

Green nudges: Exploring the use of behavioural insights to accelerate the transition to sustainable development in South African municipalities

by
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Declaration

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Abstract

Natural resources form the basis of economic activity and are essential for life and well-being. Functioning ecosystems provide environmental goods and services that are essential to sustain human life. However, the global demand for environmental goods and services is beginning to outstrip supply. A number of authoritative studies warn that humanity is living beyond our ecological means. The transition to more sustainable systems of production and consumption therefore needs to be accelerated urgently. Structural issues including the way the neoliberal Western economic system views the environment, and the scale and complexity of the environmental problems, affect the pace of the transition to sustainable development. Policymakers increasingly understand that addressing the most pressing environmental issues requires behaviour change, also by individuals. However, people sometimes struggle to make the necessary changes in their day-to-day lives that will, collectively, have noticeable impact or reverse environmental decline. Even when people are aware of the need to change their behaviour, they remain faced with a host of psychological and social barriers to actually adopting pro-environmental behaviours. Calls for pro-environmental behaviour change necessitate a deeper understanding of human motivation, judgement and decision-making.

Behavioural science challenges the assumption of rationality as a foundation for the analysis and prediction of human behaviour. Behavioural science studies have shown that humans have “bounded rationality”. People do not always have access to all the necessary information for making fully informed decisions. Many decisions also are the product of automatic, unconscious processes of which our rational brains are hardly aware. Behavioural insights can improve public policy by taking into account what actually motivates human behaviour and decision-making and directing it towards pro-environmental outcomes.

This study aimed to synthesise behavioural insights from behavioural science research to inform public policy at local government level in South Africa. The objective was to increase the probability of success of public policy aimed at pro-

environmental behaviour change through the application of behavioural insights and tools such as “green nudges”. The methodology of the study was a literature review, as well as a review of secondary studies and experiments centred on behavioural science theories affecting human behaviour change, with the aim of identifying insights that may be used by local government in South Africa to improve public policy.

Opsomming

Natuurlike hulpbronne vorm die basis van ekonomiese aktiwiteit en is noodsaaklik vir lewe en welstand. Funksionele ekosisteme lewer omgewingsgoedere en -dienste wat noodsaaklik is om die menslike lewe te onderhou. Die wêreldwye vraag na omgewingsgoedere en -dienste begin egter die aanbod oorskry. 'n Aantal gesaghebbende studies waarsku dat die mensdom buite ons ekologiese middele leef. Die oorgang na meer volhoubare stelsels van produksie en verbruik moet dus dringend versnel word. Strukturele kwessies, insluitend die manier waarop die neo-liberale Westerse ekonomiese stelsel die omgewing beskou, en die omvang en kompleksiteit van die omgewingsprobleme beïnvloed die tempo van die oorgang na volhoubare ontwikkeling. Beleidmakers verstaan toenemend dat hoe om die dringendste omgewingskwessies aan te spreek, gedragsverandering vereis, ook deur individue. Mense sukkel egter soms om die nodige veranderinge wat gesamentlik 'n merkbare impak sal hê of omgewingsverval sal keer in hul daaglikse lewens te bewerkstellig. Selfs wanneer mense bewus is van die noodsaaklikheid om hul gedrag te verander, word hulle nog steeds gekonfronteer met 'n magdom sielkundige en sosiale hindernisse tot aanvaarding van werklike omgewingsgedrag.

Oproepe tot verandering in omgewingsgedrag vereis 'n dieper begrip van menslike motivering, oordeel en besluitneming. Gedragwetenskap rig 'n uitdaging aan die aanname van rasionaliteit as 'n basis vir die ontleding en voorspelling van menslike gedrag. Gedragwetenskaplike studies het naamlik getoon dat mense "begrensde rasionaliteit" ervaar. Hulle het nie altyd toegang tot al die inligting om volledig ingeligte besluite te neem nie. Baie besluite is ook die produk van outomatiese, onderbewuste prosesse waarvan ons rasionele brein amper nie bewus is nie. Gedragsinsigte kan openbare beleid verbeter deur wat menslike gedrag en besluitneming eintlik motiveer in ag te neem en dit op pro-omgewingsuitkomst te rig.

Hierdie studie het ten doel om gedragsinsigte van gedragwetenskaplike navorsing te sintetiseer om openbare beleid op plaaslike owerheidsvlak in Suid-

Afrika in te lig. Die doel is om die waarskynlikheid van sukses van openbare beleid wat op verandering in omgewingsgedrag gerig is, te verhoog deur die toepassing van gedragsinsigte en -instrumente soos groen “nudges”. Die metodologie wat vir die studie gevolg is, was 'n literatuuoroorsig, sowel as 'n oorsig van sekondêre studies en eksperimente gerig op gedragswetenskaplike teorieë oor hoe menslike gedragsverandering beïnvloed word, met die doel om insigte te identifiseer wat deur plaaslike regering in Suid-Afrika gebruik kan word om openbare beleid te verbeter.

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List of Acronyms and Abbreviations

BCE	Before Common Era
CH ₄	Methane
CO ₂	Carbon dioxide
DEFRA	Department for the Environment, Food and Rural Affairs
EUT	Expected Utility Theory
GCEC	Global Commission on the Economy and Climate
GDP	Gross domestic product
GGND	Global Green New Deal
GHG	Greenhouse gas
IoDSA	Institute of Directors in Southern Africa
IPCC	Intergovernmental Panel on Climate Change
MSA	Local Government: Municipal Systems Act, Act No. 32 of 2000
NEMA	National Environmental Management Act 107 of 1998
N ₂ O	Nitrous oxide
OECD	Organisation for Economic Cooperation
RCT	Rational Choice Theory
RSA	Republic of South Africa
SDG's	Sustainable Development Goals
SPT	Social Practices Theory
TERB	Theory of Environmentally Responsible Behaviour
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
UN	United Nations
US	United States
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific

UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
USA	United States of America
WCED	World Commission on Environment and Development
WWF	World Wide Fund for Nature

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Chapter 1: Introduction: Behavioural insights for sustainable development

