exchange for convincing the customer to adopt the behaviour marketed. This project is, therefore, not limited to the description of the current situation but the whole investigation endeavors to identify from the status quo how sound insights can be drawn to guide successful future interventions – a process entitled customer research in marketing terms (Andreasen, 2002). The target audience I worked with is land use planners (LUPs) concerned with applications for land use change in municipal administrations. The behaviour I envisaged marketing is to use the conservation maps for assessing all land use change applications. The study I present here is exploratory and does not claim to provide a representative or complete assessment of land use planning (LUP) processes in Eastern Cape. I do, however, provide insights that could be used to further behaviour change

toward consistent use of the conservation maps. Using my case study I provide an example of how the social marketing approach can be used and applied in conservation projects.

I worked with six municipalities that are situated along the relatively unspoiled coastline of the Eastern Cape Province. The coastline is under pressure from urbanization driven by migration of wealthy Whites seeking improved lifestyles, and impoverished Blacks seeking employment (Palmer et al. 2010) The municipalities encompass two "metropolitan" areas (Nelson Mandela Bay and Buffalo City) with comparatively high levels of capacity, two "small" municipalities (Great Kei and Koukamma) with low levels of development and capacity and two "intermediate" municipalities (Kouga and Ndlambe) with intermediate levels of development and capacity. All six municipalities are part of the planning domain for the STEP project.

Land use planning in South Africa

Like in many other countries, the municipal sphere holds the primary decision making powers on land use and development planning under South African law (van Wyk, 1999), albeit with various obligations for consultation and compliance with provincial and national legislation. The decisions are taken by locally elected councilors, usually based on a comprehensive technical assessment conducted by land use planning officials employed by the local municipality.

South Africa has a highly developed environmental legislation: environmental protection is enshrined in the constitution and various acts and provisions have been ratified. A comprehensive and comprehensible review of

the legal obligations of municipalities to act for environmental sustainability is available online in the STEP handbook (Pierce and Mader, 2006). Here I concentrate on a number of details pertaining to the actual implementation of reactive statutory land use planning that emerged as critical from my interviews.

Legislation for the Assessment of Environmental Impacts (EIA) regulates consideration of environmental concerns in spatial planning processes and covers substantive developments as well as small developments. The regulations pertain to specific activities as set out in an Annex (GNR 385, 386 and 387). For example, under GNR 386, Activities Nr 2 the "Construction or earth moving activities in the sea or within 100 meters inland of the high-water mark of the sea, in respect of –…(f) buildings…;" require a basic assessment"[3]. The landowner will enquire with the municipal authorities or with LUP consultants if an application for land use change triggers EIA regulations. If so, then before the landowner can submit an application for land use change at the municipality s/he must obtain a Record of Decision (RoD) from the relevant provincial authority. The final permission for the land use change is then decided and issued by the municipal council, subject to the requirements of the RoD issued by provincial services.

Nearly all land use change applications in the six municipalities are regulated by the Land Use Planning Ordinance 15 of 1985 (LUPO). So far only few developments have been authorized under the Development Facilitation Act 67 of 1995, an act that originally aimed at facilitating development of high-density townships to accommodate homeless families,

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[3] Note that the legislation on EIA's has meanwhile been amended. However, as I am discussing an example on how social marketing can be used to analyze a specific context, the lack of capacity persists and the argument remains valid.

most of which are migrants from rural areas. It allows for developments to be exempted from land use planning provisions, including environmental provisions; the decision is taken by a specifically created board (Pycroft, 1998).

Under LUPO, the municipality i.e. the council, takes the decision to grant or refuse the permission for changing a land use. Co-operation with other spheres of government depend on the particulars of each application. It needs to be noted that granting a subdivision or re-zoning changes the specific use rights of a parcel of land. For example, if a plot with one house is sub-divided, the right to build a house on each of the resulting plots ensues even if such building is not planned and the parcel of land sold for other purposes.

The municipalities are also obliged to conduct forward planning for the development of the municipality. In a bottom-up process, the needs of the population are incorporated in an "Integrated Development Plan" which is complemented by a technically informed "Spatial Development Plan" (SDF). These SDFs are usually commissioned by the municipality and compiled by land use planning consultants. They provide a detailed report and spatial plan, including the technical details for possible future developments in the municipality. SDFs are one of the key informants used by LUPs in preparing the decision proposal for council deliberation; it is revised annually or bi-annually and adopted by council. I wish to highlight here that the SDF is one among many informants in LUP processes: the integration of biodiversity information in these documents alone will be insufficient to achieve conservation goals.

Social Marketing Theory

Ultimately, implementing conservation actions is a social process requiring behavior change of actors (Cowling and Pressey, 2003, Mascia et al. 2003, Campbell, 2005, Knight et al. 2006). In this section I provide a brief background on the social science theory that has underpinned my approach to engendering behaviour change of my target audience, namely LUPs.

Social Marketing

Social marketing is widely used as a tool for engendering behavior change. Its effectiveness is well established in the preventive health domain (Stead et al. 2007) and increasingly so in environmental projects (e.g. Landers et al. 2006, Kotler and Lee, 2008). A detailed social assessment should be conducted at the outset of a conservation project in order to identify key stakeholders and the roles they do or could potentially play (Cowling and Wilhelm-Rechmann, 2007, Cowling et al. 2008). Different stakeholder groups will have different interests and requirements and should therefore be distinguished conceptually – a process called "market segmentation" (John et al. 2004). The social assessment also identifies which stakeholder groups are most important for the overall success of the project. In my case Pierce et al. (2005) identified that in municipal administrations, LUPs play a pivotal role for enabling effective use of the conservation maps as they draft the decision proposals for the decision-making on land use changes. Each specific stakeholder group will require specific goals for behavior changes to facilitate the implementation of conservation actions. These will differ fundamentally between actors, for example natural resource users, politicians or community

activists. I believe that adopting only this first step of the social marketing

approach – identifying goals for behavior change for specific target audiences

– will greatly increase the odds of success of implementing conservation

actions.

Human behaviour is highly complex (e.g. Bandura, 1986). However, for

very specific behaviors, the drivers as well as the barriers to changing the

specific behaviour can be discerned (Andreasen, 1995, McKenzie-Mohr,

2000) and investigated through customer or formative research (Andreasen,

2002). My project is focused on the formative research phase of a social

marketing process, namely to gain an understanding of the dynamics guiding

the use of conservation maps by LUPs. Below I refer to the behavioral model

that informed and supported my investigation of appropriate interventions to

further behavior change among LUPs.

Stages of Change

The theory of the stages of change (Prochaska et al. 1992) is a model

commonly used to assess how behaviour change can be supported. It

assumes that changes in human behaviour usually occur not at once but in

phases, namely pre-contemplation, contemplation, action, and maintenance.

In my context, in the "pre-contemplation phase", LUPs would either not be

aware of the conservation maps or not have considered using them. Providing

information to these LUPs and raising their awareness could move them to

the "contemplation phase" in which they would recognize the problem and

seriously consider addressing it by using the conservation maps. If the

benefits of using the conservation maps are perceived as more important than

the costs associated with using them, LUPs will probably progress to the "action phase" and try the new behaviour by using the conservation maps. If these trials result in a positive appraisal of the consequences, LUPs are likely to maintain the behaviour, moving into the "maintenance phase" in which using the conservation maps slowly becomes part of norms and habits, i.e. they are mainstreamed. In each phase the marketer needs to use different support mechanisms to help in achieving the next step.

Benefits, barriers and the "four Ps"

The ultimate aim of the marketer is to increase the value that the new behavior has for the customer to the point where the new behavior becomes compelling for the customer (Andreasen, 1995). This "value" or "benefit" can consist of enjoyment, the feeling of doing the right thing, reduction of social pressure, or any other benefit associated with the new behavior. Usually there will be barriers to the behaviour change, for example, resistance to change, forgetting, habit, or social norms prescribing the current behavior. According to the exchange paradigm on which the marketing philosophy is grounded, if the benefits can be increased and the barriers removed or at least lowered, then the members of the target audience will change their behavior (McKezie-Mohr, 2000, Zafirovski, 2003).

The widely used principle of the "four P's (product, price, place, and promotion) of marketing" (Kotler and Keller, 2006) provide a further conceptual basis for supporting behavior change. The product needs to be of interest and offer some form of value to the customer, and the price must not be too high to prohibit the transaction. Product and price represent the

benefits and barriers mentioned above. Place, however, considers the communication channel and situation which enable the target audience to be reached most effectively. Promotion is the component most often identified with commercial marketing: how should information and communication materials best be crafted to be convincing and persuasive.

Upstream social marketing

Among the barriers that prevent the behaviour change, some will be located outside the control of members of the target group itself; instead they reside in the societal constraints operating in the target group's domain (Hastings, 2007). For example, recycling is difficult to perform if the society does not provide the appropriate infrastructure, energy-saving behaviour is difficult to implement if appropriate technology is not available (McKenzie-Mohr, 2000), and using condoms for AIDS prevention is difficult if societal norms bar contraception.

In such circumstances, it is very difficult to change the behavior of individuals without addressing the societal constraints on behavior change (Andreasen, 2006, Bentz et al. 2005). Societal constraints can be addressed by targeting strategically important people and institutions, for example, politicians, the media and the legal environment. Note that such constraints will often be quite specific (e.g. provide containers for recycling), thereby enabling the identification of specific target groups responsible for these constraints or strategically important for changing them. In order to bring about the desired behavior change, social marketing tools must then be used on this "upstream" target group.

Methods

I started the project with a desktop study exploring the legal and social background to land use planning procedures in South Africa's Eastern Cape (van Wyk, 1999, Pierce and Mader, 2006, StatsSA 2006 and 2009). In order to develop an appreciation of the reality of land use planning processes in the Eastern Cape and to inform the interview guide, I conducted seven extensive background interviews of several hours each with individuals who are or were actively involved in post- apartheid land use planning procedures but were not members of my target group. Based on these interviews, I developed the interview guide (see Appendix).

Next I interviewed 24 officials that were responsible for, or involved in, the administration of land use changes in their respective municipalities, namely 13 LUPs, five members of their administrative hierarchies, and three municipal environmental officers. Considering the limited number of employees concerned with land use planning, I attempted to interview all individuals and added further expertise to confirm these findings: In the two small, under-capacitated municipalities, I interviewed the two administrators performing the LUP function as well as two individuals outside of the municipality who were familiar with LUP procedures. In the medium-sized municipalities environmental officers and the head of unit were interviewed in addition to the land use planners themselves. Furthermore I interviewed the head of the land use planning unit in the Eastern Cape provincial government. Hereafter, I refer to all respondents as LUPs.

The interviews, lasting between 30 and 90 minutes, took place in land use planner's offices between May and September 2008, they were all

conducted in English, the official's working language, no difficulties in understanding or for interviewees to express their points occurred. Interviewees were assured confidentiality at the outset of the interview; their hierarchies had given consent either telephonically or in their own interviews. The interviews were transcribed with permission and analyzed with regards to the following themes: how familiar were the respondents with the conservation maps, how functional were the land use planning processes in the municipality, what role did the political hierarchy, i.e. the councilors play in LUP decision making, how the LUPs related to their jobs, what they considered to be the major difficulties in implementing their functions, and how they perceived biodiversity conservation. Specifically, I enquired about LUP's age, cultural background (of White, Coloured or Xhosa culture), degree of training, computer literacy, and whether they used GIS in their work. I assessed their degree of awareness of the STEP and other conservation maps and enquired whether they had used, decided to use, or contemplated using the maps. I then probed a number of aspects of the LUP procedures in the municipalities that had emerged as essential from the background interviews. Particularly, I assessed the organizational structures of LUP-units, and what legal texts LUPs used. I identified the official responsible for subjecting an application to an EIA-process and investigated if other departments are involved to comment on the application. I also asked how frequently interviewees believed illegal land use changes occurred and if these transgressions were prosecuted. I enquired where LUPs sought advice and how they related to district and provincial governmental services. Then I probed if councilors exerted direct influence on LUPs in order to shape the

content of the decision proposal that LUPs drafted, and how LUPs perceived council's reactions to refusing an application. I explored if LUPs considered being in the "profession of their dreams", what they were appreciated for in the workplace, and what they considered being the most important problem in their jobs. Finally, I asked what training they had done recently and what training they would consider desirable.

I used discourse analysis (Wood and Kroger, 2000) to infer the degree to which LUPs were familiar with the legal texts they mentioned, and whether they held a positive, indifferent or negative attitude towards biodiversity issues.

Results and Discussion

Although the link between biodiversity conservation and land use planning has been appreciated for decades (e.g. McHarg, 1969, Soule, 1991, Beatley, 2000, Steiner, 2000), the values, norms and behaviors of land use planners are surprisingly seldom researched (for notable exceptions see Miller et al. 2008, Stokes et al. 2009). However, how land use planners perceive and act out their role in the planning process will impact profoundly on the development footprint (Adams, 2010). In line with the social marketing approach I am using, the purpose of this research is to provide an insight into how conservation concerns are perceived and managed by land use planners. I focus a lot of attention on the requirements for influencing behaviour change of LUPs towards using the conservation maps – the overall aim of the social marketing approach I have adopted.

Who are the people performing the LUP function?

The first aim of my project was to gain an understanding of the people and processes operating in the real-world context (Andreasen, 1995) of municipal land use planning. I noted a clear difference between the small and intermediate municipalities on the one hand, in which the posts are mostly filled by experienced and predominantly White officials, and the metros on the other hand, in which predominantly younger and Black (Xhosa and Coloured) employees work. The average age of Black LUPs was 32 years, and of White LUPs 52 years. Although the metros do have trained LUPs in their employ, finding additional qualified personnel is difficult (Rossouw et al. 2003): in one of the metros, only one third of the positions is filled. In intermediate and small municipalities, the LUP function is performed by officials who combine the planning function with various other tasks. This is in line with a general lack of capacity at local government level in South Africa (Municipal Demarcation Board 2007). All LUPs I interviewed were computer literate and used some form of GIS in their work.

Half of the 24 LUPs I interviewed held positive attitudes towards biodiversity, 38% were indifferent while only three held critical views. However, while some experienced, predominantly White LUPs stated unprompted that they considered themselves "protectors of the environment", the younger, predominantly Black LUPs expressed less understanding and concern, mostly considering biodiversity irrelevant for their work. This pattern suggests a projected dwindling of support for biodiversity conservation issues as older "concerned" LUPs are replaced by a new generation with less sensitivity to biodiversity. In the USA, Miller et al. (2008) found in a survey of

local municipalities, that biodiversity is a relatively minor consideration. Also, concern for environmental issues is less pronounced among Black (African American) than White citizens of that country (e.g. Bun-Lee, 2008). Data on attitudes to biodiversity and other environmental issues for African countries are scarce. Furthermore, the relevance of established developed - world measures of pro-environment attitudes or beliefs – such as the New Ecological Paradigm scale (Dunlap, 2008) – for assessing these in developing countries, is tenuous as described in Chapter 6.

Are the conservation maps being used?

In my sample, LUPs in the metros and in intermediate municipalities indicated clearly that their respective units have adopted the conservation maps. In the metros, the conservation maps can indeed be considered as having been adopted: the respective environmental units have produced a specific conservation plan for their metropolitan area that is integrated in land use planning procedures. Moreover, applications are assessed by this environmental unit that oversees biodiversity considerations in the planning process. Therefore, it is reasonable to consider the metros as being in the maintenance phase of the stages of change model (Prochaska et al. 1992). In intermediate municipalities, however, this assessment is questionable, since the responsibility of actually using the conservation maps is deferred to entities other than land use planning. They can at best be considered in the contemplation phase as the conservation maps have been integrated into their SDFs (usually by consultants) but LUPs do not use nor consider the conservation maps in their routine work. While intermediate municipalities

employ environmental officers, they are normally not included in the land use planning process. Conservation concerns are only represented in the process via inclusion in a document, which no more than informs land use planning. The small municipalities are clearly in the pre-contemplation phase: LUPs are vaguely aware of the conservation maps but have not considered using them, which is primarily due to lack of awareness and capacity.

Overall, LUPs clearly perceive the benefits of using conservation maps However, the responsibility of actually using them lies with the environmental units in the metros or with the consultants that draft SDFs in intermediate and small municipalities. Deferring this responsibility is a barrier to the behavior change I seek. I have not explicitly investigated the extent to which the conservation maps are mainstreamed among consultants, but my background interviews and personal contacts with consultants confirm that the conservation maps and associated products are regularly used and integrated in drafting SDFs and other municipal documents. However, in all municipalities, LUPs oversee applications for land use change. Therefore, the degree to which LUPs perceive biodiversity protection as their personal duty will influence what information is used, highlighted and eventually prioritized in the decision proposal they draft (Soule, 1991, Miller et al. 2008, Stokes et al. 2010).

Do LUP processes effectively support the purpose of protecting biodiversity priorities?

My formative research produced additional insights that are crucial for achieving not only the behaviour change goal but also biodiversity protection

itself. Foremost amongst these are that shortfalls of capacity and procedural processes in the municipality undermine effective biodiversity protection. I elaborate upon this below.

Although LUPs were aware of the relevant legislation and supporting documentation, the depth of understanding for the application of the laws varied considerably. In the metros, LUP unit in co-operation with the environmental unit, make the decision as to whether a proposal to trigger an EIA. In intermediate and small municipalities the LUPs take these decisions more or less alone, unless s/he decides to include an environmental officer. These decisions are guided either by "the relevant SDF" or an unspecified "legal text". Both statements are clear indicators for uncertainty as an SDF has no legal status regarding EIA-requirements (Rossouw et al. 2003). In those cases where an EIA process was undertaken and a RoD issued, several interviewees mentioned unprompted that documentation can be defective and that there is usually no or little follow-up from the municipality as to whether the RoD conditions are being fulfilled. Only in three of nine South African Provinces is there staff explicitly allocated to enforcement of RoD regulations (Rossouw et al. 2003). Involvement of other government departments in the assessment of land use change applications varies according to municipality type: in the metros, this is accommodated for by an administrative circulation system; in intermediate and smaller municipalities it remains the decision of the LUPs.

All LUPs considered illegal land use changes to be highly prevalent and enforcement as rare to non-existent. Some interviewees mentioned that illegal land use changes go unnoticed unless a member of the public raises a

complaint. Land use planners in the small municipalities did not perceive this to be a pressing problem.

My survey results indicate that the land use planning function, and therefore its protective role for biodiversity, is defective at several technical levels. Firstly, in intermediate and small municipalities, capacity constraints give rise to uncertainty about the applicability of the highly complicated EIA legislation. Other than large-scale and -impact proposals, which obviously require an EIA and are under public scrutiny, the decision to trigger an EIA depends on the expertise of the LUPs. If the details of the EIA regulations are unclear, EIA requirements for small applications may go unnoticed. In the case of applications that did undergo an EIA process, neither documentation nor enforcement of the requirements and conditions laid out in the RoD are guaranteed. Furthermore, it is largely the decision of the LUPs to seek the input of other governmental departments (e.g. Department of Water and the Environment) into the LUPO application process. These departments could exercise some form of monitoring or control over decisions of the local land use planning, but currently it is in practice the sole responsibility of the local level. A controlling function of such departments is therefore uncertain. Also, municipalities appear to have limited control over illegal land use changes. Therefore, the implementation of some of the legal mechanisms enacted to ensure that environmental concerns are considered in land use planning and development can partly be considered unreliable, leaving municipalities open to abusive practices.