1.1 Introduction

Natural resources form the basis of economic activity and are essential for life and well-being. Functioning ecosystems provide goods (such as water, timber, food, fuel and fibre) and services (for example recycling of waste, water purification, flood attenuation, recreational opportunities, carbon sequestration and sinks for pollution and waste) that are essential in sustaining human life (International Union for Conservation of Nature, 2018:2). However, the global demand for environmental goods and services is beginning to outstrip supply. Terrestrial biodiversity, marine life, cropland, grazing and ground water are being depleted, degraded or destroyed faster than it can be replenished. Waste and pollutants are building up in the world's oceans, in fresh water supplies and in the atmosphere, while carbon stores such as forests continue to be cleared for timber, agriculture and mining. More than a million species are threatened with extinction (Intergovernmental Science-policy Platform on Biodiversity and Ecosystem Services, 2019). The Millennium Ecosystem Assessment (2005), the United Nations Environmental Programme (UNEP) (2008), the World Bank (2010a), the Organisation for Economic Cooperation (OECD) (2016), the Intergovernmental Panel on Climate Change (IPCC) (2007a, 2007b, 2013, 2014, 2018), the World Wide Fund for Nature (WWF) (2012, 2014, 2016, 2017, 2018a, 2018b) and the Global Commission on the Economy and Climate (GCEC) (2015) are unanimous in their findings that human activities are negatively affecting the Earth's life support system. The IPCC (2014, 2018) warns that the planet is fast reaching ecological and climate tipping points that could lead to large-scale collapse of the ecosystem.

Given that resources on the supply side are largely finite, the demand for natural resources needs to be addressed urgently. Yet, despite the warnings that the current trajectory of human development is not sustainable, individuals, communities and society have not made the necessary changes to consumption patterns and behaviour to remain within planetary boundaries

(GCEC, 2015; WWF, 2018a). Behavioural science studies over the past 40 years are beginning to shed some light on the reasons why people may be behaving in this seemingly irrational way towards the environment. Research has shown that humans are not the rational, selfish agents presented by classical economic and planning theorists (Fehr & Schmidt, 2003:208; Thaler & Sunstein, 2008:7; Kahneman, 2011:411; Sunstein, 2013:40). Human beings are subject to psychological and social factors in their environmental decisions. They sometimes struggle to deal with complexity and uncertainty (Fogg, 2009:6; Sunstein, 2013:122). They are loss-averse (Thaler & Sunstein, 2008:33; Kahneman, 2011:283; Sunstein, 2013:64); they use shortcuts in their judgements about risk (Tversky & Kahneman, 1974; Thaler & Sunstein, 2008:23; Kahneman, 2011; Sunstein, 2013:69) with the result that their decisions may be biased (Kahneman, Slovic & Tversky, 1982; Gilovich, Griffin & Kahneman, 2002; Thaler, 2016). They are also strongly influenced by social norms and values (Holmes, Blackmore, Hawkins & Wakeford, 2012; Sunstein, 2013:65). These cognitive and social factors consequently are barriers to pro-environmental behaviour change for many people, even if they are aware of the environmental crisis.

1.2 Background

Local government in South Africa has an important role to play to facilitate the transition to sustainable development. The Constitution of the Republic of South Africa (RSA, 1996) and the national legal framework require government, including local government, to manage the environment in a sustainable manner. Local government has to deliver services in a way that is not detrimental to the environment and improves people's quality of life (RSA, 2000). Insights from behavioural science can assist government in South Africa to frame public policy in a way that promotes pro-environmental behaviour change, thereby accelerating the transition to sustainable development.

This study presents an analysis of literature addressing the nexus of sustainable development, public policy and behavioural science, including behavioural economics, to gain a better understanding of some of the

psychological, emotional and social factors that may influence people's behaviour towards the environment. Insights that can inform public policy at local government level in South Africa are synthesised. This study follows on from research into the concept of loss aversion and its implications for public policy by the author as part of the Bachelor of Public Administration (Hons) degree.

1.3 Rationale for the Study

People are now using resources far beyond the carrying capacity of one planet. It is estimated that the equivalent to 1.2 planets is already required to satisfy current consumption and waste production requirements (Global Footprint Network, 2016). If the current resource-intensive development patterns continue, the space and resources of 2 planets will be required to sustain human life by 2050 (Global Footprint Network, 2016). We are now technically operating in "ecological overdraft" where humanity's ecological footprint is greater than Earth's biocapacity (Earth Overshoot Day, 2018). Pushing the boundaries of the Earth's systems and processes in this manner could lead to dangerous levels of instability and increased risk for humans (WWF, 2016:12).

In terms of geological timescales, human beings advanced, in a relatively short period, from a small, vulnerable group to a mighty force affecting just about every corner of the Earth (WWF, 2016:10). Crutzen (2002) and others (Clark, Crutzen & Schellnhuber, 2005; Waters *et al.*, 2016; Steffen, Crutzen & McNeill, 2017) suggest that humans have entered a new geological epoch termed the "Anthropocene" or "Age of Man". The magnitude of the human impact on the planet is now so extensive that oceans are acidifying, species are disappearing at a rapid rate and the climate is changing (Sachs, 2015:xiii; WWF, 2016:10). This is clearly not sustainable. If our systems of resource extraction, production and consumption do not change, there is a risk that Earth could become much less hospitable to our modern, globalised society (Rockström *et al.*, 2009; Richardson, Steffen & Liverman, 2011).

Why then do people continue to engage in irrational, unsustainable behaviours towards the very environment that sustains them? The current paradigms of economic policy and planning, based on rationality, are clearly missing some important elements required to motivate individuals and groups to adopt more sustainable lifestyles. The academic conversation is starting to shift from how people “ought” to make decisions to how humans “actually” function as individuals and in social contexts (see e.g. Tversky & Kahneman, 1973; Kahneman, 1994, 2000, 2002, 2011; Ariely, 2009; Thaler & Sunstein, 2008). Insights from behavioural science can assist to formulate more mindful and responsive public policy, working “with” people, rather than “against” human nature, in the transition to sustainable development.

1.4 Research problem

How to bring about the massive societal shift that is required to transition to sustainable development is one of the most confounding challenges facing governments today. A growing number of authors are advocating that the sustainability transition can be accelerated by adopting policies and approaches that target individual behavioural change towards the environment (e.g. Beratan, 2007; Rauschmayer, Bauler & Schöpke, 2013). In the development of public policy for sustainable transitions, government needs to look beyond rational economic and planning models to broader social and behavioural sciences, better to understand where society is headed, what humans actually need and how people may react to regulations and policies that require a change of behaviour towards the environment.

1.5 Research aim and objectives

The aim of this study was to synthesise insights from behavioural science research to inform public policy at local government level in South Africa. The purpose is to increase the probabilities of success of pro-environmental behaviour change through policy initiatives and thereby support the sustainable development transition.

This study was therefore aimed at answering the following research question:

How can local government in South Africa apply behavioural insights in public policy to promote pro-environmental behaviour and accelerate the transition to sustainable development?