Such impaired functionality of the LUP processes clearly contributes to explaining the seeming lack of effectiveness of the conservation maps.

Combining this situation with the ageing cohort of LUPs in intermediate and small municipalities, the difficulties of attracting qualified personnel to work in local municipal structures, and the lower consideration for biodiversity issues among younger Black LUPs, the potential for increasing indifference to biodiversity concerns in local LUP becomes obvious.

How can this knowledge be used to support conservation concerns?

Social marketing is a strategic, proactive approach aimed at remedying conditions unfavorable for individuals and societies. Here I analyze how my findings offer opportunities for improving the use of conservation maps by LUPs to protect conservation priorities. The conservation sector will need to provide LUPs with convincing reasons why they should use the conservation maps directly and not defer the responsibility to consultants.

The capacity in land use planning and for using the conservation maps varied considerably among municipalities. The experiential background of individual land use planners is highly variable. Offering general training courses for LUPs, therefore, is unlikely to be attractive or effective. Also, training limited to biodiversity - or the environmental component of sustainability - is unlikely to attract much attention, as there is little perception of a need in this domain. I therefore propose for conservation to use a Trojan horse approach and engage with LUPs of small and intermediate municipalities on an individualized basis in order to elaborate training modules that respond directly to their needs, not primarily on conservation issues, but in the land use planning domain - including conservation maps. Considering the high workload of all my interviewees, any less engaged and targeted

offerings seem unlikely to be successful. The informational needs in the LUP domain could be harnessed to guide LUPs towards increasing the importance of their conservation responsibility.

Note that in small and intermediate municipalities, all LUPs turn to consultants if they need advice on LUP issues. Considering the principles of place and promotion referred to above, LUPs need to be reached at a location, in an emotional state and by an information source that are supportive for the behavior change goal. It is only logical then, that pro-conservation oriented LUP consultants could be engaged to develop and provide such training. Moreover, this would help create the trustful relationship necessary to address potentially controversial and intimidating issues like lack of competence (Höppner, 2009, Parkins, 2010).

Limiting training efforts to once-off interventions is unlikely to lead to lasting behaviour change: multiple exposures to a message are usually necessary to bring about effects (Corbett, 2006, Kotler and Lee, 2008). Training should, therefore, be continued into a lasting tutorship by establishing a proactive system for co-operation driven by the tutors. Such a forum could have a triple function: to provide ongoing support, enable communication between municipalities, and serve as a feed back mechanism likely to support the behavior change goal (Kluger and Denisi, 1996). Similar forums are planned at the LUP unit at provincial government level and also the South African Planning Institute, a voluntary organizations for LUPs, is seeking to further interaction between LUPs in the Eastern Cape. Possible collaboration should be critically explored to avoid the duplication of mechanisms without undermining the conservation component.

Once a system is established, prompts should be provided that comply with the requirements of "place" and "promotion" to be persuasive. For example, attractive and accessible wall maps for each individual municipality, featuring points of interest from within the municipality. Simple pictorial explanations for complex topics such as biodiversity and ecosystem services could supplement the materials. Again, such products should be developed in close co-operation with the LUPs to ensure they meet their local requirements. Areas of interest to LUPs are likely to emerge during training sessions. The closer the products respond to the needs of the LUPs the more likely that they will be used.

The upstream component: the role councilors play

In the section on marketing theory above I suggested that engendering behavior change of individual actors may depend on the societal context in which they operate. How LUPs perceive their jobs and their role depends partly on their interaction with the political sphere, i.e. the influence councilors have on the LUP processes. All land use planners confirmed that at times councilors sought to influence the land use planning processes either directly or through the land use planner's hierarchy. LUPs reported that proposing to refuse developments was usually not received positively by councilors. A number of LUPs indicated unprompted that they "have to be seen as pro-developmental" or that refusing an application requires considerably more effort than granting permission. Several LUPs reported on situations in which their negative proposals were officially or unofficially rejected by councilors and the land use change granted; none referred to examples where councilors

rejected approval recommendations. Several examples where the LUP function was entirely sidestepped to enable developments were mentioned spontaneously. This appeared to be less pronounced in the small municipalities, where controversial issues were discussed before LUPs draft the recommendations to council and where the administrative structures had a function of guiding councilors in their decision-making.

I wish to emphasize that I am not referring to councilors complying with their duties as politicians in determining the desirability of a development on the basis of a sound technical assessment. I refer to situations in which decisions are at odds with legally prescribed provisions or previously adopted policies. For example, LUPs drew my attention to two cases in which an urban edge, adopted by council, was simply changed *a posteriori* to accommodate major developments.

Most interestingly, the conservation maps are used by some LUPs to counteract such influence by councilors. Indeed, one of the municipalities has entered into an agreement with the provincial authority that all applications have to undergo an assessment with regards to their environmental impact by the relevant provincial departments, even when the EIA regulations are not legally applicable. I conclude that LUPs clearly perform their duty in an environment that is pro-developmental oriented, making the defense of conservation concerns extremely difficult.

There is a clear implication of my two key findings that (i) LUP processes are partly dysfunctional and that (ii) councilors are not supportive of the environmental protection function of LUP: Even if the conservation sector were successful in mainstreaming the use of conservation maps among

LUPs, this would not necessarily result in effective biodiversity conservation in LUP decision-making. LUPs remain a key and primary factor because, when drafting the decision proposal for the councilors, their judgment determines what considerations should be included and what degree of importance be accorded. However, my results suggest that their capacity to act pro conservation is limited by the influence councilors have on the role of LUP in the municipality. Several LUPs indicated that this interference is at least partly due to councilor's lack of understanding for land use planning fundamentals. I have described how councilors relate to land use planning in Chapter 4 and some of the obstacles to the appreciation of conservation issues in Chapter 5.

How can this be turned into an advantage for conservation?

Referring again to the LUPs, nearly all indicated that they were working in the "profession of their dreams". However, nearly all also expressed having no possibilities for promotion or personal development in their careers; few feel appreciated or otherwise rewarded; all indicate having a workload that exceeds their capacity and admitted to missing specific tools to do their job appropriately. In the metros, this referred primarily to a lack of planning policies and detailed maps. Intermediate and small municipalities referred to support staff, know how and technological tools, for example up to date GIS data, PCs able to quickly handle the amount of data required, or color printers. These findings underline, that it is likely to be impossible to reach the LUPs audience unless careful consideration is given to the "place" component, to considerations of where, when and how LUPs are most likely to be accessible for conservation arguments.

Most LUPs expressed a need for better representation of their profession among councilors. This can represent a dual opportunity for conservation: on the one hand, engagement with LUPs can contribute to providing the recognition they need, thus increasing the importance of conservation to them. Note also that because of the deficiencies in the LUP system identified above, supporting the LUP function itself is likely to have positive effects on biodiversity protection. On the other hand, in order to make conservation protection at the local government level a reality, it will obviously be necessary to work with councilors (see Chapter 4). If it were possible for conservation to contribute not only to increasing the awareness of conservation issues but also to increasing the status of LUP among councilors, this could also increase the perceived worth of conservation for LUPs.

Therefore, I recommend engagement with councilors as an extension to the engagement with LUPs. The aim of this would be two-fold: firstly, as the formative research component of the upstream social marketing approach (Hastings, 2007), it will be essential to understand councilor's perceptions of land use planning and biodiversity issues in order to change councilor's behavior. Secondly the investigation and outcomes should increase the prominence of and understanding for LUP.

Are there further target groups among LUPs?

Lastly, a third target group emerged from my background interviews and the formative research, namely the LUP sector itself. The approach I propose will ultimately necessitate engaging with the LUP profession as a

whole by launching a much needed discussion between the conservation and

LUP sectors about the role of biodiversity and environmental issues in LUP

(Todes et al. 2009). As a proactive approach towards future developments in

LUP, the conservation sector should also invest in engaging with tertiary

education institutions that provide LUP training. The use and role of

conservation maps in LUP should be mainstreamed in the basic training for

LUPs. Again, investigating the perceptions and needs of the target audience,

the students should determine how to effectively integrate conservation maps

in the curricula.

General Conclusions

Overall, I have shown how the social marketing approach can be meaningfully

used to strategically further conservation goals. I have described an example

of how the barriers that prevent a behavior change can and must be turned

into opportunities for conservation where behaviour change is necessary to

achieve conservation issues. This task must be approached from the

perspective of those who need to change their behavior to be successful.

I wish to highlight here again, that it is unlikely to be sufficient to

assume that providing information will be enough to engage with LUPs

(Kollmus and Agyeman, 2002). The strength of the marketing approach and

the reason for its success is the conscious search for an element the target

audience really needs or desires. "Providing information" to an already

overworked audience about an issue they feel having covered by referring the

responsibility to consultants is highly unlikely to be effective or even draw any

attention. The question I raised in the introduction was: What value can

conservationists provide to LUPs. This "value" is – of course - defined by what LUPs perceive as such. I was clearly unable to identify any perceived needs of LUPs specifically in the conservation domain. Beyond their need for support in the LUP domain, I have identified a need for recognition and a need for better representation of the LUP function among councilors. Furthermore, like any human being LUPs likely have a need for affirmative human relationships. If conservationists want to combat the variety of obstacles to effective conservation action referred to above and in Chapters 4 and 5 they will have to simultaneously and effectively use all the tools provided in a concerted lobbying effort.

Specifically for my case study I conclude that there is a combined problem of political influence and lack of capacity, the first being predominant in the large municipalities, the latter being dominant in the smaller municipalities. Engagement by the conservation sector in a mutually supportive relationship with the land use planning sector, is essential to provide the basis for effectively promoting biodiversity conservation in land use planning processes.

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Questionnaire LUP's[4]:

Background data:

Age:

Could you tell me how old you are? You can give me a range if you prefer.

(Xhosa: excuse for rude question)

Cultural Background:

What background do you consider you come from? English / Afrikaans / Xhosa / Coloured

Time in Administration:

How long have you been working in governmental structures? Have you been working in private business too/before?

Time in position:

And since when do you hold your current position?

Training for Job:

Have you been trained formally as a Land-Use-Planner or do you come originally from another field?

Computer literacy:

What computer program do you work regularly with?

Have you been working with GIS-based systems?

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[4] Note that questions that are not mentioned in the chapter are shown in grey.

Stages of Change:

(Awareness, pre-contemplation)

    I have here some maps and a handbook, have you seen these before?

    Are you currently using any Land Use Planning maps? Which ones?

TR: Did you take part in any training events wrt these?

(Contemplation)

    What is your understanding of what they are meant to be for?

                           (evtl link to attitude towards biodiversity check)

    Do you think they might be useful for your work?

    Why or why not? What aspects do you find interesting or deterring?

TR: Do you think that it might be helpful for you to go on some training to learn more about the STEP-maps and how to use them?

(Preparation)

    Are you considering using them in the next 6 months?

    What hinders you to try and apply them?

TR: Are you considering to take part in a training course in the next 6 months

(Action)

    Have you ever used them?

    What was your experience, what did you enjoy and what did not work so well?

TR: What was your experience with the training? What proved to be useful for you and which parts did you consider less useful?

(Maintenance)

    How long have you used the STEP products?

    What is their effect for you? In what respect are they a positive contribution to your work?

TR: How long ago as it been since you attended the training? Would you enjoy or see a need for further training?

Diffusion of Innovations

Relative advantage:
Do you feel that these maps could bring you any improvements for your work?

Compatibility:
Have you been working with a GIS-system before?
Was or is the planning process based on maps or on computer based systems?
Do the other departments (agriculture, forestry...) provide you with spatially explicit info?

Complexity:
Do you find it complicated to work with these maps?
Are you familiar with the terminology used?

Trialability:
Have you ever tried to use them with regards to your work?
Would you be willing to try them? Under which conditions would you try using them?

Observability:
Would you be interested in seeing or hearing about how the Metros are successfully using the system?

Procedural structure:

I would be interested in how often the different land use planning procedures are being used: How many of your applications require some sort of EIA? (percentage)

Individual application for re-zoning	Environmental Impact Assessment

And who decides about that? (i.e. who takes the decision if an applications needs some form of EIA process)

What legal texts do you use most often?

LUPO	DFA	ECA	EIA-regs	IDP	Systems act	structures act	other WHICH

Any others you use not so often?

What materials do you use/consider when preparing a decision on an application?

What role does the SDF play?

Who else is included in the application process? Do you contact any other departments?

Agriculture / Forestry / Water affairs / Settlements/Housing

In your experience how often is land use changed without applying for permission?

And how often is such action prosecuted?

Structure formal / informal:

How is your unit structured? How many people work there, who is there for your administrative support (secretary?)

Who provides you with technical expertise? Who do you turn to if you have a technical problem?

Do you interact with the District Municipalities? With who?

And with personnel from the Provincial Department?

Have you any relationships with the Municipal Council directly? Are councillors directly involved in some of your work or do they have to talk to the municipal manager or the mayor?

Personal relationship to job and job-environment

What do you have to do to get promoted? What does your hierarchy expect you to do? What do they reward you most for?

How is your hierarchy's response if you refuse granting permission?

What would be the profession of your dreams?

What's the biggest problem in your job?

I am overworked, my workload is too high,   I am not qualified enough for my job,

My hierarchy is too unreliable,   The work is too hectic,

Not having tools to do my job well / better, I cannot identify with my job.

When did you last go to/have you last been sent to training and what was it about?

What training would you require most and which one would you enjoy most?

NEP Scale

"Do you agree or disagree that:"

1) We are approaching the limit of the number of people the earth can support.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

2) Humans have the right to modify the natural environment to suit their needs.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

3) When humans interfere with nature, it often produces disastrous consequences.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

4) Human ingenuity will insure that we do not make the earth unliveable.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

5) Humans are severely abusing the environment.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

6) The earth has plenty of natural resources if we just learn how to develop them.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

7) Plants and animals have as much right as humans to exist.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

8) The balance of nature is strong enough to cope with the impacts of modern industrial nations

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

9) Despite our special abilities, humans are still subject to the laws of nature.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

10) The so-called ecological crisis facing humankind has been greatly exaggerated.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

11) The earth is like a spaceship with very limited room and resources.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

12) Humans were meant to rule over the rest of nature

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

13) The balance of nature is very delicate and easily upset.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

14) Humans will eventually learn enough about how nature works to be able to control it.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

15) If things continue on their present course, we will soon experience a major ecological catastrophe.

Strongly agree	Mildly agree	Unsure	Mildly disagree	Strongly disagree

Chapter 4

Using social marketing concepts to promote the integration of systematic conservation plans in land use planning in South Africa[5]

Abstract

Local land use planning procedures are increasingly recognized as potentially crucial spheres of influence to ensure off-reserve biodiversity protection. Mainstreaming systematic conservation planning maps in these decision-making procedures has been proposed as a mechanism to achieve this. However, research is lacking on how to convince officials and politicians to change their behavior and include the maps in their decision-making. Social marketing is a tool commonly used to effect behaviour change in many sectors, but its application in conservation remains scarce. Here – in a formative research phase of a social marketing study, I interviewed locally elected councilors in four coastal municipalities in South Africa. I enquired

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[5] This chapter has been prepared for publication in *Conservation Biology*

about the role conservation considerations play in their work, the value they attribute to their natural environment, their perceptions on land use planning procedures in their municipalities, how they perceived conservationists, and where they seek information. I found that conservation and environmental issues play virtually no role in their work; however, they do attribute value to the natural environment. Land use planning procedures are considered important but dysfunctional and the role of conservation is perceived negatively in their respective municipalities. Their information seeking behavior is clearly localized. Based on a marketing analysis of these results, I argue for improving the attractiveness of the product: the maps should be more option- than veto-based, and should identify ecosystem services, especially those locally relevant for municipal sustainability. Training should respond to the needs of councilors and should be proactively marketed. I further propose that long-term, positive and proactive relationships between the conservation sector and local government should be sought and maintained, and locally meaningful information provided at a time and location convenient for councilors. Engagement with councilors should be proactive, refer to land use planning and services from nature, and use terminology and information that is locally oriented and meaningful from a councilor's perspective.

Introduction

Local land use planning procedures are increasingly being recognized as a strategic location for the conservation sector to guide land transformation, a major driver of biodiversity loss (Theobald and Hobbs 1998, Theobald et al.

2000, Green et al. 2005). Using conservation assessment software, scientists have developed for many parts of the world spatially explicit maps that indicate which areas are most valuable for biodiversity protection. One aim of developing these maps is to steer development away from areas with high biodiversity value (Pressey 1999, Pierce et al. 2005). Most of these conservation assessments are conceptualized in the systematic (target-driven) mould (Margules and Pressey 2000) and framed in terms of biodiversity concepts such as irreplaceability, complementarity, threat, connectivity, viability and ecological and evolutionary processes. The resultant GIS-based maps are likely to be incomprehensible to non-specialist users; hence, the need to develop user-useful and user-friendly products that identify maps and guides that unambiguously identify areas which are conservation priorities as well as low-priority sites where development is permitted (Pierce et al. 2005, Reyers et al. 2007). Pierce et al. (2005) provide the only documented attempt, to my knowledge, to integrate – or mainstream – conservation planning products into land use planning processes at the local government level. However, effective mainstreaming requires an understanding of how biodiversity conservation is perceived by local government actors, and of the role that conservation and the conservation planning products have or could have in land use decision making (Knight et al. 2006, Miller et al. 2008, Stokes et al. 2010). There is very little literature on this topic; my contribution is aimed at filling this gap.

In order to effectively mainstream these conservation planning products (hereafter referred to simply as maps) in the local land use planning processes, i.e. to achieve their routine inclusion in decision making

procedures, it will in all likelihood be necessary to convince land use planners and decision makers to change their behavior (Ehrlich and Kennedy 2005). One approach with great potential for influencing human behavioral choices regarding environmental sustainability is social marketing (Andreasen and Tyson 1994, Whiteman 1999). Social marketing is "…the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare as well as that of their society" (Andreasen 1995, p. 7). With the exception of Landers et al. (2006), conservation science has rarely adopted and published on social marketing as a means to engender behavior change among target audiences.

In this chapter, I use results from the formative research phase of the social marketing project to identify strategies for mainstreaming maps into local government land-use planning processes in four coastal municipalities in South Africa. The formative research phase investigates, in an audience-centered approach, how the target group relates to the planned behavior change. This is a key component of marketing since it is voluntary behavior change that social marketing promotes (see Chapter 2). The core question I address here is, therefore: how can I contribute to a behavior change of elected municipal councilors towards regular and meaningful inclusion of the maps into the land use planning decision making they oversee.

Marketing philosophy is grounded in the concept of exchange (Zafirowski 2003). For a transaction to take place, the product must provide benefits perceived to be desirable for the buyer (the councilor), and the investment (or price) must be low enough to enable, or at least not prevent, the transaction

(Kotler and Keller 2006). The actual product I am marketing is the new behavior (Andreasen 2006), which, in this case, is ensuring that the maps guide land use planning decisions. The maps are the carriers that provide the benefits to the exchange. The price consists of any investment the councilors have to make in order to adopt the maps, for example the energy and time invested to understand or use them, or deal with potential conflicts emanating from their use. For a behavior change to happen, i.e. for the councilors to adopt the maps, the benefits must weigh higher than the investment necessary. If the investment - the price - is too high then it acts as a barrier to the transaction. Using the exchange paradigm, I rephrase my core question thus: what benefits that are inherently connected with using the maps can I provide or highlight, and what barriers need to be lowered or overcome, so that the councilors will ultimately adopt the behavioral product I promote, which is "use the maps".

To investigate this core question, I address a number of sub-questions. First, what role does environmental or biodiversity protection play in councilors' daily lives and in relation to other political issues (in marketing terms, what role does or could the product play and what other issues am I competing with)? Second, how do councilors relate to their natural environment in their work as well as in their personal lives (is the natural environment itself perceived as a benefit)? Third, how do councilors perceive land use planning (what role does the decision making system into which I would like to mainstream the maps play in the municipality)? Fourth, how do councilors perceive conservation (does conservation have a connotation of benefit or could its status act as a barrier)? Fifth, where will councilors

routinely seek information or help (what communication channels can I use to convey the strategic benefits of using the maps in a way that is convenient and effective for them)? Sixth, how best do I communicate the strategic benefits of using the maps (what language, terminology, narrative and concepts could I use to promote behavior change in a way that is captivating and compelling for the target audience)?

A commonly used marketing approach is the "4 P's" (Kotler and Keller 2006) , namely product, price, place and promotion. I oriented my investigations around these themes and suggest modifications to the conservation assessments, (product); I highlight barriers to using the assessments (price); I recommend the most effective ways of reaching the audience (place); and re-iterate the need for appropriate communication (promotion).

Context

The study area comprises four coastal municipalities in South Africa's Eastern Cape Province, the country's second poorest province. Culturally, 87.5% of the population are Black Africans (mainly isiXhosa speaking), 7.4% Coloured, 0.3% Indian/Asian and 4.7% are White (of European descent) (StatsSA 2006). All of the municipalities are characterized by huge disparities in wealth and land ownership, and high levels of poverty and unemployment. The majority of Black Africans live in impoverished conditions, most of the wealth is owned by a minority of Whites.

Since the first democratic elections in 1994, the African National Congress (ANC) has governed in nearly all Eastern Cape municipalities by a

considerable margin. The Democratic Alliance (DA) is the official opposition party for which most Whites vote. Of the 60 councilors in the four municipalities, 42 were ANC, 14 DA and four from other political organizations. All four municipalities are situated along the relatively unspoiled coastline which is under pressure from urbanization driven by migration of wealthy Whites seeking improved lifestyles, and impoverished Blacks seeking employment (Palmer et al.2010).

The municipalities are part of the planning domain for the Subtropical Thicket Ecosystem Planning (STEP) project, a conservation planning project aimed at identifying priorities and implementing actions for safeguarding subtropical thicket ecosystems (Pierce et al. 2005, Knight et al.2010). These ecosystems are rich in endemic species and comprise the south-western part of the globally recognized Maputaland-Pondoland-Albany hotspot (Steenkamp et al. 2004). User-useful and user-friendly conservation planning products were developed for the STEP domain in participation with local government stakeholders (Pierce et al. 2005) and used in training workshops with officials. They consist of maps that indicate by color code how valuable a parcel of land is with regards to conserving biodiversity. The maps are accompanied by a handbook that provides information on the project, the value of biodiversity, legal background pertaining to environment and land use planning, and more specialized biological information. Since 2009, the Eastern Cape Biodiversity Conservation Plan, – a new and entirely computer-based suite of products that cover the entire Eastern Cape Province - has complemented these efforts (Berliner et al. 2007). The aim of these planning materials and related workshops was to build the capacity of local government officials and to steer

development away from conservation priority areas and thereby achieve socio-economic development goals in a way that safeguards nature.

South African law endows the municipal sphere with the primary decision making powers on land use and development planning (van Wyk 1999). The final decisions are taken by locally elected councilors. There are, however, various obligations for consultation and compliance with provincial and national legislation. For example, consideration of biodiversity protection in land use planning processes is legally prescribed through the National Biodiversity Act (2004) in conjunction with local government legislation. However, at least in the Eastern Cape, implementation of this legislation is limited in practice.

Two components of land use planning and development need to be differentiated: the forward planning process, and the statutory land use planning (LUP) process *per se*, which provides land owners with the rights to permissible activities on their land. Legislation enacted in 2000 (Municipal Systems Act) obliges municipalities - or local councils - to conduct Integrated Development Plans (IDP's), which reflect the future development needs. IDPs are developed in a bottom-up process reflecting the needs and aspirations of the local population in a way that is circumscribed by provincial and national requirements. The content is prioritized and closely aligned with the financial planning instruments. A Spatial Development Framework (SDF) forms part of the IDP and is usually compiled by land use planning consultants. The SDF is a spatially explicit plan that provides a technically informed vision of future land development, including e.g. land use rights, zonings and development

corridors. SDF's are key informants in the LUP processes but they are not legally prescriptive as such.

South Africa has a long history of statutory land use planning (Beinart 2003) and, accordingly, a complex legal system is in place (van Wyk 1999). This complexity is underpinned by the abuse of various planning tools to enforce racist practices devised by colonial and apartheid governments (Cousins et al. 2007), although much progress has been made since the 1994 democratic elections in introducing enlightened legislation and ordinances. The key legislation currently in force in the project area is the Land Use Planning Ordinance (LUPO) which dates from 1985. This ordinance and connected processes and legislation regulate in detail what use rights pertain to a land parcel, what processes need to be followed, and what conditions have to be respected by the municipality in order to change these use-rights.

Methods

Data collection

I conducted 31 interviews with municipal administrators and experts in the land use planning sector in the Eastern Cape to inform the development of the interview guide for councilors (Chapter 3). The interview guide was pre-tested extensively with Eastern Cape politicians, social science academics and practitioners: I inquired about understandability and fluidity of the questions, if the interview flow was logical and easy to follow and if trialists felt specific points were controversial, misleading or omitted. I interviewed 38 (30 ANC, 8 DA) of the 60 councilors in the four municipalities. Due to the small number of possible interviewees I attempted to contact all. Of the 60

councilors in the four municipalities for 8 no functional contact details could be obtained, 8 were not reachable after several attempts and leaving messages, 2 did not want to participate in the interviews, 4 agreed to interviews, but did not attend to the agreed meeting and then were not further reachable. The interview guide consisted of seven background questions (age, cultural background, political party membership, duration of political activity, time in current post, training for current position, and level of computer literacy) and ten open-ended questions (see Annex). All interviews were conducted in English, when difficulties of understanding or misinterpretations occurred I re-phrased the questions and at times provided background to the questions until the meaning had become clear. I opened the interview with a brief description of my background, emphasizing my administrative and political experience, the mainstreaming project, and the STEP maps. Interviewees were ensured confidentiality in the sense that no single person would be identifiable due to the number of councilors being interviewed, as well as appropriate safety measures of data safety. Once they had agreed to being recorded I indicated that they could ask me to interrupt the recording at any time and that they would be provided with transcripts of their interviews. To avoid possible influences of social desirability - the tendency to produce answers that are expected or desired by the interviewer, which may lead to falsified replies (Steenkamp et al. 2010) - I avoided where feasible addressing the issues of biodiversity and the natural environment directly. Instead, the questions focused on understanding the priorities of councilor's work, the extent to which the natural environment *per se* is valued, and how councilors relate to land use planning and its environmental component. I also enquired

about councilor's perceptions of conservation in the municipalities and about councilors' information seeking behavior.

At the end of the interview I asked councilors to rank the following seven terms according to importance in their work: biodiversity protection, environmental protection, social development, economic development, education and training, security, and service delivery. Ties were permitted, i.e. terms were allowed to have the same rank, thereby allowing for a more realistic expression of priorities. I chose these terms to cover the explicit issue at hand (biodiversity), all three aspects of the sustainability definition (economic, social and environmental), and the most prevalent political issues in South Africa (provision of basic services, education and crime). The approach ensured that my target topics of biodiversity and environment were forced into consideration, as the questionnaire was intentionally non-prescriptive in this respect.

All interviews were recorded and transcribed with permission for the purpose of analysis. The interviews took place at a location of the interviewee's choice, mostly in municipal offices, and took between 20 and 90 minutes depending on the interview flow. The interviews were conducted between September and December 2008.

Data analysis

I analyzed the transcripts to obtain the following background information: interviewee's age (in years), their cultural background (Xhosa, Coloured, Afrikaans, English), how long they were member of their political party (ANC or DA), and if they had been politically active prior to the 1994

democratic elections. I combined the last two-mentioned questions in a qualitative assessment of the interviewee's political history: "actively involved in the pre-democracy politics", "relative newcomer", i.e. involved since the democratic change and "recent history only", i.e. involved in formal politics for a maximum of 5 years.

I explored what training councilors had received for their current position, if such training had provided any biodiversity or environmentally related information, and who had conducted such training. I rated how experienced councilors considered themselves with regards to the use of a personal computer: (yes including experience with the Internet; yes; little; none) and if they could relate somehow to the term "GIS".

In the answers to my first open-ended interview question, "what are the priorities of your work?" I first rated if a reference had been made to any issue related to the natural environment. I then grouped the answers into the following three categories that emerged from the replies: service delivery, good governance and other. For assessing all three questions on the land use planning processes (Integrated Development Plan (IDP), Spatial Development Framework (SDF) and Land Use Planning (LUP), I used the same approach. Namely I rated if interviewees were familiar with the process, if they considered the process to be valuable, and if they considered it to be functional. I explored the perceptions of councilors about the role of conservation in the municipality by categorizing responses into: predominantly positive, positive and negative, predominantly negative, or neutral. With regards to the questions on what councilors and tourists value most in the municipality, I noted whether the natural environment featured. I explored the

councilor's information seeking behavior by categorizing responses according to where they would turn to as a first and as a second resort when needing assistance: would they seek internally within the council; internally within administrative structures; within political party structures; or would they reach farther to the district municipality, provincial or national structures; or consult internationally available resources, i.e. use the Internet, books or other relevant media.

In the cases where responses were categorized, it was tested whether counts deviated from the neutral position of equal likelihood using a chi-square goodness-of-fit test with a simulated p-value (10 000 replications).

I assigned a score (most important = 7, least important = 1) to the rankings provided by the councilors of the seven issues presented to them (biodiversity protection (BdvP), environmental protection (EnvP), social development (SclD), economic development (EcnD), education and training (EdcT), security (Scrt), and service delivery (SrvP)). Terms rated as equally important were attributed equal rank. The ranked terms were converted to a set of paired comparisons and analyzed as an intercept only Bradley-Terry model (Bradley & Terry, 1952; Dittrich et al., 2007). This calculates a worth parameter (or merit) for each term based on how well it performed in a set of head-to-head contests with the other terms. The analysis was carried out using psychotree (Strobl et al. 2009). Also, a network analysis of the ranked terms was implemented using a version of the PC algorithm (Spirtes et al., 2000) implemented in pcalg (Kalish and Bühlmann, 2007; Maathuis et al., 2010). Psychotree and pcalg are both contributed packages for R (R Development Core Team, 2010).

Results

Background questions

About 60% of the interviewees considered themselves of Xhosa origin, 19% Coloured, 16% White Afrikaans speakers and 5% of White English speakers. The proportion of White and Coloured cultural groups is higher than the average for the Eastern Cape Province. Roughly 75% of the interviewees were ANC members, which is equivalent to the provincial distribution of seats and about representative of the four municipalities, with one exception in which both parties held nearly equal number of seats.

Seventy three percent of councilors were involved in politics prior to the 1994 democratic elections, 10% became involved since then, and 17% were newcomers to formal politics (≤ 5 years). Significantly, 82% of the ANC councilors were involved in politics before 1994 (i.e. they were connected to the struggle against White supremacy), whereas 55% of the DA councilors were newcomers. All interviewees indicated having received some training with regards to their position: 68% referred to the South African Local Government Association as training provider, and 51% to their respective political party. Most (86%) councilors asserted that no biological, conservation or natural environmental issues featured in the training. Eighty six per cent of councilors declared having at least limited experience with personal computers while only 22% made regular use of the Internet. Similarly, only 22% had some notion of GIS.

The role of the natural environment in councilor's work

None of the councilors identified natural environmental issues as a priority in their work. Service delivery was significantly overrepresented as a priority (identified by 62% of councilors, followed by good governance (24%) and other issues (14%)) (chi-square=14.49, p=0.0007). Only four out of 37 councilors mentioned any nature-related issues in the open-ended questions. Note that this result is even more surprising as the councilors had clearly been prompted in the opening remarks of the interviewer. Analysis of the scores of the seven ranked terms using a paired comparison approach clearly demonstrated that biodiversity and the environment occupied the bottom places in the hierarchy of importance (Figure 1). The fitted model is highly significant (p < 0.0001), based on a Wald chi-square test.
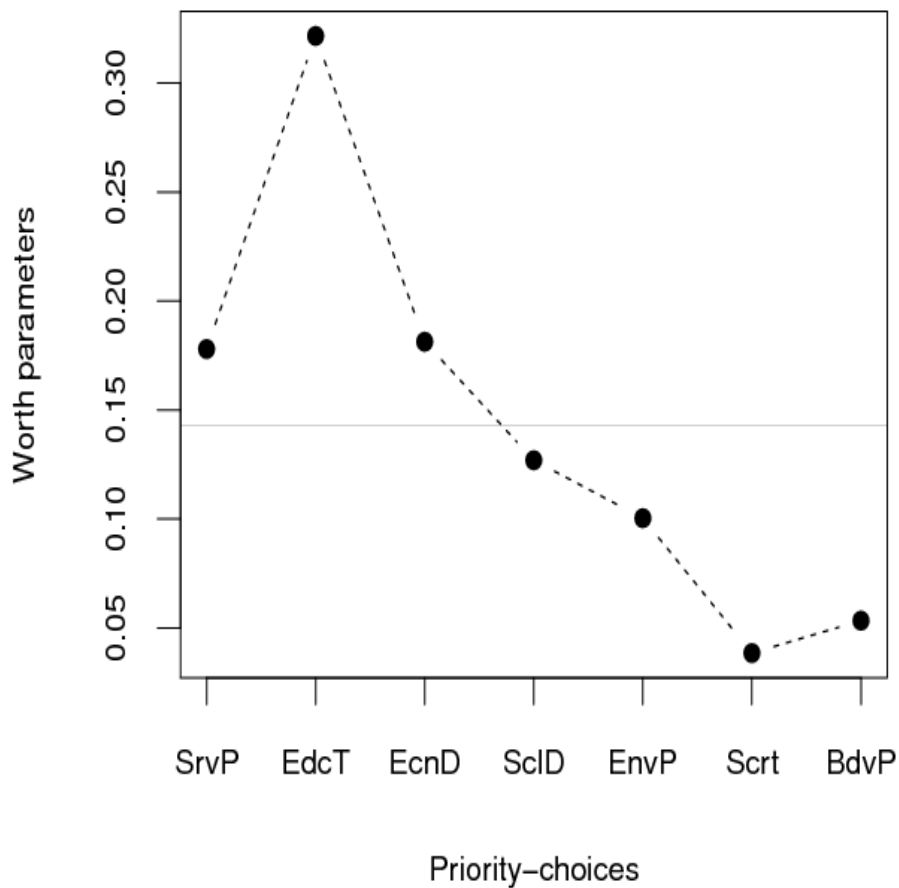
Figure 1: Bradley-Terry paired comparison model of councilors' priorities. The horizontal trace at 0.143 shows the average worth of all priorities. SrvP=Service delivery, EdcT=Education and training, EcnD=Economic development, SclD=Social development, EnvP=Environmental protection, Scrt=Security, BdvP=Biodiversity protection

Network analysis of the same data supplemented this result by showing where interventions might best be made in order to improve the priority put on protecting biodiversity and the environment (Figure 2). This analysis indicates that raising the priority put on protecting the environment has a strongly positive effect on protecting biodiversity. All other priorities have a negative effect. None of the other priorities affect the priority put on protecting the environment.
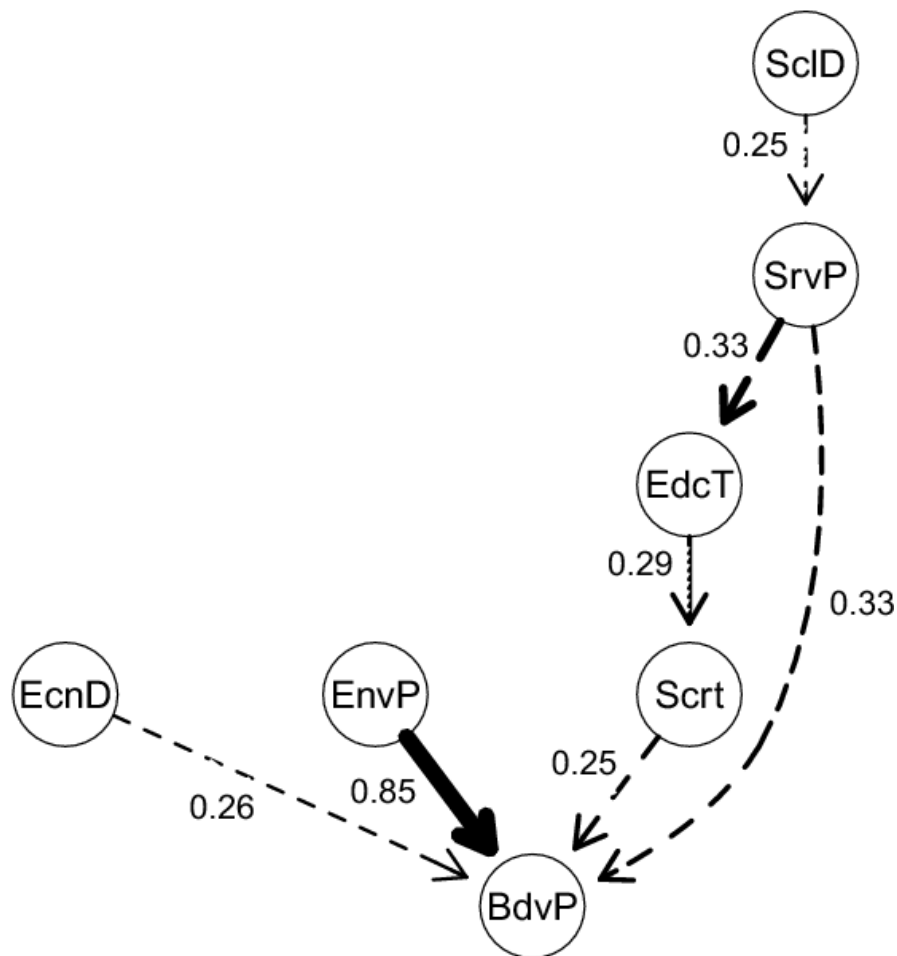
Figure 2: Path diagram of councilors' priorities. Priorities that influence other priorities are shown using a directed edge (→), with the arrow pointing in the direction of influence. Solid edges show positive influence, broken edges show negative influence. Edge thickness is proportional to the level of confidence in the edge. The associated values show the magnitude of the influence if all other influences are held constant. These effects were estimated using the methods outlined in Maathuis et al. (2010) and implemented in pcalg (Kalisch and Bühlmann 2007). See caption to Fig. 1 for explanation of abbreviations.