The researcher explored this problem by answering three key sub-questions:

1. Why is progress towards sustainable development so slow and difficult and how can governance and public policy assist in accelerating the sustainability transition? (Chapter 2)
2. What do the literature and secondary studies reveal about insights from behavioural science affecting human behaviour change? (Chapter 3)
3. How can local government in South Africa use behavioural insights in the formulation of public policy to accelerate the transition to sustainable development?
(Chapter 4)

1.6 Definition of terms and concepts

1.6.1 Sustainable development

The right to live in an environment “that permits a life of dignity and well-being” was first recognised internationally in 1972 when the Stockholm Declaration, formulated during the United Nations (UN) Conference on the Human Environment, expressly linked environmental protection to human rights (UN, 1972). The book “The Limits to Growth”, published that same year by the Club of Rome, argued that the current trajectory of economic growth was on a collision course with the planet’s finite resources and that this would lead to overshoot and collapse (Meadows, Meadows, Randers & Behrens, 1972).

Concerned about evidence of on-going ecological degradation, the UN General Assembly in 1983 created the World Commission on Environment and Development (WCED), also known as the Brundtland Commission, to formulate “a global agenda for change” (WCED, 1987). “Our Common Future”, the Commission’s report published in 1987, strongly stated that development and the environment are inextricably linked (WCED, 1987). “Sustainable

development” was presented as a solution to the problem of on-going environmental degradation (WCED, 1987). The Commission defined the concept of sustainable development, as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987:43). The definition contained four important concepts: Firstly, the concept of “needs” in the context of what populations believe they require to sustain their lifestyles; Secondly, the concept of limitations imposed on populations’ use of resources and the ecosystem’s assimilative capacity to absorb waste and pollution (Daly, 1990:1). The third concept concerned intergenerational equity, which allows future generations to meet their needs (Mebratu, 1998:501; Hattingh, 2001). The fourth concept focused on intra-generational equity, such as between nations, and between groups of people, based on the “pursuit of quality of life insofar as it is compatible with similar quality of life for all” (Holland, 2017:296).

As an analytical concept, sustainable development recognises the maintenance of healthy ecosystems as a pre-condition for human well-being. Sustainable development, then, implies a development option that enables economic and social progress without compromising the natural system on which it is based (Sachs, 2015:3). As a normative approach, sustainable development is concerned with both the quality of people’s lives and good stewardship of the natural environment (Hattingh, 2001; Sachs, 2015:12). In terms of a normative, or ethical, outlook on the world, sustainable development represents “our shared aspirations for a decent life, combining economic development, social inclusion, and environmental sustainability” (Sachs, 2015, XIII). A sustainable society (or sustainability) is presented as the overall goal and sustainable development a process to move towards that goal (Sachs, 2015:11). From an ethical viewpoint, Hattingh (2001) argues that inter-generational justice (concern for future generations), intra-generational justice (concern for the poor) and respect for life underlie the moral decisions that we need to make when we address sustainability. These concepts are important in the debate on what justifiable economic and social development is. Achieving sustainable development requires certain value-choices. All those affected

must be allowed to participate in discussions and policy decisions made (Hattingh, 2001).

The three-pillar conception of sustainability (economic, social and environmental), also referred to as the “triple bottom line” or the “3P’s” approach (people, planet and prosperity or profit), has become ubiquitous. However, sustainability often is interpreted as a compromise between the three domains of economy, society and the environment (Seebode, 2011:8). This viewpoint is often presented as three concentric circles with overall sustainability achieved where the circles overlap as depicted in Figure 1.1 (Purvis, Mao & Robinson, 2018). Although this representation has proven useful, it is problematic. “It assumes that the domains are separate, even autonomous, ignoring the fundamental connections between them” (Seebode, 2011:8). The three overlapping circles also imply equal weighting (Adetunji, Price, Fleming & Kemp, 2003:164) and, at the most extreme, the model suggests financial (or economic) capital could be a substitute for natural resources (Seebode, 2011:8). Free market advocates and those intent on maintaining the economic status quo often use the triple bottom line model to call for a “balance” between economic, social and environmental concerns. However, to balance also means trade-offs and compromises, leading to a lose-lose situation that is not in line with the original definition of sustainable development (Hopwood, Mellor & O’Brien, 2005:48).

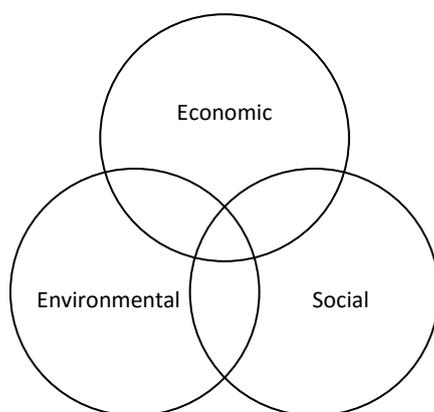


Figure 1.1: Concentric circles or “triple bottom line” model of sustainable development (Giddings, Hopwood & O’Brien, 2002).

The embedded approach, also called the “nested model” is depicted in Figure 1.2. It derives from systems thinking and views the natural environment, social and economic systems as complex, interrelated systems, underpinned by a governance system (Sachs, 2015:8). This implies that social and economic development must take place within the boundaries of what the ecosystems can sustain. “This holistic view breaks down barriers between sectors and disciplines. This interconnectedness is the key to sustainable development” (Seebode, 2011:8). Recent scholarship has extended the 3P model by adding the individual at the centre, creating the “4P” approach. Placing the “person” in the middle indicates that “change starts with you and me: individual people taking personal responsibility for their private, professional and public lives” (Seebode, 2011:8).

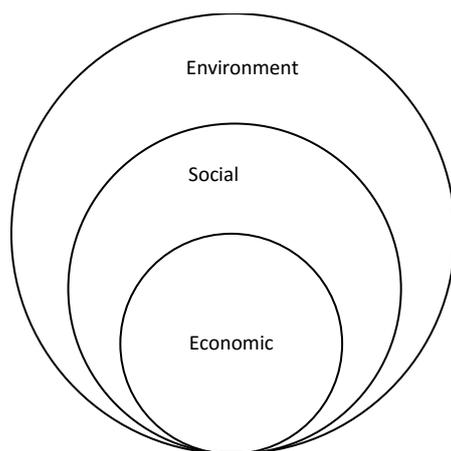


Figure 1.2: Nested model of sustainable development (Giddings, Hopwood and O’Brien, 2002).