The extracted network fits the observed data well, judged by Shipley's (2000) C test (C[df=28]=22.97, p=0.7346) and the Bollen-Stine (1992) bootstrap (chi-square[df=14]=19.60, p=0.1433, using 5000 bootstraps). The goodness-of-fit index is 0.92. This means that the network shown is, at least, a plausible description of causal influences.

The value of the natural environment

When councilors were asked about which features of the municipality they valued, it emerged that they value nature greatly, both personally and for its value in the tourism industry: 81% of the councilors mentioned unprompted natural features as what they personally value most in their municipality (chi-square=14.30, p=0.0005) and 100% were aware of the importance nature has for tourism.

Perceptions about land use planning

Awareness among councilors of the forward planning processes as well as the land use administration was high (IDP: 100%, SDF: 73%, LUP: 95%), and almost all who were aware valued the planning tools as a positive contribution to the municipality's development (IDP:95%, SDF: 93%, LUP: 100%). On the other hand, there was an equally high rate of agreement that these processes are dysfunctional: 81% (IDP), 70% (SDF) and 65% (LUP) of councilors clearly stated that the processes were not working or at times even counterproductive in their municipalities. Only a few councilors considered the processes as being functional (IDP: 19%, SDF: 3%, LUP: 16%). For SDF, 27% of respondents were undecided; for LUP, 19% were undecided. All of the foregoing proportions differ significantly (p < 0.001) from an equal distribution across categories, based on chi-square tests.

The role of conservationists was perceived as predominantly negative by 46% of the councilors, 24% perceived them as both negative and positive, 22% considered them neutral, and 8% as predominantly positive (chi-square=10.89, p=0.0114). Interestingly, this result did not vary depending on party membership (Pearson's chi-square=0.16, p=0.9840). One councilor stated: "The environmentalists are their own biggest enemy".

Information seeking behavior

When confronted with a difficult problem, councilors significantly (chi-square=62.73, p=0.0001) chose internal structures of the municipal council as the primary source of information or help (65%); 8% chose municipal administrative structures, and 11% internal political party structures. Only 16% referred to sources outside the municipality. When asked where they would turn in a second step to seek help or information, 35% referred to the council itself or to municipal administrative structures, 35% to their political party, 19% would contact the district municipality, provincial or national structures, and only 11% would use the Internet or printed information (chi-square=14.73, p=0.0110).

Discussion

My results above provide insight into the benefits the product - using the maps - can provide, and conversely what barriers – the price - exist to adopting this new behavior. It needs to be emphasized, that I am referring exclusively to benefits and barriers as perceived by the target audience. All other benefits or

barriers, e.g. those perceived by other groups like conservationists, are immaterial for achieving the behavior change goal. The actual product I am trying to promote is the behavior itself (Andreasen 2006). However, the physical products - the maps, handbooks and workshops - are the carriers that should facilitate the behavior change by providing the benefits (Kotler and Keller 2006).

Councilors overwhelmingly do value their natural environment personally and they are unequivocally aware of the value of nature for tourism. They do perceive an inherent benefit in protecting nature and, by extension, in using the maps,– provided this benefit is realized tangibly and not undermined by competing and stronger issues connected with "development". I consider this to be the competitive advantage of the maps, which clearly identify areas where development is permissible (Pierce et al. 2005), over more traditional approaches aimed at preserving specific species or ambiguously designated areas. Development and environmental protection are currently perceived by councilors as being mutually exclusive with development having clear priority (Chapter 5). Since the maps provide a visually compelling assessment of the conservation value of a piece of land, they therefore open up the possibility to conduct simple and intuitive cost-benefit analyses between different options of land development, enabling better informed choices (Pressey 1999). The maps, therefore, provide an option to accommodate the development vs. biodiversity protection divide, by steering developments onto areas least detrimental for biodiversity. Highlighting this aspect will likely enable that the inherent benefit of nature will be realized and thus support the behavior change goal.

My results further suggest that the lack of priority accorded to biodiversity and environmental considerations is a core obstacle to mainstreaming the maps. The subject of the maps is "biodiversity protection" which is neither understood by the majority of the target audience (Chapter 5), nor has any priority. There are two possible approaches to influence this condition. The first is to attempt changing the order of priorities of political issues and increase the importance of biodiversity and environmental issues in the hierarchy of political priorities. This could be informed by the literature on agenda setting (McCombs and Shaw 1993, McCombs 2005, Andreasen 2006). However, since the project presented here focuses on mainstreaming the maps only, it makes sense to consider the second option: to link the maps with an issue that already is high on the councilor's agenda. Service provision is a key issue at local government level, but currently identified primarily with providing housing, water, electricity and other basic services. Furthermore, I have shown that land use planning is considered to be an important issue. Biodiversity protection could be linked to service delivery via the concept of critical natural capital (Chiesura and de Groot 2003, Pierce et al. 2005) or ecosystem services (Chan et al.2006, Daily and Matson 2008, Mooney 2010). The latter have gained enormous currency in the past decade but show varying efficiency in capturing irreplaceable biodiversity features (Chan et al.2006, Naidoo et al. 2008). Nonetheless, critical natural capital or ecosystem service maps - especially if they identify natural resources important for the delivery of key services such as water provision and ecotourism - are likely to be much more compelling to the target audience than maps based only on biodiversity features. The STEP Handbook (2006) includes a section on

nature's services but the mapped features are all related to biodiversity. Furthermore, this is a logical route for introducing the environmental component of sustainability; currently councilors in my municipalities consider only the economic and social aspects of the sustainability triad (Chapter 5).

The fact that councilors perceive conservationists in predominantly negative terms presents a considerable barrier to the communication process and to the behavior change goal. Information provided by conservation professionals is likely to raise little interest and have low credibility. (Peters et al. 1997, Chapter 5). To confront this challenge, which is likely to be widespread in South Africa and elsewhere in the developing world, the conservation sector could engage in a re-branding process (Tybout and Calkins 2005, Sinclair 2009). In the corporate world, re-branding is used if a company wishes to distance itself from negative connotations attached to how it is currently perceived. For the purpose of the project presented here however, I suggest two different strategies, one at establishing the new behavior, the other at maintaining the behavior once it has been adopted.

I propose the engagement of the South African Local Government Association (SALGA) or the political parties to provide training as a first step to establish the new behavior. The majority of councilors indicate having received training through SALGA, which, therefore, is a natural location for offering training. However, participation in their courses is non-compulsory. Courses on the use of conservation maps are unlikely to attract any interest. Therefore, I suggest offering courses on land use planning and service provision (from nature), as both issues carry a higher priority. Considering that all three planning processes - IDP, SDF and LUP - are considered to be

important but dysfunctional, such courses could likely respond to a prevalent training need. The information could be included in existing courses but it may be difficult to include conservation needs into their agenda; newly established courses would likely be preferable but will require pro-active advertising. Another approach would be to provide training through the political parties. Likely they would be very effective training providers as they are the first location outside the council where information and help is sought. However, this would require the party's support for the conservation message.

Once the process of adopting the maps has commenced, continued support will be needed to maintain the new behavior (Hastings 2007) as well as for providing technical expertise on a case-to-case basis when the maps are being used. I therefore suggest establishing long-term and trustful relationships (Peters et al. 1997) between conservation agents and the municipalities at both administrative and political level (Chapter 3). Such relationships could likely contribute to overcoming the antagonism to the conservation sector. Indeed, in one of the municipalities, a trusted preacher has achieved the status of being the reliable and trustworthy source for the council on all environmentally related issues.

With regards to the question of how to most effectively reach councilors - the "place" component of the "four P" marketing approach – my results show that councilors do not usually reach far beyond their municipality for retrieving information. This has dual implications: on the one hand – as I have proposed above - messages need to be placed within direct local reach if they are to be retrieved; on the other hand, and this pertains to the "promotion" component of the strategy, the messages themselves need to be meaningful in the local

context. Considering the low level of biological literacy, alongside the low issue priority of environmental and biodiversity issues described above, the language and the concepts commonly used in the conservation planning materials are not conducive to a meaningful communication process (Chapter 5, Jacobson 1999). For example the concepts of a "highest biome diversity of any province" or "ecological processes that are crucial for the long-term persistence of biodiversity" (Berliner at al. 2007, p. 5 and 6, respectively) are unlikely to resonate with the localized immediate needs and concerns of most councilors. Even the term "biodiversity" is not well understood by councilors (Chapter 5). Education and training is a major priority of the South African government and was identified by the councilors as the top priority among the seven issues which they were required to rank. I suggest, therefore, that providing councilors with understandable and meaningful information they can use and apply in their daily lives could raise substantial interest. To bridge the considerable intellectual distance between the realm in which the maps are produced and the realm in which they should be used, terminology as well as applied examples from within each municipality should be used to spur interest, personal engagement and to encourage behavior change. The products have to provide hands-on, localized knowledge and understanding responding to the councilor's needs, not primarily biodiversity information as perceived as important by conservationists. Once the interest in the products is established, more sophisticated biodiversity concepts can successively be introduced. I wish to highlight that I am not proposing to not address biodiversity issues at all. Doing so would likely lead to a risky subsuming of conservation under the ecosystem services umbrella, possibly limiting

conservation to its utilitarian component (Redford and Adams 2009). My results show that councilor's perceptions of nature do often include intrinsic value aspects. However, since biodiversity conservation is likely to be negatively perceived by the councilors (Chapter 5), interest in the products must emerge before complex biodiversity issues are introduced. Lastly I wish to highlight that there is little interest for politicians, like councilors, in receiving the same specialist training that is suitable for land use planners or administrators. Instead, councilors need to be empowered with the understanding necessary to fully appraise land development issues including biodiversity protection.

My results also suggest another or additional possible approach: As computers are not readily accessed by councilors for problem solving, providing computer-based systems alone is unlikely to be effective. However, considering the prevalent need this could possibly be developed into a benefit. In 2007 only 7.5% of the households in the Eastern Cape Province had a computer, while the proportion for the four municipalities is 12.6% (StatsSA 2009). Promotion of the maps could be connected with courses on computer literacy and land use planning. As above, such courses need to respond to councilors needs, which will require prior investigation. The complexity of GIS-based systematic conservation planning technology is likely too high to be comprehensible to the target audience. In line with the social marketing approach, the development of the products and the decisions about form, content and terminology used should be taken in close co-operation with members of the target group (Hastings 2007, Roux et al. 2006). The products need to be continually developed further using the insight emanating from

their use with regards to what components and arguments are adopted effectively by the target audience.

To conclude I highlight two aspects that did not clearly emerge from my investigation but may warrant further exploration. The high importance given to issues of good governance by councilors – as well as the emphasis on this nationally - is an indication that compliance with existing biodiversity and land use planning legislation might be perceived as a benefit connected to the conservation planning products. I have shown in Chapter 3 that environmental legislation is at times difficult to respect in a political climate that is geared by a developmental paradigm.

A more complex issue that likely warrants further investigation is the role that the Xhosa culture and Christian religion play in safeguarding nature (Mtuze 2003). Xhosa culture is closely related to nature – both in terms of species and landscape features - and nature-based rituals are still frequently enacted by both rural and urban dwellers (Cocks 2006). The questions regarding Xhosa culture did not provide any conclusive insights into the perceptions about its role. However Christian stewardship arguments (Hall et al. 2009) and the notion that nature should be preserved for the sake of future generations (van Houtan 2006), were mentioned spontaneously by several councilors. For the purpose of designing compelling advertising materials and for providing councilors with valid arguments to defend restrictions on habitat loss, these aspects could effectively support the strategic approach outlined above.

Acknowledgments

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Annexure 1

<u>**Questionnaire: Councilors, Eastern Cape Local Municipalities**</u>

<u>General:</u>

Age: Could you tell me how old you are? You can give me a range if you prefer.

(Xhosa: apologise for this being a rude question!)

Cultural Background:

What cultural background do you come from?

Xhosa / Coloured / English / Afrikaans / Zulu

Party membership:

You are a member of the ANC (youth league?) / SACP / DA / PAC / UDM /

Local

Time politically active:

How long have you been associated with *that party*?

Have you been with another party before? (SACP, NP, NNP)

(if possible: probe for traumatic experiences during struggle or transition)

"How did you live the struggle, what was your experience?"

Time in position:

And since when do you hold your current position?

Training for Job:

Have you received any training for being a councilor or is that only "learning

by doing"?

Who provided the training and what was it about?

Were there any environmental or biology issues?

(probe for anything that could be environmentally related)

Do you work with a computer?

Have you got access to the internet and how often do you use it?

Have you ever heard of GIS-systems? (Global Information System) – explain!

Content questions:

1.   What are the priorities of your work?

(no prompting!! environmental protection an issue at all?)

2.   What do you think of the planning processes like the IDP (Integrated

Development Plan)

And the SDF (Spatial Development Framework) processes?

(probe for awareness of SDF)

Are they working? Does the SDF reflect the IDP?

3.   What role does town- and land-use-planning have in your municipality?

(probe for the name of the person responsible)

Would you consider it an important function?

Does it work well?

4.   Are there people that actively fight for the environment in your municipality?

What do you think of them?

(probe for prejudice)

5.   Do you think that the Xhosa culture will be able to persist in the future?

Should it? (probe for fireside tale and favourite character)

(This question has not yielded meaningful results and is therefore shown in grey)

6. What makes your municipality special for you?

      (are environmental features part of what is valued)

7. What would you think tourists like most? Why do they come to South Africa, and why would they choose to come to your municipality?

      (are environmental features part of what is valued)

8. If you run into a problem, - for example somebody of your electorate comes and presents you with a problem that you don't know how to solve -, who would you ask for advice?

      (if possible probe for NAMES!)

9. I have been talking about "biodiversity" earlier on, would you mind giving me your own and personal definition of what that word actually means to you?

      (probe for what it MIGHT intuitively mean when no answer)

10. And the same question about the word "sustainability"?

Ranking of terms:

Would you mind sorting the following terms according to their importance in your work: (present unordered in circular layout)

BIODIVERSITY PROTECTION

ENVIRONMENTAL PROTECTION

ECONOMIC DEVELOPMENT

SOCIAL DEVELOPMENT

SECURITY (EXPLAIN WRT CRIME)

EDUCATION AND TRAINING

SERVICE DELIVERY (EXPLAIN WRT WATER, HOUSING ETC.)

Chapter 5

Framing biodiversity conservation for decision makers: insights from four South African municipalities[6]

Abstract

Priority maps for biodiversity conservation are increasingly aimed at their implementation by local governments in their land use decision-making. However, these biodiversity planning products usually rely on the implicit assumption that biodiversity and related concepts are the appropriate ones for communicating the need to safeguard nature. I investigated the level of understanding of the terms "biodiversity" and "sustainability" of decision makers in four South African coastal municipalities and identified the prevalent frames of interpretation they held regarding nature conservation in land use planning. I demonstrate that understanding of the term "biodiversity" is very

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limited; however, the term is well linked to the natural environment. Conversely, the concept of "sustainability" is clearly established – but only marginally connected to nature. The frame analysis showed that the preservation of nature is regarded as fundamentally in opposition to socio-economic development. Conservation is frequently interpreted as being a socially unjust endeavour, disrespectful towards people and lacking realism. I use these insights to provide recommendations on how conservationists should proceed to re-frame biodiversity issues in order to more effectively mainstream conservation plans into local land-use decision making.

Introduction

In many parts of the world, land use decisions made by politicians at the local municipal level of governance result in considerable habitat loss (Theobald & Hobbs 1998; Green et al. 2005; Pierce et al. 2005). In an attempt to direct infrastructure away from areas of nature conservation value, conservationists have recommended the routine incorporation - or mainstreaming – of conservation plans into land-use decision making processes and products (e.g. spatial development maps) at the local government level (Theobald et al. 2000, Sandwith et al. 2005).

Today conservation planning in most parts of the world is conceptualised in the systematic (target-driven) mould (Margules & Pressey 2000) and framed in terms of biodiversity concepts such as irreplaceability, complementarity, threat, connectivity, viability and ecological and evolutionary processes. Maps refer to areas of priority identified on the basis of irreplaceability, threat or a combination of these, often leading to the

identification of areas of different levels of endangerment. In some cases, attempts are made to communicate the value of these planning products to politicians and officials, and to provide training on their use. Unfortunately, with few exceptions (e.g. Pierce et al. 2005), these initiatives are not documented or evaluated in the primary literature. A fundamental problem with conservation planning initiatives is the implicit assumption that biodiversity and related concepts are the appropriate ones for communicating the need to safeguard nature. Even in developed countries such as the U.S.A., the level of knowledge and understanding of the biodiversity concept is very low (Bright & Stinchfield 2005; Stokes et al. 2009). Certainly, biodiversity is seldom seen as integral to sustainable development, which is mostly conceptualised in social and economic terms only (Noss 1991; Dawe & Ryan 2003). In order to communicate biodiversity concerns more effectively to local government decision makers, and to generate spatial products (i.e. maps and plans) and implementation strategies that resonate with them, the following questions need to be asked: to what extent is the biodiversity concept meaningful to decision makers and how do they perceive the roles of nature, conservation and socio-economic development in their work.

An act of communication can be divided into the following components (Jacobson 1999): the sender or the source of a message first encodes the message, usually into words, gestures or symbols; the message is then transmitted to the receiver, who then has to decode it in order to derive meaning from what has been sent. In the example presented here, conservationists encode their message in the conservation planning products and transmit them to the decision makers who then need to decode them.

When the encoding and decoding processes diverge, considerable distortion of the content of the message occurs or the intended communication act may simply fail (West 2004).

When communicating problematic and complex issues (e.g. retain for nature or sustainability vs. develop for economic growth) successfully, the information is then unconsciously classified by the receiver according to mental reasoning devices, or frames, which define the person's understanding of the issue (Kinder 2007). Frames are cognitive structures that help humans to make sense of the world by suggesting which component of a complex reality to consider. Their specific power lies partly in the fact that they are usually unconscious, implicit and therefore operate by stealth (Van Gorp 2007). With regards to communication sciences, Neumann et al. (1992, p.60) define frames as "conceptual tools which media and individuals rely on to convey, interpret and evaluate information". In other words, "frames influence opinions by stressing specific values, facts, and other considerations, endowing them with greater apparent relevance to the issue than they might appear to have under an alternative frame." (Nelson et al. 1997, p. 569). Researchers investigate frames at various levels, for example the frames held by communicators (e.g. journalists, or conservationists), those prevalent in the media (e.g. in articles, leaflets or conservation priority maps), those held by receivers, and those available overall in a specific cultural context (Entman 1993; Van Gorp 2007). My study refers to the frames – or reasoning devices – held by receivers, i.e. the local government decision makers, and my aim was to assess how the messages sent by conservationists are first understood and then interpreted by them.

Entman (1993) provides a framework for analysing the frames displayed in a text - in my case transcripts of interviews with decision makers - in terms of the following four functional components: *problem definition, identification of cause, moral judgement and proposed solution*. Assuming that readers may not be familiar with frame analyses and in order to make the concept more tangible, I apply Entman's framework to a fictitious example of "land transformation" where an area of natural habitat (pristine nature) has been identified for "development" that will transform its status. In this simplistic example, the *problem definition* of a conservationist's frame could be the destruction of biodiversity, the *cause* attributed could be economic development or greed, the *moral judgment* would likely be "unacceptable", and the *proposed solution* probably to keep the land in a natural state. Conversely, politicians' frames may *define the problem* as lack of delivery of services and employment opportunities, the *cause* would be a lack of economic development or financial investment, the *moral judgment* would likely be "desirable", and the *proposed solution* to develop the land. These exemplary frames are a caricature of reality; those extracted in frame analyses are not as salient and, as mentioned above, held more or less unconsciously.

In this study I first assessed the decoding process by investigating the level of understanding of the terms "biodiversity" and "sustainability" shown by 37 councillors (elected politicians) from four municipalities in South Africa's Eastern Cape Province. I demonstrate that the majority of the councillors have none to little understanding of the term biodiversity, while nearly all relate easily to the "sustainability" term. However, while the term "biodiversity" often

elicits in the responses reference to the natural environment, the term "sustainability" is mostly not connected to nature at all. I then identified the prevalent frames held by the councillors regarding issues of nature conservation in land use and development. The analysis revealed that the preservation of nature is perceived as being fundamentally opposed to socio-economic development and that conservation is frequently interpreted in frames of being a socially unjust endeavour, disrespectful towards people and lacking realism. I use these insights to provide recommendations on how conservationists should proceed to re-frame biodiversity issues in order to more effectively mainstream conservation plans into local land-use decision making.

Context

This study is a component of the formative research phase of a project on mainstreaming conservation planning products into municipal land-use planning processes using social marketing (Wilhelm-Rechmann & Cowling 2008). Social marketing is "…the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare as well as that of their society" (Andreasen 1995, p. 7). I wish to emphasize here, that social marketing is a strategy for behaviour change and therefore encompasses a much more fundamental approach than simply changing wording or an advertising message. While advertising is the most visible component of the marketing approach, the less visible components, e.g. customer research, product developments, channel

development, are the basis on which advertising may become effective (Wilhelm-Rechmann & Cowling 2008). The formative research phase is the key component of the social marketing approach since it investigates how the clearly circumscribed target group relates to the behaviour change that will be promoted (Cowling & Wilhelm-Rechmann 2007).

In South Africa, as with most other countries in the world, the responsibility for decisions on land use lies with locally elected municipal councillors (van Wyk 1999), with various obligations for consultation and compliance with provincial and national legislation. For example, national legislation (a biodiversity act and a local government act) stipulates that biodiversity concerns have to be accounted for in land use planning processes. However, at least in the Eastern Cape, implementation of this legislation is limited.

My study area comprises four coastal municipalities in South Africa's Eastern Cape Province. All are included in the planning domain for the Subtropical Thicket Ecosystem Planning (STEP) Project, a conservation planning project aimed at identifying priorities and implementing actions for safeguarding subtropical thicket ecosystems (Pierce et al. 2005). These ecosystems are rich in endemic species and comprise the south-western part of the globally recognised Maputaland-Pondoland-Albany hotspot (Steenkamp et al. 2004). User-useful and user-friendly conservation planning products were developed for the STEP domain in participation with local government stakeholders (Pierce et al. 2005) and used in training workshops with officials. Since 2009, a new suite of products, the Eastern Cape Biodiversity Conservation Plan, has complemented and continued these efforts (Berliner

et al. 2007). The aim was to build the capacity of officials to use the planning products to steer development away from conservation priority areas and thereby achieve socio-economic development goals in a way that safeguards nature.

All of the municipalities are characterised by huge disparities in wealth and land ownership, and high levels of poverty and unemployment. The overwhelming majority of inhabitants in each municipality are Black (African or Coloured), vote for the African National Congress (the ruling party in South Africa), and live in impoverished conditions; most of the wealth is owned by a minority of Whites who invariably vote for the Democratic Alliance (the official opposition party). Two of the municipalities can be regarded as having medium capacity in governance, and two as having poor capacity. All four are under great pressure from urbanization driven by migration to the coast of wealthy Whites seeking improved lifestyles, and impoverished Blacks seeking employment.

The colonial history and apartheid past of South Africa related in various ways to the use of natural resources and to activities aimed at "preserving" natural resources, i.e. conservation (Beinart 2003; Cousins et al. 2007, Adams 2003). Invariably, interests of the local populations were at best ignored (e.g. Carruthers 1995), for example local populations were forcefully evicted from and denied access to protected areas. Thus conservation is tightly connected with the still existent and increasing socio-economic divide between the small predominantly White upper class and the predominantly Black majority of poor people, as described above. Conservation has long sought novel and socially appropriate ways for reaching conservation goals

and South Africa is often cited as frontrunner of innovation (e.g. Suich et al. 2009). However, the socio-economic situation has changed little since the first democratic election in 1994, e.g. the Gini-coefficient, an international inequality measure, has barely changed or even increased between 1994 and 2004/2008 (The presidency of SA 2009). It would therefore be tempting to explain hostile reactions of predominantly Black local politicians to conservation in light of these historical facts. While understanding of this history has been informative for the development of the questionnaire, I would like to highlight that in accordance with the marketing approach the sole effective source for authoritative information of how the target audience relates to the behaviour change envisaged is the target audience itself (e.g. Andreasen 1995). Many of my interviewees were active participants in the liberation struggle, were detained, tortured or lived other atrocities. However, despite experiencing at times dramatic oppression and discrimination during the apartheid years, some of the interviewees showed surprisingly positive opinions about the conservation of nature.

Methods

Data collection

I interviewed 37 (29 ANC, 8 DA) of the 60 councillors in the four municipalities. The interviews were based on a questionnaire that was developed using insights gained from 25 interviews with experts in the land use planning sector in the Eastern Cape. The questionnaire consisted of seven background questions (age, cultural background, etc.) and 10 open-ended questions; it was extensively pre-tested with councillors and politicians

of the Eastern Cape, social science academics and practitioners (e.g. Gillham 2005). The questions focused on understanding how the interviewees perceived the role of environmental considerations in a land use planning context.

I opened the interviews with a brief description of my background, the mainstreaming project and the STEP biodiversity priority maps. At no stage in the interview did I provide any explanation or comment on the concepts of biodiversity and sustainability. I closed the interview with the following questions: "Would you give me your own and personal definition of what the word "biodiversity" means to you?"; the identical question was repeated using "sustainability" instead of "biodiversity". The term "sustainability" is widely used in political discourse in South Africa and is a core concept of the country's environmental legislation. I investigated this term for two reasons: (i) in order to compare response behavior to a term that is widely known, and (ii) to assess the extent to which the sustainability concept could be used in the mainstreaming process as a surrogate for biodiversity. The wording of the questions was deliberately chosen to accommodate explicit and implicit aspects of the two concepts and to include intuitive components. When it was clear that interviewees did not have a readily available understanding of the term, I prompted for an intuitive description of what the term *might* mean to them. The questions were located at the end of the questionnaire to ensure that the rapport between interviewee and interviewer had developed to the point that sincere replies to such socially inappropriate "testing"-questions were possible (Keats 2000). Indeed, only one of the interviewees reacted in an angry manner.

All interviews were recorded with the permission of the interviewee and transcribed for the purpose of analysis. The interviews took place at a location of the interviewee's choice, mostly in municipal offices, and took between 20 and 90 minutes depending on the interview flow. The interviews were conducted between September and December 2008.

Data analysis

I used the recordings and transcripts to assess (i) whether councillors could provide a definition of the terms biodiversity and sustainability, (ii) to what extent the definitions provided were consistent with standard, textbook definitions and (iii) the extent to which they referred to the natural environment.

I then extracted from the recordings and transcripts the frames held by the councillors regarding issues of nature conservation in land use and development. I did this by identifying the passages in the transcripts that referred to the environment and associated issues. I then used discourse analysis (Wood & Kroger 2000) to reveal the detailed meaning of these passages and their components, and, following Entman's (1993) framework, I classified the components into problem definition, identification of cause, moral judgement and proposed solution. I excluded the frames entertained by single individuals as well as those not pertaining directly to nature, and clustered the remaining frames into groups that emerged from the analysis. Lastly, I re-examined the transcripts and recordings for a broader frame on the relationship between natural environment and development: I defined "losing our nature" as the problem and extracted the causes identified, moral judgements and proposed solutions attributed by councillors to this pre-defined problem.

Results

Only 11 (30%) of the 37 councillors could spontaneously provide a definition of biodiversity, based on a pre-established concept. Of these 11, only five (14%) provided a reasonably correct definition, while none offered a textbook definition. A further 21 (57%) needed prompting before they could provide an intuitive definition. Five (14%) were unable to provide any definition at all, even after prompting. However, of the 32 councillors that did provide definitions (with or without prompting), 30 (94%) did include aspects of nature and the natural environment in their definitions.

On the other hand, 35 (95%) of the councillors could spontaneously provide a definition of sustainability. However, of these, half (49%) provided definitions that did not refer in any way to nature or the natural environment, only five (14%) accorded major importance to the protection of nature for achieving sustainability. None of the interviewees referred to the commonly used triad of ecological-economic-social sustainability; of the seven interviewees I prompted with the triad terms, none showed clear indication of recognising them. One councillor explicitly chose to exclude the perspective of the "nature watchdogs" from the definition.

In the frame analysis, over 60% (23) of the interviewees showed a general frame regarding the natural environment and development issues that is constructed as follows: When "losing our nature" is defined as the problem then the cause attributed to this is the need for development, both for subsistence or economic reasons (identification cause). Given that development is the unequivocal priority, the moral judgement suggested by the frame is that losing nature is at best sad but unavoidable. A solution to remedy

this predicament is impossible. This frame applies to the overall relationship between the natural environment and development, forming a backdrop against which the following three, more conservation specific frames need to be interpreted.

Three frames specific to the conservation endeavour emerged from the analysis; I termed these "injustice" (23 occurrences), "disrespect" (18 occurrences) and "utopian" (10 occurrences). Most prevalent among councillors is that conservation is perceived and framed as being socially unjust (problem definition) by either maintaining or re-establishing the former racist or colonial system (identification of cause) in which poor, predominantly Black people were denied access to assets and services held by predominantly White people. The moral judgement proposed is that this is unacceptable and the obvious solution is to reject conservation.

Councillors also frequently hold frames of conservation as being disrespectful. The causes identified are two-fold: on the one hand conservationists' way of communicating is seen as aggressive and disregarding of arguments other than their own; on the other hand, conservation is seen as disrespecting the needs of people, especially the poor, by trying to prevent development. The latter component is clearly linked to the injustice frame above. Similarly, the moral judgement proposed is that this is unacceptable and the obvious solution is to reject conservation.

The third conservation-specific frame identifies conservation as a utopian endeavour (problem definition) because conservationists naively fail to understand the real issues, namely hunger, unemployment, access to basic services etc. (identification of cause) which is mostly pitiable (moral

judgement); therefore, their arguments can simply be ignored (proposed solution).

These three frames, injustice, lack of respect and utopian endeavour pertain directly to the conservation communication issue and can at least partly be addressed through the choice of appropriate means of communication.

Discussion

Conservation, especially the establishment and maintenance of protected areas in developing countries, is controversial as it implies in many cases a decrease in livelihood for the local, often impoverished population. Providing socio-economic benefits from conservation projects to the local population will evidently increase the chances of conservation projects being successful. However, existing critical frames, reasoning devices about conservation, e.g. that conservation is a utopian endeavour, may be independent of such benefits and not all conservation projects will be able to provide substantial socio-economic benefits. Appropriate communication is therefore essential if conservation is to become an element of mainstream thinking. My study demonstrates the need for assessments of stakeholder's perceptions and understanding of nature, the natural environment and conservation prior to developing and implementing strategies aimed at reducing biodiversity loss (Knight et al. 2006; Cowling & Wilhelm-Rechmann 2007; Cowling et al. 2008; Schelhas & Pfeffer 2009; Stokes et al. 2009). The results of such assessments also form the basis on which appropriate communication should be developed.

My results show that decision makers have a poor grasp of the biodiversity concept; therefore, using the term and concept of biodiversity is, on its own, unlikely to be effective to communicate about mainstreaming biodiversity maps, as decision makers cannot decode the information - "..indeed, a message transmitted but not received has little value." (Peters et al.1997, p. 45). The current practice in South Africa (and elsewhere) of attempting mainstreaming exclusively *biodiversity* planning and priorities into local spatial development plans (e.g. Theobald et al. 2000; Sandwith et al. 2005; Berliner et al. 2007) is, therefore, unlikely to be successful and could be greatly enhanced if the communication material resonated with the informational needs and perceptions of the local audience. Moreover, the sustainability concept is not a possible surrogate for biodiversity or a useful means to further its protection: the majority of decision makers did not perceive biodiversity, nature and the natural environment to be a component of sustainable development.

Attempts to mainstream biodiversity maps at the local government level are further thwarted by the frames prevalent among decision makers regarding nature conservation in land use and development. Conservation messages are interpreted in frames that imply they must be countered or ignored. Clearly there is a need to reframe the conservation message when communicating with decision makers in my study domain, and probably in many other contexts, and to put a greater emphasis on how we communicate (Weber & Schell Word 2001; Orr 2006). Issues of great concern to conservationists – for example, biodiversity loss, species extinction, the role of biodiversity in sustainable development, and the need to sacrifice short-term

economic growth in favour of biodiversity protection – are unlikely to resonate with decision makers in my domain and in much of the developing world.

There are at least three things that can be done to improve the effectiveness of communication for mainstreaming biodiversity maps. Firstly, the potential of conservation plans to achieve conservation outcomes alongside development needs to be exploited in order to counter the prevailing frame of contradiction between nature and development. Instead of rejecting development, systematic conservation plans can contribute to accommodating both, development and conservation, by steering activities that cause habitat loss to low-priority sites (Pressey 1998; Pierce et al. 2005). Note that my project is concerned with the preservation of biologically precious parcels of land in the municipal land use planning processes. Development will usually be accommodated in this context and there will typically be costs incurred by choosing low-priority over high priority sites. However, the maps provide at least the opportunity of considering different sites for development and of including conservation arguments in the consideration. I maintain that decision makers will be more inclined to be supportive of nature conservation initiatives when they are presented with options for achieving conservation and development goals that incur reasonable costs – and deliver reasonable benefits – to both endeavours. This will also go some way to countering problems about conservation as perceived by decision makers (it is unjust, disrespectful and lacks realism).

Secondly, the conservation sector needs to establish trustful, long-term relationships with local government, as opposed to once-off training events or the simple provision of information (Roux et al. 2006), which furthers the

perception of a disrespectful top-down approach. Research on risk communication has shown that, especially in less information-rich environments, people tend to rely foremost on assessments of the credibility of the information source to evaluate information (Peters et al. 1997; Pornpitakpan 2004). A co-operative, respectful and pro-active involvement of conservationists in land use planning processes will support a re-framing towards less suspicious and negative perceptions of conservation.

Thirdly, attempts to mainstream biodiversity in land-use planning decision making will be considerably improved if the maps would include ecosystem services and refer to a non-technical term that highlights the aspect of "service provision" from nature to people (Chan et al. 2006; Cowling et al. 2008). Clearly, which terminology is most suitable should be determined by the end-users (planning officials) as well as decision-makers (councillors). In line with the social marketing approach that forms the basis of my research, I therefore suggest that conservationists undertake assessments amongst stakeholders (officials, consultants, members of civic organizations, decision makers) of their understanding and perceptions of nature, the natural environment and conservation, and use this information to develop a number of alternative conservation planning products. The final choice of product could be made in focus groups representative of the intended audience (Morgan & Krueger 1998; Kotler & Lee 2008).

The situation I describe refers to South African coastal municipalities. As described above, it is tempting in the South African context to assume that objection to conservation is simply due to the historical abuse of conservation to further discriminatory practices. My analysis shows, that the prevalent

frames are more complex and offer a number of avenues for conservationists to counter unfavourable thought processes. Likely similar situations prevail throughout much of the developing world, where the effects of colonialism interact with traditional and modern westernised cultural frames. The perceptions, understanding and frames held by target audiences warrant investigation at the outset of conservation projects (Knight et al. 2006; Cowling & Wilhelm-Rechmann 2007; Cowling et al. 2008; Schelhas & Pfeffer 2009; Stokes et al. 2009). Plausibly, even in the developed world inappropriate communication and unfavourable frames may undermine the effectiveness of efforts to mainstream biodiversity. Understanding of biodiversity issues is low in the United States (Bright & Stinchfield 2005; Stokes et al. 2009) and likely in other countries too. Frames of conservation being, for example, a utopian endeavour, I speculate, may be prevalent throughout the developed world.

Addressing conservation projects from the perspective of those on whose actions the realisation of the conservation goal depends, will likely improve conservation effectiveness. Appropriate communication is a key component of such an audience centred approach.

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Chapter 6

Responses of South African land-use planners to the New Ecological Paradigm and the Inclusion of Nature in Self scales: implications for mainstreaming biodiversity conservation in local government processes[7].

Abstract

The New Ecological Paradigm (NEP) scale is a commonly used instrument to investigate environmental attitudes, beliefs or worldviews. However, it is rarely used in sub-Saharan Africa. I used the scale as part of the formative research of a social marketing project. I applied the NEP scale to 53 South African land use planners and politicians with the aim of assessing the instrument's suitability for the context and its capacity to differentiate between groups of stakeholders according to their degree of eco-centricity. I also applied the

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[7] This chapter has been prepared for submission to *Environment and Behavior*

Inclusion of Nature in Self (INS) scale, a simple graphic measure, to the 37 politicians of my sample in order to explore their connectedness to nature. I also assessed the level of alignment between the two scales. I found that the NEP scale is a meaningful tool with regards to my South African target group. NEP scale scores were effective for differentiating politicians and administrators in my sample, which suggests that the scale has good potential as a component of a social assessment for conservation projects. I found little concordance between the NEP and the INS scales, indicating that at least for the Xhosa members of my sample, endorsement of a pro-ecological attitude and a high degree of connectedness do not align.

Introduction

The New Environmental and the New Ecological Paradigm scales, both abbreviated as "NEP scale", are among the most widely used tools to investigate attitudes, beliefs or worldviews of people about the natural environment (Dunlap 2008). The New Ecological Paradigm scale is the current revision of the original twelve-question New Environmental Paradigm scale published in 1978 (Dunlap and Van Liere 1978); various other adaptations of the scale have been used (Hawcroft and Milfont 2010). The revised scale (Dunlap et al. 2000) features 15 questions that address five facets of environmental beliefs: limits to growth, balance of nature, anti-anthropocentrism, the human exceptionalism paradigm, and the possibility of an eco-crisis (the first three dimensions also constituted the first scale). Like the original scale, the revised ecological scale was tested in a mail survey with a representative sample of residents of Washington State, USA. Unlike the

original scale that aimed at investigating the transition from a dominant social paradigm to a new environmental paradigm, the New Ecological Paradigm scale is used predominantly for assessing the degree to which people endorse an environmental or ecological attitude, belief or worldview (Dunlap 2008). Here I used the scale to assess whether it is a meaningful tool in a real-world context of a social marketing project in South Africa, and to assess its usefulness as part of a social assessment for conservation projects (Cowling and Wilhelm-Rechmann 2007). In particular, I was interested in the extent to which the scale could be used to segment – in marketing terms – stakeholders involved in land-use planning in South African municipalities.