The question is sometimes posed whether sustainability and sustainable development are still valid goals to pursue. Campbell (1996:296) argues that the concept of sustainability is vulnerable to criticism of “vague idealism” built upon a “romanticised view of pre-industrial, indigenous, sustainable cultures” that predated our modern, industrial, unsustainable world. Other authors have questioned the moral stance of sustainability, especially if it means that environmental protection might override the claims of poor and hungry people (Beckerman, 1994:191). Holmberg (1994:20) believed “sustainable development as a concept has become devalued to the point where, to some,

it is now just a cliché”. However, there are many problems associated with unsustainable development including depletion of resources, pollution, loss of biological diversity, climate change and growing levels of inequality between the rich and the poor. Sachs (2015) advances the argument that that these issues will not be solved by economic development alone. Despite the challenges and contestations of the concept of sustainable development, many authors (including Hattingh, 2001; Clark *et al.*, 2005; Hopwood, Mellor & O'Brien, 2005; Sachs, 2015; WWF, 2016) therefore argue that sustainability and sustainable development remain important within the policy framework and should not be discarded. Clark *et al.* (2005:18) conclude that, even “if achieving sustainable development in some ultimate sense may seem problematic, promoting a transition towards sustainability should not”.

Sustainable development remains the cornerstone of international environmental governance. In 2012, the UN General Assembly reaffirmed its commitment to sustainable development by adopting “The future we want” at the UN Conference on Sustainable Development (Rio + 20) (UN, 2012). This paved the way for the adoption of 17 Sustainable Development Goals (SDGs) by member countries in 2015 (UN, 2015). The SDGs and 169 targets thereof form the basis of the United Nation’s 2030 Agenda for Sustainable Development (UN, 2015), setting out an integrated and long-term approach to aspire to a future that is secure, sustainable, prosperous and fair and in which no one is left behind.

1.6.2 Pro-environmental behaviour

People constantly interact with the environment. By definition, all human behaviour could be referred to as some form of environmental behaviour (Krajhanzl, 2010:251). However, the term “environmental behaviour” does not indicate whether the behaviour in question contributes to protection of the environment (pro-environmental) or destruction of the environment (anti-environmental). In the literature, pro-environmental behaviour is used interchangeably with environmentally responsible behaviour, sustainable or “green” behaviour, environmentally-friendly behaviour, ecological responsible

behaviour, sustainable consumption and ethical consumption (Carrington, Neville & Whitwell, 2010).

Kollmuss and Agyeman (2002:240) define pro-environmental behaviour as “behaviour that consciously seeks to minimise the negative impact of one’s actions on the natural and built world”. Krajhanzl (2010:252) provides a more complex definition of pro-environmental behaviour as “behaviour which is generally (or according to knowledge of environmental science) judged in the context of the considered society as a protective way of environmental behaviour or a tribute to the healthy environment”. Steg and Vlek (2009:309) note that pro-environmental behaviour “harms the environment as little as possible, or even benefits the environment”.

Examples of environmentally responsible behaviour include use of public transport and non-motorised transport, car sharing, reduction in energy and water use, use of renewable energy, reducing greenhouse gas (GHG) emissions, eating a plant-based diet and/or locally sourced, seasonal and organic food, recycling of waste, donating or reusing products, home composting, collecting rain water and reducing the use of bottled water (Kerr, 2012:13). Responsible environmental action could also relate to a person’s personal norms and sense of obligation towards the environment, for example through activism (Stern, 2000:412).

Sustainable consumption is another form of environmentally responsible behaviour. De Castro (2001) describes sustainable consumption as “the actions undertaken by a consumer or a group of consumers that lead to the conservation of the natural environment and the welfare of current and future society”. Carrete, Castaño, Felix, Centeno and González (2012) identify non-consumption or curtailment behaviour and resource efficient technology choices as two forms of “green” consumer behaviour. Examples of non-consumption or curtailment behaviour include water and energy conservation where the actions do not cost more (in fact, can actually save money) but it may require extra effort and could cause discomfort. Resource efficient technologies, for example solar water heaters, low energy lights and appliances and water-efficient taps use fewer scarce resources while still providing the

service. Consumers wield enormous influence, especially when they act collectively. They can send strong signals to corporations and government by changing their purchasing behaviour and, where necessary, supporting boycotts and petitions that demand change.

1.6.3 Green Economy

The green economy was conceptualised as a response to UNEP's call for a Global Green New Deal (GGND). The GGND encourages governments to use stimulus packages and other funding mechanisms to support economic transformation towards a greener economy (UNEP, 2009). The premise is that countries able to transform their economies should be resource efficient and low carbon and pro-employment would be better positioned to take on major environmental, social and economic challenges such as urbanisation, scarcity of resources and climate change. Advocates of the green economy see it as a long-term, pro-growth strategy that does not have to limit the economic aspirations of rich or poor countries (UNEP, 2018). Reducing risk, protecting people and property from natural disasters and investing in urban ecosystems have many benefits, including improved human health, mitigating climate change, creating employment opportunities, creating educational and recreational spaces, protecting biodiversity, and promoting tourism (UNEP, 2018). The green economy "promotes the transition to economies that are low carbon, resource efficient and socially inclusive" (UNEP, 2018). An inclusive green economy builds social equity and improves well-being while reducing environmental risks (UNEP, 2018).

Although it is a relatively recent term, the concept of the "green economy" is not new. The Brundtland Commission (WCED, 1987) advocated production of commodities using fewer resources and with fewer negative environmental impacts, and changing the patterns of consumption. The aim of the green economy is to de-link economic growth from negative environmental impacts (Næss & Høyer, 2009:74), thereby growing the value of economic activity without growing the amount of physical material and energy being used – essentially "doing more with less" (Daily & Ehrlich, 2017:166). The focus of the green economy is on providing low-carbon, efficient and clean technologies,

goods and services. In addition, carbon-capture and storage and market instruments such as carbon pricing, carbon trading and carbon tax contribute to the green economy. In a green economy, it is anticipated that the cost of green technologies such as renewable energy will reduce over time as more entrepreneurs and businesses enter the market and the products and services become mainstream. Many governments have introduced incentive schemes to bring resource-efficient technologies to market quicker, thereby stimulating the “green economy”.