This study forms part of the formative research phase of a social marketing project to identify strategies for mainstreaming systematic conservation planning products into local government land-use planning processes in coastal municipalities in South Africa (Chapters 3 and 4). Social marketing is the use of marketing techniques and technology to further a specific behaviour change in a chosen target audience (Andreasen and Tyson 1994, Andreasen 1995, 2006, Whiteman 1999). The behavior I aimed at influencing was the use and consideration of conservation maps when evaluating applications for land use change. For many parts of the world, conservation scientists have used conservation assessment software to develop spatially explicit maps that indicate which areas are most valuable for biodiversity protection (Margules and Pressey 2000). The practical aim of developing the maps is to steer development away from areas with high biodiversity value (Pierce et al. 2005). To reach this goal practically, institutions taking the decisions on land use changes need to adopt these

conservation planning products (Pierce et al. 2005, Theobald et al. 2000). In South Africa, like in many other countries, the decision making power for land development lies primarily in the hands of locally elected politicians (van Wyk 1999).

For a subset of the respondents, I also used a slightly modified version of the Inclusion of Nature in Self (INS) scale (Schultz 2001, Schultz et al. 2004), which is the only graphical measure of the degree of connectedness a person experiences with nature. Schultz et al. (2004, p 32) describe the INS scale thus: "At one extreme is the individual who believes that s/he is separate from nature—that people are exempt from the laws of nature and superior to plants and animals. At the other end of the continuum is the individual who believes that s/he is just as much a part of nature as are other animals and (taken to the extreme) that the same rights that apply to humans should apply to plants and animals." This description reflects several of the questions of the NEP scale (Table 1). Dunlap et al. (2000, p 427) state that NEP likely measures ""primitive beliefs" about the nature of the earth and humanity's relationship with it".

Given the context of this study, I addressed the following questions in this chapter: Is the NEP scale a tool that is suitable for the context and target group of this study? Given its extensive validation and ease of implementation, is the NEP scale effective for distinguishing between groups of stakeholders in a social assessment? Do the NEP and the INS scales provide comparable results in the target audience, i.e. are the worldview of my target audience and their connectedness to nature comparable? What

relevance do my findings have for the effective implementation of conservation projects?

Study system and subjects

I worked with interviewees concerned with land use planning in six coastal municipalities in the Eastern Cape Province, South Africa. Of these municipalities, two are mostly urbanized, metropolitan municipalities with relatively high levels of capacity and development (Nelson Mandela Bay and Buffalo City); two are intermediate, largely rural municipalities that have intermediate levels of capacity and development (Kouga and Ndlambe); and two are sparsely populated municipalities with low levels of capacity and development (Koukamma and Great Kei). The Eastern Cape Province is the country's second poorest province: 87.5% of the population is Black Africans (mainly Xhosa speaking), 7.4% Coloured, 0.3% Indian/Asian and 4.7% are White (of European descent) (StatsSA 2006). All of the municipalities are characterized by huge disparities in wealth and land ownership, and high levels of poverty and unemployment. The majority of Black Africans live in impoverished conditions; a minority of Whites owns most of the wealth. The coastline is under pressure from urbanization driven by migration of wealthy Whites seeking improved lifestyles, and impoverished Blacks seeking employment (Palmer et al. 2010).

Interviewees comprised people associated with the administrative and the political component of the land use planning process: administrators employed by the municipality to perform the land-use-planning function, their

direct administrative hierarchy and their political leadership - locally elected councilors.

Methods

Data collection

At the end of formative interviews (Chapters 3 and 4), I presented the 15 NEP-scale questions to 53 people involved in local land use planning procedures in the six local municipalities described above. The questions are shown in Table 1. Participants were categorized as follows: profession (councilor, land use planner, environmental officer, municipal manager) municipality (Buffalo City, Great Kei, Kouga, Koukamma, Nelson Mandela Bay, Ndlambe), culture (Afrikaans, Coloured, English, Xhosa, participants were permitted to choose more than one cultural root), membership in a political party (African National Congress (ANC), Democratic Alliance (DA) or none) participants' age and their gender. I asked participants to read the NEP questions and tick on the five- point Likert scale (Dunlap et al. 2000) according to what they felt was closest to their feeling. I also pointed out, that there is no "right" or "wrong" answer and remained present but silent, giving participants the opportunity to enquire if needed.

I applied the slightly modified version of Schultz's (2001) Inclusion of Nature in Self (INS) scale to the 37 councilors (elected politicians) of the four small and intermediate municipalities in my dataset as follows: after completing the NEP questionnaire, I handed councilors two paper circles, one featuring the term "nature", the other one the term "me". I enquired to what degree the circles overlapped, if the respondent felt as "being one" with nature

(full overlap) or "completely separate" from nature (no overlap). When interviewees handed their estimate back I made a drawing and verbally assessed with the interviewee how large the overlap was expressed as percentage.

Data analysis

Following Dunlap et al. (2000) I used Cronbach's α (Alpha) (Cronbach 1951) to test for internal consistency of the South African dataset. While Cronbach's Alpha is the most widely applied coefficient of internal consistency in the psychometric literature, it has, however, recently been found to over-estimate the proportion of variance displayed by scores when attempting to develop a valid scale (Zinbarg et al. 2005). This bias occurs when questions asked reflect multiple (as opposed to a single) dimensions of factor – a feature common to many datasets. Therefore, I also computed two forms of McDonald's Omega, namely Hierarchical Omega ($\dot\omega_h$) and Total Omega ($\dot\omega_t$) (McDonald 1999); McDonald's Omega is regarded as the most reliable coefficient of internal consistency (Zinbarg et al. 2005). Acceptable thresholds reported for Cronbach's Alpha vary from 0.70 (Nunnally 1978) to 0.80 (Rossiter 2002). For McDonald's Omega, Knight et al. (2010) suggest as acceptable a value of 0.60.

I used a Procrustes analysis (Dray et al. 2003) to statistically compare the South African and Dunlap et al.(2000) data sets. Each dataset was converted to a matrix of counts, with questions as rows and response-categories as columns. I used Gower's (1971) scaling to place the two data

sets on the same scale (Dray et al. 2003). I subjected the Procrustes analysis to a randomization test (50 000 replications).

In order to model relationships between eco-centricity and the characteristics of the South African participants, I used ordered logistic regression (Harrell 2001). The response variable used was an "eco-score", computed by using an ordinal scale where – for odd numbered questions – "strongly agree" was allocated a value of 5 (maximum eco-centricity) and "strongly disagree" was allocated 1 (minimum eco-centricity). For even-numbered questions, I inverted the scoring. This resulted in a maximum "eco-score" of 75, reflecting highest degree of eco-centricity and a minimum score of 15. The explanatory variables were categorical: respondent's age, gender, political affiliation, profession, culture and municipality, as described above. Owing to co-linearity between political affiliation and profession, I could not fit a model that included all explanatory variables. Therefore, two models were fitted: model 1 excluded political affiliation, and model 2 excluded profession.

I further explored the relationship between individual NEP scores and culture and profession using between-class principal components analysis (Jolliffe 2002). The same data structure used in the Procrustes analysis (see above) was used for this analysis.

I used an Exact Wilcoxon signed rank test (paired) (Wilcoxon 1945) to statistically assess concordance between the NEP scale and the INS scale.

All analyses were carried out using R (R Development Core Team, 2010).

Results

Cronbach's Alpha was 0.76 for my data set (compared to 0.83 reported by Dunlap et al. (2000) for the USA data set) suggesting acceptable internal consistency for the former. This was confirmed by the results of McDonald's Omega (Hierarchical: 0.54, Total: 0.83), although the value of Omega Hierarchical was on the margin of acceptability.

Table 1 summarizes responses to the NEP scale reported in this study and that of Dunlap et al. (2000). Overall, there were strong similarities in response pattern in both data sets. However, several differences emerged. South Africans clearly took a stronger anti-ecological view on question (Q.) 6 (The earth has plenty of natural resources if we just learn how to develop them.) with 88.7% agreeing ("strongly agree" (SA) + "mildly agree" (MA)) while only 59.2% of Dunlap et al. (2000) respondents did so. Considering "strongly agree" alone, a value of 67.9% was recorded for the South Africans sample, compared to 24.4% for USA one. With only 1.9% ticking "uncertain" (U), South Africans were also clearer about their thoughts on Q.6 as compared to 11.3% in Dunlap et al. (2000). Interestingly, South Africans most strongly affirm among all questions the belief expressed in Q.7 (Plants and animals have as much right as humans to exist.): 88.7% of respondents agreed with this notion, and 77.4% agreed strongly. By comparison, in the USA sample, there was 76.9% overall agreement with 44.7% agreeing strongly. In both samples, Q.9 (Despite our special abilities, humans are still subject to the laws of nature.) received the highest overall pro-ecological score (South African: 90.4% agreement; USA: 90.9% agreement).

| Question | This study, (n = 53) | | | | | | | Dunlap et al. (2000), (n = 661-668) | | | | | | |
| | Frequency distributions (%) | | | | | Mean | StD | Frequency distributions (%) | | | | | Mean | StD |
	SA	MA	U	MD	SD			SA	MA	U	MD	SD		
Q.1: We are approaching the limit of the number of people the earth can support.	41.5	22.6	11.3	13.2	11.3	3.70	1.42	27.7	25.2	21.0	16.0	10.0	3.45	1.31
Q.2: Humans have the right to modify the natural environment to suit their needs.	22.6	35.8	7.5	15.1	18.9	3.28 (2.72)	1.46	4.1	28.5	9.2	33.9	24.3	2.54 (3.46)	1.25
Q.3: When humans interfere with nature, it often produces disastrous consequences.	49.1	30.2	3.8	15.1	1.9	4.09	1.15	44.6	37.6	4.0	11.2	2.5	4.10	1.07
Q.4: Human ingenuity will insure that we do NOT make the earth unlivable.	24.5	24.5	24.5	11.3	15.1	3.32 (2.68)	1.37	7.8	23.5	21.5	24.4	22.7	2.69 (3.31)	1.27
Q.5: Humans are severely abusing the environment.	52.8	28.3	1.9	13.2	3.8	4.13	1.19	51.3	35.3	2.6	9.3	1.5	4.26	0.99
Q.6: The earth has plenty of natural resources if we just learn how to develop them.	67.9	20.8	1.9	7.5	1.9	4.45 (1.55)	0.99	24.4	34.8	11.3	17.5	11.9	3.42 (2.58)	1.34
Q.7: Plants and animals have as much right as humans to exist.	77.4	11.3	3.8	3.8	3.8	4.55	1.01	44.7	32.2	4.7	12.8	5.7	3.97	1.23
Q.8: The balance of nature is strong enough to cope with the impacts of modern industrial nations.	13.2	20.8	13.2	18.9	34.0	2.60 (3.40)	1.47	1.1	7.4	11.3	30.9	49.4	1.80 (4.20)	0.98
Q.9: Despite our special abilities, humans are still subject to the laws of nature.	60.4	30.2	3.8	1.9	3.8	4.42	0.95	59.6	31.3	5.4	2.9	0.8	4.46	0.79
Q.10: The so-called ecological crisis facing humankind has been greatly exaggerated.	17.0	15.1	9.4	22.6	35.8	2.55 (3.45)	1.53	3.9	17.9	13.8	25.9	38.5	2.23 (3.77)	1.24
Q.11: The earth is like a spaceship with very limited room and resources.	34.0	34.0	3.8	11.3	17.0	3.57	1.49	38.0	36.3	7.5	13.4	4.8	3.89	1.19
Q.12: Humans were meant to rule over the rest of nature.	41.5	28.3	3.8	9.4	17.0	3.68 (2.32)	1.52	13.5	20.4	8.2	23.9	34.0	2.55 (3.45)	1.47
Q.13: The balance of nature is very delicate and easily upset.	47.2	35.8	5.7	5.7	5.7	4.13	1.13	45.9	32.8	5.9	14.1	1.4	4.08	1.10
Q.14: Humans will eventually learn enough about how nature works to be able to control it.	43.4	22.6	7.5	7.5	18.9	3.64 (2.36)	1.56	3.2	20.1	24.2	27.9	24.6	2.49 (3.51)	1.16
Q.15: If things continue on their present course, we will soon experience a major ecological catastrophe.	49.1	28.3	13.2	5.7	3.8	4.13	1.09	34.3	31.0	16.9	14.1	3.6	3.78	1.16

Table 1: Responses to NEP Scale items for the South African (this study) and USA (Dunlap et al.2000) data sets. Mean is the mean of the actual scores for each question the numbers in brackets provide the mean of the eco-score, which resulted in an overall eco-score or pro-NEP mean of 51.19 for this study as compared to 56.26 for Dunlap et al. (2000). SA = strongly agree, MA = mildly agree, U = unsure, MD = mildly disagree, SD = strongly disagree, StD = standard deviation.

The Procrustes analysis (Fig. 1) provides an analytical assessment of the degree of concordance of NEP scale response patterns for the South African and USA data sets. Almost all of the variation (99.56%) in the joint space of the two data sets lies in the first dimension (horizontal axis), indicating a single-axis structure. This represents a contrast between strongly agree (SA, to the left of the origin), and strongly disagree (SD, to the right of the origin). The coding of the NEP scale is such that high scores, i.e. strongly agree (SA), on odd-numbered questions indicate a pro-ecological attitude, whereas high scores on even-numbered questions indicate an anti-ecological attitude. The common single axis, therefore, also has a clearly-defined bipolar ecological interpretation. An individual with a perfect pro-ecological score would have all their answers to odd-numbered questions clustered on the horizontal axis at the left of the Procrustes analysis and all their answers to even-numbered questions clustered on the horizontal axis at the right. Deviations from this bipolar pattern indicate a less-than-perfect pro-ecological attitude. This pattern of responses is more clearly defined in the Dunlap et al. (2000) survey than it is in the South African survey, primarily due to a different pattern of responses to questions 6, 11, 14, and 12 (in decreasing order of importance). Notwithstanding these differences there is an overall similarity in the pattern of responses in the two datasets. This is further demonstrated by the randomization test in which the null hypothesis of no link (or similarity) between the two data-matrices is rejected with a high degree of probability ($p < 0.0001$).
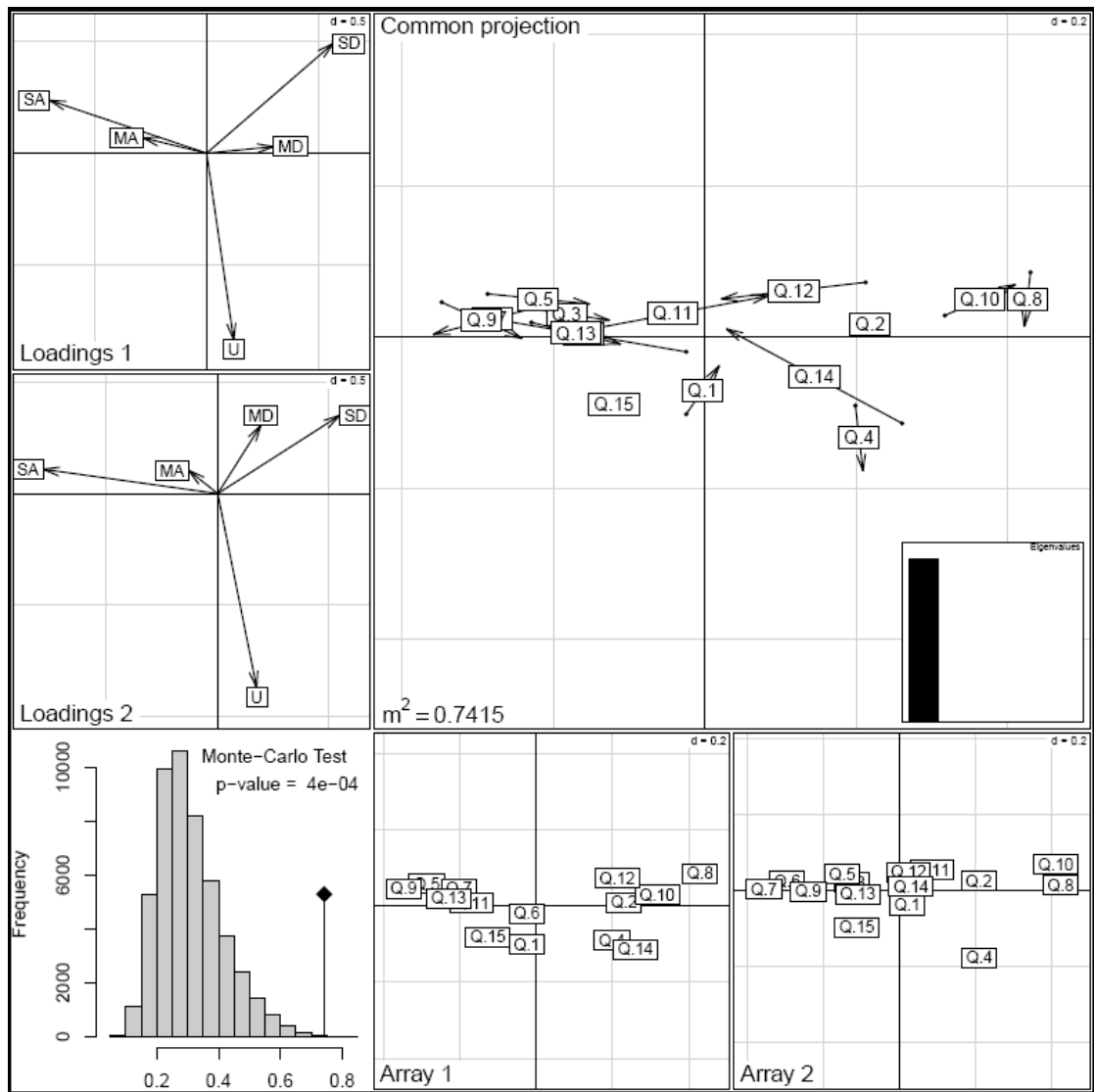
Figure 1: Procrustes analysis to compare the pattern of NEP scale responses emergent in the USA data set (Dunlap et al. 2000) (Array1) and the South African (this study) data set (Array 2). The common projection analysis includes both data sets, the vectors show how responses to questions differ between the two surveys: Loadings 1 and 2 show the construction of the axes providing the key for interpretation of the directionality of the vectors. Q (n) = question number.

Turning to the South African data set, the two ordered logistic regression models (model 1 excluding political affiliation and model 2 excluding profession) both had excellent statistical and predictive properties, with very good ROC and Brier scores, despite their simple structure (Table 2).

	Model Likelihood Ratio Test				Statistics Related to Predictive Performance					
	Obs	Model L.R. χ^2	d.f.	p	ROC	D_{xy}	Gamma	Tau-a	R^2_N	Brier
Model 1[a]	53	39.77	17	0.001	0.748	0.495	0.497	0.478	0.529	0.017
Model 2[b]	53	34.89	16	0.004	0.734	0.468	0.469	0.451	0.483	0.017
Model 1: Odd-numbered Items [c]	53	29.44	17	0.031	0.714	0.429	0.430	0.407	0.428	0.016
Model 1: Even-numbered Items [c]	53	31.96	17	0.015	0.739	0.478	0.479	0.456	0.454	0.018

[a] NEP Score ~ category (= profession) + municipality + culture + sex + age
[b] NEP Score ~ party + municipality + culture + sex + age
[c] NEP Score QType ~ category (= profession) + municipality + culture + sex + age, where QType refers to odd- or even-numbered questions.

Table2: Statistics of the proportional odds models to predict the NEP total score for the South African data set. Model 1 excludes political affiliation and model 2 excludes profession (these two explanatory variables showed a high degree of colinearity)

Wald Statistics for Model 1			
Predictor	χ^2	d.f.	p
category = profession	8.79	3	0.0322
municipality	4.51	7	0.7198
culture	14.61	5	0.0122
gender	3.16	1	0.0756
age	0.70	1	0.4021
TOTAL	29.68	17	0.0287

| Wald Statistics for Model 2			
Predictor	χ^2	d.f.	p
political affiliation	5.61	2	0.0606
municipality	7.47	7	0.3815
culture	10.89	5	0.0536
gender	4.81	1	0.0283
age	0.12	1	0.7321
TOTAL	28.95	16	0.0243

Table 3: Analysis of deviance tables of the two proportional odds models to predict the NEP total score.

The analysis of deviance (Table 3) showed that in both models, culture contributed the most to explaining the total NEP score of respondents. Other significant contributors included profession (model 1), political affiliation

(model 2) and gender (model 2). Fig. 2 provides more detail on the model predictions. Generally, the odds are substantially higher that environmental officers and land use planners will be more eco-centric than councilors (elected politicians). Respondents associated with metros (Buffalo City and Nelson Mandela Bay) and the provincial tier of government, were predicted to hold more eco-centric views than those from the smaller municipalities. Amongst the latter, the odds were marginally higher that respondents associated with the Kouga Municipality held more eco-centric views than those from the other municipalities. The implication is that eco-centricity as measured by the NEP-scale is related to the development status of the municipality (Kouga is the most developed amongst the smaller municipalities). In terms of culture, respondents of Xhosa origin were consistently predicted to have lower eco-centricity than other cultural groups. With regard to political affiliation, the odds of holding eco-centric views did not differ greatly amongst the two major political parties: the ANC-affiliated respondents had marginally lower odds than the DA ones but substantially lower odds when compared to politically independent respondents. Finally, the odds of females holding eco-centric views were higher than males.
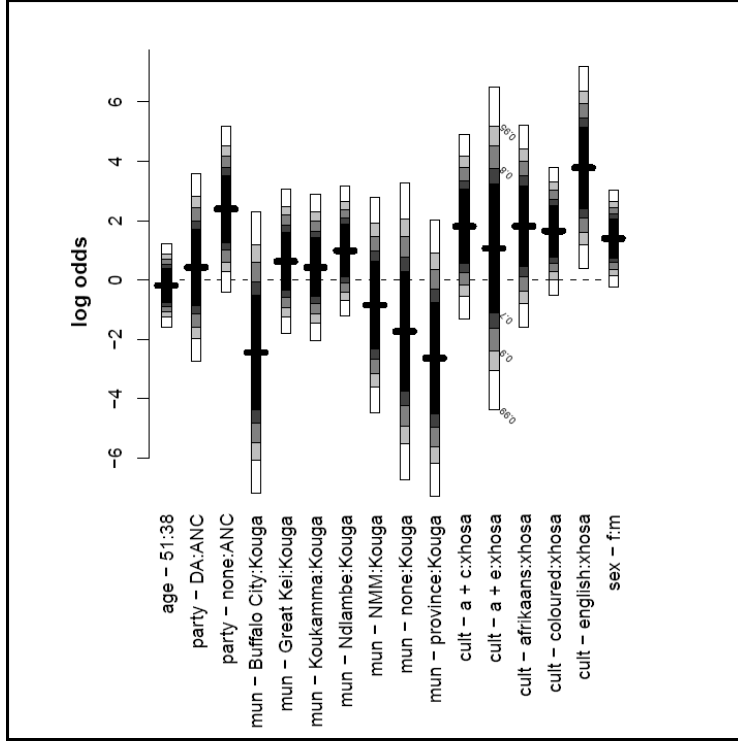
(a) model 1
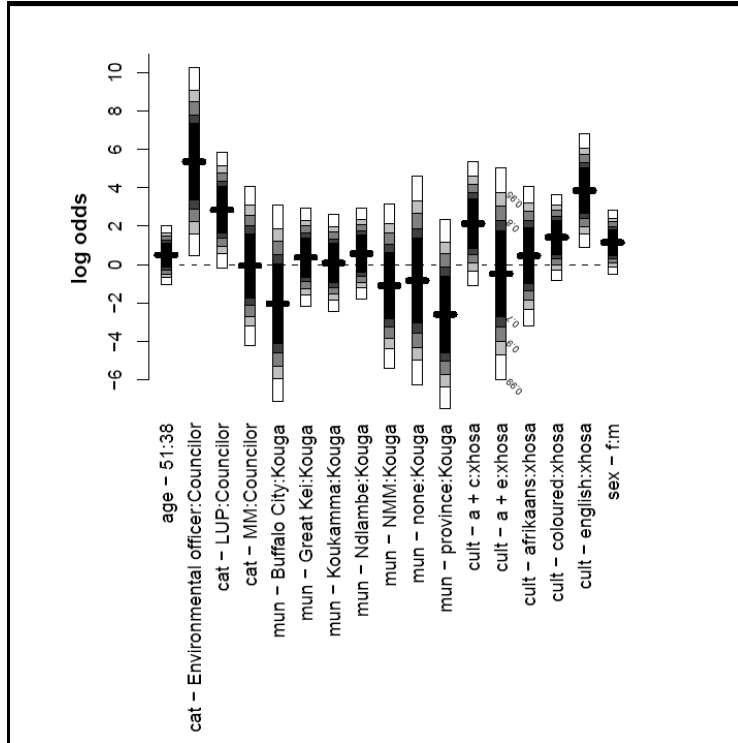
(b) model 2

Figure 2: Summary of the results of the two proportional odds models summarized in Tables 2 and 3. Each predictor (left of the colon) is compared to a reference level (right of the colon) and the odds of being more or less eco-centric are presented. The comparisons where the vertical bar is positioned on the positive side of the scale show that the predictor encompasses individuals who are more eco-centric than individuals belonging to the reference level. Confidence limits are described by the shading on the horizontal bar: black = <0.70%, dark grey = 70-80%, mid grey = 80-90%, light grey 90-95% and white 90-99%. cat = profession, mun = municipality, cult = culture, a = Afrikaans, c = Coloured, e = English, NMM = Nelson Mandela Municipality

The between-class principal components analysis clearly shows a strong relationship between NEP response and respondent's culture and profession (Fig. 3). As is the case in Fig. 1, the horizontal axis in Fig 3 represents a gradient of eco-centricity with low values clustered to the left of the origin and high values to the right. Both ordinations showed clear structure, which was supported by highly significant Monte Carlo tests. The analysis shows that respondents of English culture held the most eco-centric views while those of Xhosa culture held the least eco-centric views; Coloured and Afrikaans respondents occupied an intermediate position. In terms of profession categories, environmental officers held the most eco-centric views and councilors the least; land use planners occupied and intermediate position.
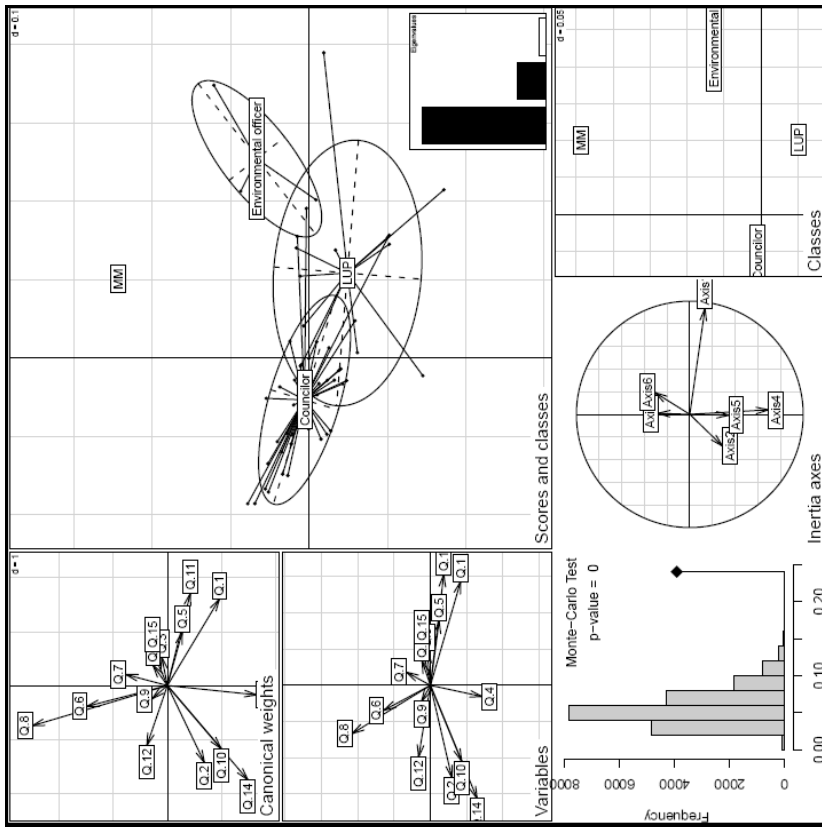
(a) Culture as cross-identifier
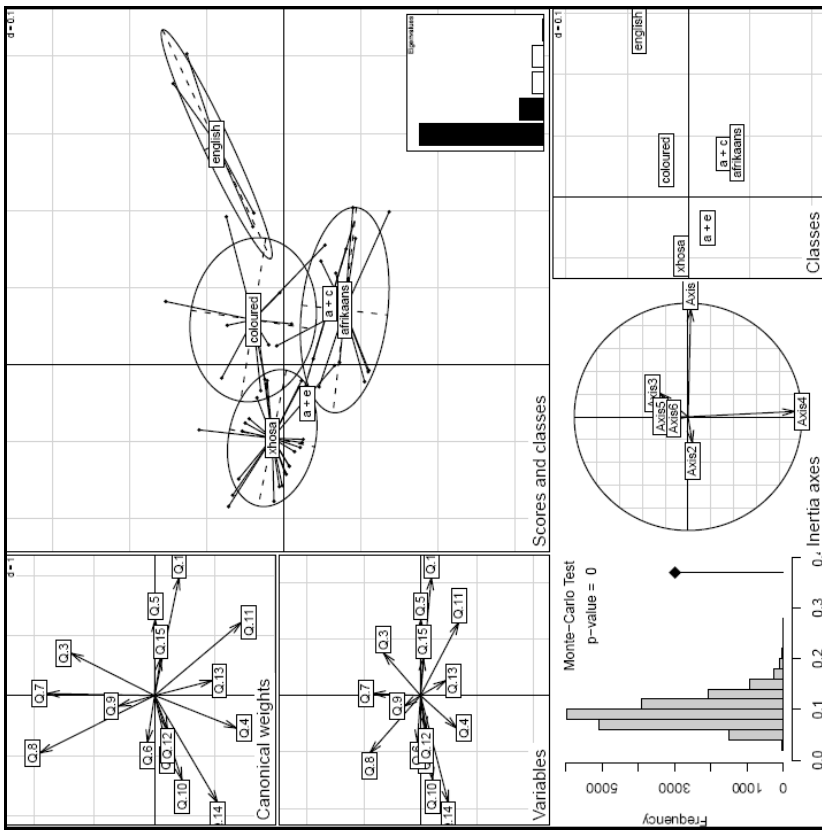
(b) Profession as cross-identifier

Figure 3: Summary of a between class principal component analysis of the South African data using culture (a) and profession (b) as the classifying factors. The "variables" "Canonical weights" provides the loadings on the ordination axes, describing which questions are most important in the formation of the axes. The "variables" panel depicts the relationships between questions and axes. The barycentres of the groups represent a weighted arithmetic mean of the scores to the questions of the NEP scale. Q. = question number, a = Afrikaans, e = English, c = Coloured, LUP = Land use planner.

Turning to the comparison between NEP and INS scales, the results for the subset of 37 councilors who completed both scales, the results are provided in Table 4. While Xhosa councilors had slightly lower NEP scale scores, the INS scores for this group were markedly higher than for non-Xhosa councilors. There

		Full dataset	Xhosa	Non-Xhosa
		n = 37	n = 21	n = 16
NEP Scale				
	Range (15-75)	29 – 64	29 – 54	31 – 64
	Mean	48.9	46.5	52.1
	Median	50	45	55
INS Scale				
	Range	0 – 100	0 -100	20 - 100
	Mean	79.3	88.3	67.5
	Median	100	100	55
Municipality	Koukamma	Kouga	Ndlambe	Great Kei
	n = 8	n = 13	n = 8	n = 8
NEP Scale				
Range	35 – 64	29 – 63	40 – 61	37 - 62
Mean	48.9	47.9	51.6	47.9
Median	49.5	60	55	46.5
INS Scale				
Range	50 – 100	0 – 90	50 – 100	80 - 100
Mean	88.7	53.5	93.7	97.5
Median	100	50	100	100
% Xhosa of n	50%	38.5%	62.5%	87.5%

Table 4: Results of the data on the NEP and INS scales of the 37 councilors dataset, differentiated according to culture and municipality.

was little variation in NEP scores among municipalities. The variation of INS scores stem predominantly from Kouga municipality. For the other three municipalities 19 of the 24 remaining councilors (79%) indicated 100% overlap between themselves and nature. In Kouga, one councilor chose 0% overlap, eight of the 13 councilors chose 50% or below.

There was a significant difference between NEP and INS scores for the whole data set (Table 5). However, this difference broke down when the Xhosa respondents were removed from the data set. Among municipalities, only the Kouga showed no significant differences between councilor's NEP and INS scale scores

Comparison	n	statistic (V)	p-value	95% conf int.		Sample estimate (pseudo) median
				lower	upper	
Complete dataset	37	535	1e−04	11.43	37.14	25.36
Excluding Xhosa Councilors	16	65	0.7927	−16.79	18.21	1.25
Great Kei municipality	8	36	0.0078	25.71	62.86	45.00
Kouga municipality	13	33	0.6111	−22.14	20.00	−8.04
Koukamma municipality	8	28	0.0156	28.57	42.86	36.07
Ndlambe municipality	8	31	0.0703	−0.71	54.29	25.00

Table 5: Exact Wilcoxon signed rank test (paired) differences between the INS and NEP total
scores of councilors from different cultural groups and municipalities.

Discussion

With regards to internal consistency, the results of Cronbach's Alpha are clearly in line with the requirements mentioned by Hawcroft and Milfont (2010) who report that various NEP scale publications they examined did either not report Cronbach's Alpha at all or report lower levels of internal consistency than generally considered acceptable (Nunnally 1978). The value of McDonald's

Omega that I recorded further confirmed that the data have an acceptable internal consistency.

The Procrustes analysis of the South African sample showed that South African respondents react in a similar pattern to the NEP questions than the representative USA population sample (Dunlap et al. 2000) did. It is therefore reasonable to state that the NEP scale is a meaningful instrument to assess eco-centricity in the South African context and with the local government target audience I worked with. However, South Africans show more contrasted beliefs and less uncertainty as compared to the Dunlap et al. (2000) sample. This finding is surprising, as the reaction of interviewees when presented with the questionnaire often revealed considerable insecurity, at times they even clearly expressed a lack of understanding of the questions. Five of the 37 councilors interviewed asked a question of understanding, e.g. "what do you mean 'we are approaching the limit of the number of people the earth can support'?" or "what do you mean by 'spaceship'?". A further nine of them clearly displayed signs of uncertainty. Studies using the New Ecological Paradigm scale in non-industrialized countries or on minorities are few. I could not locate any publications on the New Ecological Paradigm scale that used African respondents. In their meta analysis of 69 studies from 36 countries, Hawcroft and Milfont (2010) refer to only one study on African Americans (Johnson et al. 2004, using a 10 item NEP-scale), despite an explicit effort to sample from all cultures. Two NEP-15 studies on an African American student sample (Bun Lee, 2008) and a Brazilian sample of festival visitors (Kim et al. 2006), provide data on

somewhat comparable samples. The frequency distributions in both publications show considerably higher levels of uncertainty than the Dunlap et al. (2000) sample, as expressed by choosing "uncertain" on the Lickert scale.

The two proportional odds models provided indication that culture and profession are the key factors that differentiate groups in the South African dataset according to their NEP scores. This was confirmed by the between class principal component analysis. The result that "culture" is a key predictor of the total NEP score is consistent with other research (e.g. Johnson et al. 2004, Ignatow 2006, Schultz et al. 2000). I did not include socio-demographic factors like educational level or income as explanatory variables. Considering the apartheid history of South Africa (Beinart 2003, Cousins 2007), it is likely that the "cultural" factor is a complex multi component factor. However, for the purpose of conducting social assessments for conservation projects , I consider the finding that responses to the NEP questions discriminate between professions, especially between councilors and land use planners, as particularly noteworthy. The significance of this finding pertains to the use of the NEP scale as a tool that can be useful in conservation projects. At the outset of a conservation project a social assessment of the stakeholders concerned by the project and their social context should be conducted (Cowling and Wilhelm-Rechmann 2007, Cowling et al. 2008). NEP-scores could be used to assess the extent to which different groups of the stakeholder community are supportive of the principles promoted by conservation projects, and serve as a first insight into how different groups can best be accommodated in stakeholder engagement. Using (social) marketing

terminology, NEP could be used as an exploratory tool for market segmentation (e.g. John 2004).

In the same line, a more detailed analysis of the scores of specific questions could guide the development of appropriate arguments and promotional material that is suitable for the specific target audience (Jacobson 1999). The strong emphasis on question 6 and 11 (see Table 1) demonstrated in the Procrustes analysis indicate that arguments and promotional material that propagate "limits to growth" arguments are likely to raise considerable opposition in this target audience, more so if considering the security and strength of the conviction. Indeed, this aspect is also clearly mirrored in the interviews I conducted with the 37 councilors (Chapter 5): councilors showed a clear contrast between support for environmental protection and support for development issues, i.e. between ideas of environmental protection and a limitation to the growth and development they believe is required for their respective municipalities.

Conversely, there is a notably strong agreement in my target audience with the notion that plants and animals have as much right as humans to exist. The same notion was confirmed by my interviews (Chapter 4): councilors clearly showed that they do value their natural environment personally as well as for its tourism value, despite rather critical assessments of the conservation endeavor and a pronounced lack of understanding of the term "biodiversity" (Chapter 4).

NEP and INS could be seen as measuring similar albeit not clearly defined constructs. Schultz (2001) and Schultz et al. (2004) report a correlation between

NEP-scale and INS of 0.20 and 0.30 (p<0.01) respectively. However, in this South African sample, there is a poor relationship between these two scores, which is driven by the Xhosa component of the sample. The cultural aspect could explain the high level of connectivity to nature among the Xhosa in my sample. Xhosa culture is traditionally closely connected to nature; most religious practices involve parts of nature and are connected to natural features associated with the spiritual world of ancestors (Cocks 2006). I have employed the INS scale as a supplement to the NEP scale because it is the only short and simple graphical tool available to investigate how connected people feel to nature. ("Naturbilder" as used by Kuckartz et al. (2006) provide a set of more complex graphics not meaningful in the context of the project.) Most of my participants are not native English speakers and the level of education and training is highly variable compared to respondents from developed countries. I agree with Schultz et al. (2004) and Vargas et al. (2007) that implicit attitude measures would be useful to investigate the connectedness of my target audience to nature. However, the reaction times of most of my respondents to even give associations to simple words proved to be much longer than seconds; they clearly preferred to cognitively deliberate on the words despite explanations of how the measures work. A considerable number of my respondents lacked understanding for and experience with computer based assessments, which precluded using complex measurement machinery - in addition to budgetary constraints. I was not able to identify any other readily useable "low-tech measures of implicit attitudes" (Vargas et al. 2007, p 103) that would allow the measurement of attitudes to the

natural environment or environmental protection. Still, my interviews clearly indicated a contradiction in that councilors clearly expressed that they value their natural environment and, at the same time, that development was a priority that superseded by far any environmental issues (Chapters 4 and 5). Seemingly there is a dichotomy between being connected to, and concerned about nature, and the paradigms of everyday life in which human's perceive that their needs can only be met through the destruction of nature.