1.6.4 Behavioural science and behavioural insights

Behavioural science is the study of human behaviour. It is a branch of science that deals primarily with human action. Behavioural science takes an interdisciplinary approach to studying human behaviour and explores activities and interactions between people. Applied behavioural science links behavioural theory with practice from the top down by understanding behavioural science frameworks and models; developing behavioural interventions; and conducting actual experiments to test and learn (Samson, 2015:9). In the sphere of human judgement and decision-making, the picture that emerges from behavioural science studies is that of busy people trying to cope in a complex world while confronted with multiple choices and not having enough time to consider every choice they have to make with care. Individuals therefore adopt sensible “rules of thumb”; However, these can sometimes lead them astray. People also sometimes make poor decisions that they would not have made if they had unlimited self-control, complete information and had paid full attention. Behavioural interventions such as defaults and providing feedback can “nudge” people to make better decisions for themselves and for the planet.

Behavioural insights are “lessons derived from the behavioural and social sciences, including decision-making, psychology, cognitive science, neuroscience, organisational and group behaviour” (OECD, 2019). The Organisation for Economic Cooperation (OECD, 2019) views behavioural insights as “an inductive approach to policymaking that combines insights from psychology, cognitive science, and social science with empirically-tested results to discover how humans actually make choices”. The aim of behavioural

insights is to support public policy by introducing evidence of actual behaviour and biases of people and designing behaviourally informed policy interventions.

1.6.5 Bounded rationality

Rational choice theory, which underlies most mainstream academic assumptions and theories (including economics and planning), assumes that rational individuals will weigh up the options and make decisions that maximise their own benefits and minimise their own costs if the correct information is available (Benington, 2011:41; Cummins, 2012:32). Supporters of rational choice theory argue that people in complex situations that require overt reasoning would use available knowledge pertaining to facts and options and pertinent previous experience to calculate the probability that a given choice will provide optimum utility (Cummins, 2012:33). Utility is the satisfaction or desirability of a decision or choice (Cummins, 2012:32). The concept of expected utility developed by Daniel Bernoulli in 1738 is based on an understanding that a reasonable person will evaluate outcomes by the total satisfaction (or utility) of the final asset position.

Simon (1947), in attempting to develop a complete theory of human behaviour, identified a discrepancy in theories of the time that assumed that economic agents are intentionally rational – in other words, that they valued rationality as a criterion of choice. Simon (1947) questioned the capacity of agents to follow the “steps” involved in rational decision-making – listing all the possible behavioural alternatives; determining the consequences that may follow (either deterministically or through distribution of probabilities); comparing alternatives; and evaluating the utility, profit or other pay-off. To follow the steps would require knowledge of all possible behaviour alternatives and the ability to evaluate the future consequences of each alternative (Simon, 1947:80). This being clearly beyond the ability of the average person, he concluded that human beings have “bounded rationality”. Bounded rationality is the notion that individual decisions are restricted by cognitive limitations, the complexity of the problem and the time available to make the decision. Simon (1956) showed that the human mind compensates for these limitations by exploiting what they already know about their environment. He argued that decision-makers will

seek a satisfactory solution, as it is not always possible to make an optimal choice. The concepts of bounded rationality and “satisficing” developed by Simon accept that perfectly rational decisions often are not feasible because of the intractability of the problems people face and the finite resources at their disposal to make decisions (Simon, 1947, 1956). Simon received the Nobel Prize in Economics in 1978 “for his pioneering research into the decision-making process within economic organizations” (Nobel Prize, 2019a).

1.6.6 Behavioural economics

Kahneman and Tversky’s research demonstrated that people are very different to the “rational economic man” (Cartwright, 2011:7). Their insights gave rise to a sub-field of economics called behavioural economics. Behavioural economists study the effects of cognitive, behavioural, emotional and social factors on economic decisions made by individuals. In the field of behavioural economics, it is not assumed that people are perfectly rational, calculating automatons (Mullainathan & Thaler, 2000; Kahneman, 2011). Behavioural economics accepts that humans are subject to myriad forces, not only market cues. Therefore, behavioural economics is interested in the limits of rationality of economic agents (Mullainathan & Thaler, 2000; Kahneman, 2011) and “works constructively with the standard economic model to get a better understanding of economic behaviour” (Cartwright, 2011:4).

Behavioural economics experiments have highlighted some common mistakes in thinking that can lead perfectly “rational” consumers to, for example, discount the value of the environment that sustains them, or fail to adopt behaviours that, on balance, will be good for them and the planet. Whereas traditional economics assumes “Homo economicus”, the economic man, does not have a problem with difficult choices, behavioural economics recognises that “Homo sapiens” is not always in a position to choose optimally (Kahneman, 2011). Actual people make biased forecasts; they are not always able to distinguish between options; they may not have all the information needed for decision-making; uncertainty appears risky; perceived threats take psychological priority over opportunities; and people do not necessarily respond to incentives

(Mullainathan & Thaler, 2000; Thaler & Sunstein, 2008:7-9; Ariely, 2010:6-7; Kahneman, 2011; Thaler, 2016).

Behavioural economists thus advocate that policymakers cannot rely on rational economic theories alone to formulate plans and policies. People often depart from rationality both in judgements (beliefs) and in choice. This is particularly true when people are faced with complexity, when they are in social settings, or when values and emotions are involved (Mullainathan & Thaler, 2000). Behavioural economists advocate for a deeper understanding of human frailty and finding “more compassionate, realistic and effective ways for people to avoid temptation, exert more self-control and ultimately reach their long-term goals” (Ariely, 2010:9).

1.6.7 Green nudges

Cartwright (2011:451) defines a nudge as “a change in the framing of a decision in a way that helps people make better choices.” Sunstein (2014:2) argues, “nudges steer people in a certain direction while maintaining freedom of choice”. “Nudges take into account individuals' intuitions, emotions and automatic decision-making processes. These processes can be triggered with simple cues and subtle changes to the choice environment...” (Benartzi *et al.*, 2017:23). Nudges aim to alter people’s behaviour “in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler & Sunstein, 2008:6). One of the reasons why nudges have sparked interest in the public policy arena is the relatively low cost of interventions. Since government already spends considerable resource on influencing behaviour using “hard” approaches such as taxes, incentives and legislation, the same investment could be maximised if policymakers could also draw on behavioural insights into how people actually behave (Dolan, Hallsworth, Halpern, King & Vlaev, 2009:15). For example, changing the default is relatively cheap to do, compared to changing tax systems or incentives (Cartwright, 2011:450). Nudges complement traditional policy initiatives, generating high impact per dollar spent (Benartzi *et al.*, 2017:23). Given the substantial return on investment observed from nudges across the public policy spectrum, “nudging has rightfully earned its place in public policy as an effective, efficient, and

relatively low-cost lever for addressing knotty challenges grounded in very human ‘irrational’ behaviour” (Reid & Schmidt, 2018).