Such a contradiction, I propose, needs to be taken into account and could possibly be meaningfully used to further conservation efforts. Obviously connectedness to nature is a fundamental principle that conservation initiatives seek to further. Likely the contradiction should lead to a state of cognitive dissonance (Festinger 1957). Carefully making it explicit and highlighting it would likely support that the concern for nature emanating from this connectedness receives a more important role in consideration of everyday decisions that often result in the destruction of nature. The results may, however, also raise a note of caution in this respect. Arguably, Kouga municipality is the most developed of the four small and intermediate municipalities; certainly it has experienced the most fervent development in recent years. Issues of environmental and biodiversity protection have surfaced at many occasions for councilors and likely have contributed to cognitive processing and development of the worldviews and connectedness I have measured. Therefore, my results might suggest, that cognitive processing and experience with every day environmental issues actually undermine pre-existing positive connectedness to nature.

This study has some strengths and shortcomings. First, this South African sample is a very small fraction of a population, due to the primary purpose of the social marketing project. While the sample is nearer to the reality of conservation efforts, comparability to many other studies is questionable. Many investigations using the NEP scale have been conducted with student samples that are unlikely to reflect the thoughts of the general public, let alone those of specific groups, for example politicians, of importance for conservation outcomes. However, I suggest that using a validated instrument like the NEP scale in the development of conservation projects will further the use of science in practice and contribute accumulatively to testing theoretical models in real life settings.

The paucity of studies in Africa makes comparative interpretation difficult. The components of the "culture" factor (Hunter et al. 2010), and more specifically of the variety of cultures in Africa (four of them are represented in my sample), have, to the best of my knowledge not been investigated in relation to the NEP scale. But, as mentioned above, various publications and cross-cultural studies report that cultural settings have a considerable influence on individual questions and general mean scores of the NEP scale. The constituents of the "cultural" influence in South Africa warrant more detailed analysis than I could provide here.

I close with a consideration that reflects my practice-oriented approach. In my experience, the NEP questions and INS circles were very useful not only for measuring, but also for initiating thinking about the arguments investigated. Nearly all interviewees engaged in a discussion with me after having completed

the questionnaire, raising some specific point the questions had brought to surface or made them think about. Beyond its usefulness as a measurement tool, the NEP and INS should be used in practical settings as a tool to engage the audience and to spark discussion.

Acknowledgments

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Chapter 7

General conclusions

As described in the introduction, the aim of my project was to show that social marketing is a useful tool that can be meaningfully applied to further the conservation of nature. I believe that the preceding pages have demonstrated unequivocally the usefulness of the social marketing approach and, indeed, the customer orientation propagated in the marketing sciences (Nwanko 1995). However, a key criticism remains that the project did not result in a measurable behavior change and that key components of a social marketing project have not been achieved (Andreasen 1995).

With regards to a lack of measurable behavior change I can only affirm that my project represents the customer analysis and first steps in a social marketing project that clearly has to be developed further by agents other than a PhD student. A key obstacle to the behavior change of land use planners proved to be the lack of support of the political hierarchy, namely the councilors. Clearly,

to influence councilors and their political sphere towards embracing the use of the conservation maps, even in only four of the six municipalities, is beyond the means of a single postgraduate research project. This constraint underpinned the rationale for limiting the investigations of Chapters 4 and 5 to the small and intermediate municipalities: Nelson Mandela Metropolitan municipality has 120 councilors and Buffalo City municipality has 89 councilors.

Not unlike the situation described by Knight et al. (2010) regarding the STEP project, the potential of my project has not been realized in the conservation sector. Specifically, my research has failed to attract the interest of the Planning and Mainstreaming Division of the South African National Biodiversity Institute (SANBI). This is most surprising since the Mainstreaming and Land Use component of this Division has as its major focus "Mainstreaming biodiversity in municipalities and land-use decision making". Prof Cowling and I met with divisional heads at SANBI prior to the inception of this project in order to get their support and involvement. SANBI actually supported the project financially, albeit at a very low level. SANBI has been supplied with a list of the major recommendations emanating from the project but a response has yet to be received. This is very disappointing.

As an example of potential applications of my project, the interviews in both target groups were perceived very positively by interviewees and should have been used by SANBI's Planning and Mainstreaming Division as door openers, indeed as a foot in the door technique (Chapter 2), especially with

regards to the local political sphere. However, changes in staff, re-locating officials from Port Elizabeth to East London and an obvious emphasis on other – seemingly more important - projects reduced co-operation to predominantly (limited) financial support. For example, when reporting the results of my interviews to the Mayor of Great Kei municipality, he invited me to give a presentation to the full council about the project and "this biodiversity issue". Councilors enquired straightforward why this presentation was not being delivered in their (isiXhosa) language by some local representative of a statutory conservation organization. Ironically, the local SANBI official had informed me on the same day of the meeting that due to another commitment he would be unable to join me for the meeting. Considering the importance for mainstreaming conservation plans of establishing positively framed access to key local government agents in the administrative and political spheres, this is more than unfortunate.

As it became obvious from my work with administrators that political agents and priorities represent a core barrier to the behavior change goal for administrators, I endeavored to find an avenue to access the upper level politicians in my municipalities. In co-operation with the Friedrich Ebert Stiftung (FES), a German political foundation, using their political contacts, I was able to engage with Mr. Langa Zita, at the time Member of Parliament and the chairperson of the Portfolio Committee on Environmental Affairs and Tourism, who has his roots and home in the Eastern Cape. A workshop was devised that clearly included the two main issues of my research, namely land use planning

and local implementation of conservation maps, among other environmental issues. It needs to be pointed out that the FES had held prior workshops with the ANC members of the portfolio committee on various environmental issues and is highly experienced with establishing trustful relationships with political actors. The workshop took place in East London on 27 to 29 July 2008 and was successful in providing access to a number of key politicians and administrators in a positive and personalized atmosphere. To ensure continuity of my project and enable further co-operation between conservation and municipal actors, I ensured that the local representative of SANBI 's Planning and Mainstreaming Division, i.e. the person who needed to establish a personal contact with high-level administrative or political actors for her work, be invited. However, these efforts were undermined by high-level SANBI officials located in Pretoria who, when becoming aware of the workshop through their local employee, contacted the organizer (FES) directly with a demand that they be invited to address the meeting as programme speakers. This was not supportive for establishing trustful relationships and caused considerable disturbance as the co-organizer felt this to be an undue attempt by myself to force more conservation issues in the agenda. Still, the workshop did not only provide me directly with contacts that proved very useful for the further development of the project, it also confirmed that the approach of investigating and reporting on the difficulties of conservation from the perspective of the local sphere and addressing their needs is appropriate as it was very well received by participants. Still, a large part of the potential of the intervention was lost.

A key barrier to any behavior change project is habit and forgetfulness. As a prompt (Monroe 2003, Winter and Koger 2004) to remind land use planners to consider biodiversity in their work, I gave indoor pot plants to a number of administrators for their offices. Such prompts obviously have to represent in some way the behavior change goal they should support. Despite several contacts with SANBI, they were unable to provide me with some form of visual clue that could have been used to clearly link the plants to the conservation sector or the project. They indicated that it was not possible to simply use the STEP logo because SANBI had launched a new product in the interim, the Eastern Cape Biodiversity Conservation Plan (Berliner et al. 2007). None of the employees I contacted could indicate if and which logo could be used. For further interventions it should also be noted that, as reported by several officials, the plants I provided subsequently disappeared from the offices into the private sphere.

To assess if my project has been appropriate despite the absence of a proven behavior change, and in order to highlight again its idiosyncrasy it may be useful to assess it according to the eight benchmark criteria as published by the National Social Marketing Centre, UK (2008). These benchmark criteria are commonly used in the UK to discern if interventions in the preventive public health domain can be classified as social marketing and are therefore eligible for public funding (French and Blair-Stevens 2006). Most of these eight criteria re-iterate the components of a social marketing project as described in Chapter 2.

1: Customer orientation

Indeed the core component of my approach is centered on the attempt to understand how my target audiences relate to the behavior change sought. I have clearly not limited the investigation to exploring how the target audiences relate to biodiversity and to conservation maps but included their wider work context.

2: Clear focus on behavior

The project revolved around a clearly defined behavior as suggested by the product, the conservation maps. In my proposals (Chapters 3 and 4), I have clearly addressed the aspect of introducing the behavior as well as the maintenance of the behavior over time. Note that for councilors I did not provide a behavioral goal as clear-cut as for the land use planners. The conservation maps are highly sophisticated products useful foremost in the technical land use planning domain. For councilors, "using" the maps will likely be more superficial and a clear achievable behavioral target needs to be defined throughout further interventions. The following could be considered: Upon each decision on land use change: a) discuss the relevant content of the maps, b) visualize the maps, the erf concerned, the surroundings and impact of the proposed development, and c) introduce compulsory attendance of a conservation representative to explain relevant outcomes. With regards to achieving the adoption of the maps, the development of municipal policies may be a useful transitory target. Note that prior to reaching these, an approach as outlined in Chapter 4 will be necessary to engage councilors.

3: Theory

Social marketing approaches should be underpinned by behavioral models or theories (Chapter2) that can guide and give coherence to interventions. I have used the stages of change theory (Prochaska et al. 1992, Chapter 2) to assess in what stage land use planners are with regards to using the maps (Chapter3).

4: Insight

The formative research in social marketing should not be limited to ascertain for example attitudes on a specific issue. The results presented in Chapter 5 clearly show that the project provided a deeper insight into what moves and motivates councilors in their behavior towards conservation. I believe having provided an explanatory model for an experience shared by many South African conservationists: once they start talking about conservation or biodiversity an invisible wall appears and shields many administrators and politicians from any further consideration of arguments.

5: Exchange

The exchange paradigm that underpins the marketing approach is outlined in Chapters 2 and 3. Chapters 3, 4 and 5 provide the key barriers to the behavior change for both target groups. Based on these barriers I have shown how the conservation sector could use these, reduce the barriers and turn them to their advantage. I have indicated what incentives and recognition the target audiences value, including for example that both target groups perceive little need for additional information or insights from the conservation domain.

6: Competition

Competitor analysis is a key component of a marketing analysis to ascertain what competitive advantage a product can provide. The key competitor among councilors for conservation ideas as well as actions is clearly the need for development. I have shown in Chapters 4 and 5 that a variety of developmental needs are strong competitors to conservation.

7: Segmentation

Market segmentation (Chapter 2) is used in social marketing to enable interventions that are clearly tailored to a specific target audience. With regards to land use development in this project several groups operate within the planning process. Amongst these, land use planning officials are a clearly identifiable segment separate from land use planning consultants, landowners or developers. Within land use planning officials, I clearly differentiated between trained land use planners employed in the functional administrative context of the two metropolitan municipalities, and those land use planners that operate in the smaller municipalities. This segmentation was also based on the analysis of the degree to which the conservation maps were used.

8: Methods mix

Lastly social marketing projects do not rely on a single approach but use several approaches to support the behavior change. With regards to the interventions proposed I clearly go beyond providing information, and beyond biodiversity. For example I propose the use of a Trojan horse tactic, and to use land use planning to establish engagement with land use planners about

conservation issues. I propose that there should be further engagement with the administrative and political hierarchies, and to increase the recognition they receive. I also propose the use of conservation-effective prompts and appropriate communication materials be included in the mix.

My project, therefore, could be seen as fulfilling all eight criteria that constitute a social marketing project.

A further key component of any social marketing project that has not been addressed so far is monitoring (Ferraro and Pattanayak 2006). Ideally monitoring should be conducted at several levels. Firstly, monitoring of behavior change of land use planners could entail – over a specified period – assessment of the number of requests from land use planners to the person providing support and training on the use of the maps. Similarly, the degree to which councilors are changing their behavior to include biodiversity considerations in their decision-making, should be monitored. This could be accomplished e.g. by analyzing the documentation on council meetings in the municipalities. However, the availability of such documentation proved to be highly variable in the municipalities included in this study. Likely it would be more efficient and realistic to engage with persons who regularly attend council meetings like the municipal manager or administrative staff concerned with organizing the meetings. Councilors are likely to perceive such aspirations as an undue attempt to control them; political sensitivity is therefore required. Lastly and on a practical level it

will be necessary to extend monitoring to assess if the use of the maps actually results in better protection of areas of high biodiversity value.

I have investigated a number of research approaches that did not yield the results I had expected. Firstly, Rogers (2003) in his landmark treatise "Diffusion of innovations", describes the attributes of successful, rapidly mainstreamed innovations. They are perceived by people as providing them with an advantage; they are easily compatible with systems the target audience is familiar with; they do not exceed the complexity acceptable for the target audience; and they can easily be tried out and their use can easily be observed when others use them. The questions asked to ascertain how my target audience perceives these attributes of the conservation maps did not yield results (Chapter 3 Annexure 1). This was because either interviewees considered that they had adopted them already or because they had not had enough contact with the products to judge the attributes.

Secondly, Rogers (2003) describes that in any group of humans members have different roles with regards to how innovations diffuse. Diffusion is facilitated if opinion leaders adopt an innovation. The question "Where do you turn to for advice?" (Chapters 3 and 4, Annexures) aimed at finding out which personality would be considered as an opinion leader in the land use planning domain in the Eastern Cape. Most interviewees and especially Xhosa interviewees were very reluctant to provide me with specific names. Therefore, to conduct an analysis of the network in this domain was not possible. It became obvious from many

interviews that the head of the land use planning unit at the provincial level served as core informant for many land use planners, but this person has meanwhile resigned his position.

Thirdly, the questions regarding the role of Xhosa culture did not yield satisfying results. They aimed at investigating which themes from an advertising strategy point of view could be used to provide persuasive messages. Despite publications that assert that traditions play an important role in the lives of most isiXhosa speakers (Cocks 2003), this was not confirmed in my interviews. Very few of my interviewees were able to provide me with their favorite Xhosa story or with clear thoughts or wishes about the future of Xhosa culture (Chapter 4, Annexure 1). Possibly this was due to the high degree of cultural distance between interviewees and interviewer. This could be ascertained through in depth interviews administered by locals in isiXhosa.

Despite the failings discussed, I firmly believe that the actual value of my project goes beyond its influence in the Eastern Cape land use planning process. I have shown how the social marketing approach can and should be used meaningfully in the conservation context. The core component of marketing is customer orientation, i.e. the attempt to understand how customers see the offering, and to adapt products to their needs. I firmly believe that if the sector wishes conservation to become mainstreamed, the conceptual spheres of those NOT favorable to conservation ideals must be understood and strategically used.

This approach requires that conservationists and their institutions adopt a customer orientation perspective. This aim is very difficult to achieve as described for example by Nwanko (1995). To juxtapose the organization centered and the customer centered paradigms and mindsets I refer to Andreasen's (1995, pp 42 ff) rationale:

Organization centered	Customer centered
1. The organization's mission is seen as inherently good	1. The organisation's mission is seen as bringing about behaviour change by meeting the target's needs and wants
2. Customers are the problem because they have the "wrong" habits and ideas or are ignorant or unmotivated	2. The customer is seen as someone with unique perceptions, needs and wants to which the marketer must adapt
3. Marketing is seen as communications	3. Marketing encompasses a variety of factors in addition to communications
4. Marketing research has a limited role	4. Marketing research is vital as it provides the insight for well-founded action
5. Customers are treated as a mass	5. Customers are grouped into segments to closely tailor their program
6. Competition is ignored	6. Competitions is seen to be everywhere and never ending
7. Staff has either product or communications knowledge	7. Marketers are chosen for their knowledge of consumers

Table 1: Symptoms of organization and customer centered mindsets, adapted from Andreasen (1995, p 42)

My suggestion for further research would therefore be to investigate if and to what degree the elements of organization orientation, which usually prevent effective adoption of the customer perspective, are prevalent in conservation institutions or endeavors. This could be framed as a social marketing project with conservationists as target group and a behavior change target of adopting a customer oriented approach. The comment that impressed me most in my interviews was "conservationists are their own biggest enemy". Likely this and the findings presented in Chapter 5 could be remedied through the use of customer oriented approaches.

Obviously, the instance of using social marketing in a conservation context presented here cannot provide much insight into social marketing theory. The use of social marketing in the conservation domain needs to be explored much further. Naturally, I propose not only to roll out the approach presented here but to emulate it in different contexts, i.e. in other municipalities and provinces in South Africa and in other cultural contexts and countries in which systematic conservation planning assessments are used like the US, Australia or Brazil.

An obvious area of enquiry to develop a research agenda for social marketing in conservation would be the question of "what actually are conservation behaviors?". Unlike the psychological distinction drawn in Chapter 2, this question refers to behaviors and target audiences in the society that would effectively contribute most to making nature conservation a reality. For example, Pierce et al. (2005, p 441) refer to "sectors such as agriculture, forestry, mining

and land-use planning". Which explicit behaviors need to be modified and how is possibly obvious to conservationists active in these sectors. To develop appropriate behavior change goals conservation-friendly behaviors need to be made specific and attributed to explicit target groups. The social-societal determinants for these target groups and sectors in form of e.g. policies and incentives need to be explored and where necessary addressed in an upstream social marketing approach. Doubtless, much of this information is available, but its strategic use for behaviour change goals and the potential they offer for conservation remain underexplored. Expressed in marketing terminology: "new" behavioural products need to be explored and targeted.

A further dimension of meaningful enquiry would be to explore which ones of the variety of pro-conservation arguments are most effective in different conservation settings. While individual interventions need to be tailored closely to the intended audience and their needs, as emphasized, it is intriguing that the argument that other species have as much right as humans to exist is so intensely supported in the South African context (Chapter 6). It would be useful to investigate if this argument can effectively contribute to behaviour change and what other arguments (e.g. environmental and intergenerational justice, religious beliefs) are most persuasive in contexts of developed and underdeveloped worlds and within various segments. In marketing terms this would be an inquiry into most effective advertising strategies.

From a conservation practice point of view I believe my work highlights the following issue: practitioners should be empowered to identify anti-conservation

biases in the communities they work with and provided tools to work on overcoming them. This will likely entail a process of capacitating practitioners to work from an audience-centered mindset and employing approaches grounded in social rather than natural sciences.

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BETWEEN SYSTEMATIC CONSERVATION PLANNING AND IMPLEMENTATION

AT THE LOCAL GOVERNMENT LEVEL

DECLARATION:

In accordance with Rule G4.6.3, I hereby declare that the above-mentioned treatise/

dissertation/ thesis is my own work and that it has not previously been submitted for

assessment to another University or for another qualification.

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DATE: 25 January 2011