“Green nudges” are nudges specifically designed to promote pro-environmental behaviour (Schubert, 2017:330). Green nudges can also assist in encouraging greater compliance with environmental legislation. Although there will always be people intent on breaking the law, the lesson to public policy from behavioural science is to thoughtfully design choice environments, rules and regulations in ways that do not invite unethical behaviour from ordinary people.

1.6.8 Environmental governance

The United Nations Development Programme (UNDP) defines governance as

the exercise of economic, political and administrative authority to manage a country’s affairs at all levels. It comprises mechanisms, processes and institutions through which citizens and groups articulate their interests and their legal rights, meet their obligations and mediate their affairs. (UNDP, 2012:3)

The World Bank (1991) describes the activity of governance as “the exercise of political authority and the use of institutional resources to manage society’s problems and affairs”, while the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) views governance as “... the process of decision-making and the process by which decisions are implemented” (UNESCAP, 2009). The focus is on the process of governing, rather than the institutional framework, and includes the legislative framework, processes around policy development and various delegated powers and responsibilities. The King IV Code on Corporate Governance (King IV), the fourth in the series published by the Institute of Directors in Southern Africa (IoDSA), identifies key roles and responsibilities in relation to governance, including ethical leadership, sustainable decision-making, integrated reporting and disclosure, and fair and transparent interaction with stakeholders (IoDSA, 2016). Oversight is a crucial role in governance. Oversight also includes avoidance of abuse and guarding against under-performance.

Good governance is associated with democracy and upholding the rule of law (UN, 2012b:4), effective management of resources, transparency, inclusiveness, efficiency, effectiveness and responsiveness to the needs to citizens (UNESCAP, 2009; UN, 2012b:3). Good governance creates a sense of security and well-being (Sachs, 2015:12). The King IV report highlights the positive effects or benefits of good governance, “including ethical culture, good performance, effective control and legitimacy” (IoDSA, 2016). Sustainability is an essential part of good governance. The question is whether our decisions can stand the test of time.

Nel and Du Plessis (2004:183) define environmental governance as “the collection of legislative, executive and administrative functions, processes and instruments used by government to ensure sustainable behaviour by all as far as governance of environmental activities, products, services, processes and tools are concerned.” Environmental governance implies an “endeavour to govern behaviour by setting rules, standards and principles by means of legislation, administrative and executive functions, as well as processes and instruments” (Kotzé, 2005:37). The concept of good environmental governance was introduced in the publication “Our Common Future” (WCED, 1987) as part of Agenda 21 at the 1992 Earth Summit in Rio de Janeiro. Good environmental governance promotes environmental justice and is an important foundation upon which to build sustainable transitions. Thornhill, Bulman, Evans and Sampson (2002) note that good environmental governance

... hinges on the awareness that the state of the environment affects everyone, and that environmental management places people and their needs at the forefront of its concern. It therefore adopts a human rights approach to governance and implies that government is accountable to the people.

1.6.9 Public policy

Policy making is an important management function. Lasswell and Kaplan (1950:71) refer to policy as “a projected program of goals, values and practices.” Policy is a deliberate system of principles that outline socially accepted norms and practices, an authoritative “declaration and

implementation of intent” (Ranney, 1968:7), implemented through legislation, procedures or protocols. Policy therefore provides for a measure of predictability in the allocation of scarce resources. Policies can assist where subjective decisions must be taken by assisting decision makers to weigh up the relative merits of factors that cannot be objectively tested.

Public policy emerged as refinement and elaboration of the traditional study of public administration involving policy design and implementation to address a new generation of global problems. Public policy thus is a pattern of action by government and represents what government actually does, for example protecting the environment, regulating trade and providing social services (Wissink, 2000:28). Dye (1987) describes public policy as a consistent course of action within a comprehensive framework of interaction based on “authoritative statements made by legitimate public institutions about the way in which they propose to deal with policy problems” (Fox & Meyer, 1995:107). Anderson (2003:3) and Wissink (2000:27) emphasise that public policy is a goal-orientated plan by government, formulated and adopted through a specific political process in response to a specific problem. The aim is to improve or promote general welfare, rather than individual gain. Sustainability is an intrinsic principle in public policy and, as a future-orientated action, should consider the aspirations and needs of current and future communities (Wissink, 2000:35).

Public policy requires critical, robust and thorough investigation and analysis of policy problems. The public policy-making process is a continuous process with many feedback loops, with evaluation and verification being essential. In the policy life cycle, it is important to understand the underlying value framework, alternative policy perspectives and possible causal linkages. These insights assist policy makers to structure policy problems effectively (Dunn, 2016). The study of public policy is ethically and intellectually demanding. Conversely, a possible failure of public policy is that the process to formulate public policy may lack ethical integrity or intellectual rigor, or both.

The concepts of bounded rationality and “satisficing” developed by Simon have found application in public policy, where it is frequently not feasible or cost-

effective to evaluate all possible policy options before making a decision (Dunn, 2016). Adopting this approach has advantages for public policy makers in that it recognises the increasing complexity in the policy-making arena and the need for incremental changes and improvements (Wissink, 2000:42).

1.6.10 Public value

Sound public management creates and protects public value. Public value extends beyond the ideological obsession with (rational) market processes and “entrepreneurship” of the contemporary “New Public Management” approach (Alford, 2008; Benington, 2011; Gerrans, 2015). In the wider discourse about public service reform, public value is viewed as a framework for a new approach to public management (O’Flynn, 2007). Moore (1995) and Benington (2011) are among a growing number of authors who believe that public managers, as stewards of public assets, have an important role to play to maintain and optimise the resources entrusted to them in the same way that private sector managers are the custodians of private value (O’Flynn, 2007:358; Benington & Moore, 2011:4). This distinction is supported by Hefetz and Warner (2004:171) who maintain that public managers do not only steer market processes, but balance political and technical concerns to secure public value. Moore (1995) advocates that governance and the processes of decision-making and implementation should ultimately be aimed at protecting and conserving public value as opposed to private interests.

Public value speaks to a management culture that is concerned with outcomes rather than administrative process (Burger, 2014:8). Adding value is a way of thinking as much as a way of doing. However, the public sector cannot create public value alone and Benington (2011) emphasises the role of both external stakeholders and the public to generate public value outcomes. Governments can play a role to align the resources of the various sectors to achieve specific public value goals (Benington, 2011:46).

Not all authors agree with Moore’s framework of public value. Rhodes and Wanna (2007) argue that Moore is wrong on several fronts, in particular with regard to the loose definition of public value that is used and the applicability of

the concepts in governance models, with a sharp distinction between the roles of elected representatives and public managers. Alford (2008) responds to Rhodes and Wanna's (2007) critique, citing contemporary thinking about the convergence of the roles of politicians and public managers and the need to generate innovative policies and programmes that respond to challenging public needs. Sadly, many government actors, including politicians and public managers, still do not understand their role as the custodians of public good. Instead, policies and planning often disregard the long-term need to conserve and sustain natural resources and actively promote extraction and conversion of resources for short-term economic gain.

1.6.11 Transition management

A transition is "a gradual process of societal change in which society or an important subsystem of society structurally changes" (Kemp & Loorbach, 2003:7). During a transition, slow change is followed by rapid change until a dynamic equilibrium is reached (Kemp & Loorbach, 2003). "Transitions are transformation processes in which society changes in a fundamental way over a generation or more" (Rotmans, Kemp & Van Asselt, 2001:15). Rotmans *et al.* (2001) note that, as a model of governance, transition management "tries to utilize the opportunities for transformation that are present in an existing system" by "joining in with ongoing dynamics rather than forcing changes. The underlying supposition is that complete management and control of persistent and complex environmental issues are not possible but that these problems can be "managed" by adjusting and influencing the societal system (Kemp & Loorbach, 2003; Loorbach & Rotmans, 2010). Kemp, Parto and Gibson (2005:12) argue that sustainability is best viewed as a "socially instituted process of adaptive change in which innovation is an important element". Transition management recognises that this change is a process and that a range of actors must work together to change the socio-technical systems on which society is based. These systems include the institutional and social norms and practices that govern and are determined by technical infrastructure and the systems that together provide a service to society (Kemp & Loorbach, 2003). Rotmans and Kemp (2008) emphasise that the transition process needs trust and social capital to build the networks that are required to collaborate

successfully across sectors. In the transition process, the focus should be on co-creation of divergent solutions, rather than a one-way top-down or bottom-up process.

From a governance perspective, transition management aims to orientate policies, planning and market dynamics towards societal goals (Kemp & Loorbach, 2003:18). Functional systems are changed in incremental steps without disrupting the entire system. This approach allows for prototyping and innovation, and changing course if a particular solution is not working, thereby limiting the chance of getting locked-into suboptimal solutions (Kemp & Loorbach, 2003:22). This approach is well suited to adaptive and interactive governance during which policies can be adapted to changing circumstances and interaction with stakeholders is more effective and widely accepted (Kemp & Loorbach, 2003:21).

Critics of transition management point out that it is not always possible to “manage” transitions (Elzen, Geels & Green, 2004; Shove & Walker, 2007). Management involves planning, organising, evaluation and control. Management furthermore presumes a certain amount of predictability and the orderly conversion of inputs to outputs. It is characterised by rational decision-making based on evidence-driven knowledge. In contexts where there are many competing needs and many conflicting priorities and where flexibility, creativity and insight are needed, it may only be possible to influence the direction and speed of the transition (Kemp & Loorbach, 2003:9). In light of the criticism of the effectiveness of management approaches in a changing environment, it may be better to talk about a transition approach (Nill & Kemp, 2009:673) or transition leadership, rather than transition management. Leading change in a dynamic environment requires an adaptive leadership style and deep understanding of the complex terrain of societal dynamics as an emergent property. Given the dynamic landscape of transitions, influence and leadership may be more effective in steering the transition towards the goals chosen by society than traditional management approaches. Another criticism of transition management is that it does not sufficiently focus on the link between societal

and individual levels. Rauschmayer *et al.*, (2013:6) suggest placing individuals and their norms and behaviour back into the study of sustainability transitions.

1.6.12 Neoclassical economics, capitalism and market fundamentalism

Inspired by Newtonian physics, economic theorists have aimed to establish universally valid laws and models that could be used to explain and predict economic behaviour. The neoclassical model was the dominant model in the twentieth century. This model of economics assumes that firms will aim to maximise profits from producing and selling goods and services and individuals will aim to maximise their satisfaction (or utility) from consumption of goods and services (Goodwin, Harris, Nelson, Roach & Torras, 2015:145). The assumption is that these two types of agents interact in perfectly competitive markets that will tend towards equilibrium. "Equilibrium is the price at which demand and supply are brought into balance, and there are no unsatisfied buyers or sellers left" (Soros, 2000:50). To overcome the challenge of subjective demand and objective supply, it is assumed that all actors in the market have perfect information (Soros, 2000:52). When there is asymmetric information in the market (as there often is), it can affect the efficiency of the market.

Capitalism is based on private ownership and capital and businesses operating for profit. Within this system, wage labour and natural resources are converted into products and services traded in competitive markets. Within the system, profits are invested in production to bring about more profits. Investments could include enlarging the factory or research and development of new products. It is assumed that investment of profits in production leads to faster economic growth. The degree of competition, scope of state ownership and role of regulation and intervention in markets vary across different models of capitalism (Bronk, 2000:221).

Neoliberal thinking dominates the economic system in the developed world today. Neoliberalist thinkers argue that the market can resolve almost all political, economic and social problems, hence it is also referred to as market

fundamentalism. Neoliberalism or neoliberal economics advocates the liberalisation of markets from government “interference” and frames “prudent” macroeconomics and smaller government as “modern” forms of governance. Government’s role is limited to the protection of private property and ensuring that contracts are enforced. Neoliberalists argue that government should only step in or regulate to achieve its policy outcomes if self-regulatory or non-regulatory approaches do not produce satisfactory outcomes (Soros, 2000:xxiv). Government should further only provide those social and economic services that the market does not want to provide. Market fundamentalists resist any constraints on free competition, claiming that it interferes with the efficiency of the markets (Harari, 2014:367). This ideology, also called “laissez faire” economics, is based on the belief that state intervention is inefficient and harmful. According to neoliberalism, what is needed is a “state under the surveillance of the market, rather than a market under the surveillance of the state” (Foucault, 2004:120).

1.7 Research Design, Methodology and Methods

The methodology followed for this study was a literature review, as well as a review of secondary studies and experiments concerning behavioural science theories involving human behaviour change. This study reviews literature at the nexus of sustainable development, behavioural science, behavioural economics, transition management and governance, combined with an analysis of secondary studies and experiments that tested behavioural science principles in experimental settings. The literature search included the following key words: sustainable development, transition management, sustainable transitions, pro-environmental behaviour, bounded rationality, behavioural economics, judgement heuristics, loss aversion, status quo bias, availability heuristic, affect heuristic, social norms, values, governance and public policy. The aim is to derive insights from behavioural science to improve public policy in South Africa with a view to accelerate the transition to sustainable development.

One of the constraints of the study is the fact that there may not yet be enough data across similar time, geographical and demographic dimensions to extrapolate the findings of most behavioural economics experiments. A large percentage of the secondary studies that were reviewed involved limited attitudinal surveys of small populations at a particular point in time. The majority of studies did not consider results over a longer period, for example with regard to how attitudes towards the environment have changed over time. There was generally also no follow-up whether lifestyle changes or more pro-environmental behaviour resulted from participation in the studies. Where evaluations were included as part of the study, it usually followed within a short space of time after the initial survey.

1.8 Assumptions and delimitations of the study

Although the study highlights behavioural science factors often neglected by traditional policymakers, planners and economists, it does not mean that standard economic forces are not important. The study recognises the existence of markets, the principle of supply and demand, equilibrium, capital, the profit motive, return on investment and entrepreneurship, and creation of wealth as important structuring elements of the economy. However, the economic system is not addressed in detail in the study, the focus rather was on examples of markets that failed and some the social and environmental consequences that followed and provide the motivation for a sustainable transition. This study does not offer a comprehensive analysis of the viewpoints for and against sustainable development, nor enter into a comprehensive debate whether sustainable development remains a valid goal or not.

While cultural norms and the setting (or environment) influence behaviour, an in-depth study of culture or environmental psychology was beyond the scope of this study. Similarly, social marketing can potentially influence environmental behaviour, but a discussion of the theory and techniques of social marketing was also beyond the scope of the study.

The assumption for the study was that municipalities in South Africa are aware of their obligation to promote sustainable development and that local government has accepted that it can actively play a role in formulating policies that will help citizens to make behavioural changes that will lead to a better environment and improvements in the quality of life.

1.9 Chapter Outline

Chapter 1 gives an overview of the background and rationale for the study, the research problem and the research aim and objectives, and research design. Chapter 1 also includes definitions of key terms and concepts used in the study and assumptions and delimitations of the study. The second chapter explores sustainable transitions, governance and public policy for sustainable transitions and some of the factors affecting the pace of the transition towards sustainable development. The third chapter comprises a literature review and synthesis of insights from behavioural science theories and experiments affecting human behaviour change. The fourth chapter explores the role of local government in facilitating the transition to sustainable development in South Africa and how insights and lessons from behavioural science could be applied to accelerate the transition to sustainable development. The chapter also explores some of the criticism of using behavioural science in public policy and its potential application in local government processes. The conclusions and recommendations of the study are set out in the fifth chapter.

Chapter 2: Governance and public policy for sustainable transitions

2.1 Introduction

Given the scale of some of the environmental problems outlined in Chapter 1, it is clear that environmental governance is not meeting the objectives of sustainable development at a global level. The institutions of government and the market have in most countries been unable to halt, let alone reverse, the deepening environmental and social crisis that is threatening the livelihoods of billions of people and the life-sustaining ability of the planet (Korten, 1996:i). What is the reason for this? This chapter presents an exploration of this question, as well as how governance and public policy can assist in achieving a sustainability transition.

Wright and Nyberg (2015:28) argue that a central reason for this lack of political and economic action to address environmental issues is the “uncomfortable way in which the issue reveals the underlying paradox of capitalism as an economic system that relies on the destruction of nature for its own development.” The growth in humanity’s ecological footprint and the violation of planetary boundaries are “rooted in systemic failures of the current system of production, consumption, finance and governance” (WWF, 2016:13). Burger (2014:3-4) notes that “governance based on neo-liberalism has resulted in the over-consumption of global resources and worsening of the fundamental global divisions between the ‘haves’ (beneficiaries of neo-liberalism) and the ‘have nots’ (living on the periphery in greater despair than ever before)”. Swilling (2011:89) agrees, noting that neoliberal economies have ransacked global resources to benefit the minorities constituting the global middle and upper classes. Soros (2000:157) asserts that neoliberal market fundamentalism has in effect subordinated all other considerations for the profit motive.

According to a statement by the World Wide Fund for Nature, structural elements of the neo-liberal economic system including “gross domestic product (GDP) as a measure of well-being, the pursuit of infinite economic growth on a finite planet, the prevalence of short-term gain over long-term continuity in many

business and political models, and the externalisation of ecological and social costs” encourage unsustainable choices by governments, business and individuals (WWF, 2016:13). The consequences of these shortcomings or market failures are increased wealth inequality (Piketty, 2014) and potentially irreversible climate change (Stern *et al.*, 2006:viii).

Transition management is emerging as a framework to move the theory of sustainable development into practice (Kemp & Loorbach, 2003; Rotmans & Kemp, 2008; Nill & Kemp, 2009). Transition management of complex environmental problems such as climate change requires fundamental changes in the systems of consumption and production (Nill & Kemp, 2009:672). These complex systems with multi-dimensional variables cannot be resolved with a reductionist approach (Adetunji *et al.*, 2003:162). The focus is therefore on systems innovation and the mechanisms of change, rather than specific outcomes.

2.2 Structural shortcomings of the neoliberal economic system

2.2.1 Infinite economic growth on a finite planet

The neoliberal economic system makes unrealistic assumptions about availability of natural resources in the economy. The system assumes an unlimited supply of natural resources that may be converted into goods and services. From the perspective of the natural world, the consequences of infinite planet thinking have been disastrous. With each additional unit of economic output, the stress on the biosphere increases.

From an economic perspective, scarcity is becoming a real economic factor for some industries. Building economies on diminishing resources holds in major financial risk. The focus tends to be on non-renewable resources, but the pressure on certain renewable resources such as forests is now so intense that these resources cannot renew fast enough to keep up with demand. Despite the importance of natural systems to the economy, investors still largely ignore the Earth’s natural capital in management decisions. The true cost of business’

impact on natural resources typically is not reflected in corporate accounts (Chartered Institute of Management Accountants, 2013).

Politics plays a central role in these processes. If governments had the political will to place the long-term sustainability of the planet ahead of the short-term interests of business, regulation would be far more aggressive, forcing the market to adapt. Unfortunately, governments often do not see their way open to regulate or challenge big business for fear of being accused of limiting economic growth.

The pursuit of infinite growth on a finite planet will eventually run up against the planetary boundaries (WWF, 2016). Planetary boundaries are the limits beyond which human activities will tip the Earth's ecosystems into a dangerous state of collapse (Sachs, 2015:xiv). Meadows *et al.* (1972) have warned that there are limits to growth, yet the warning seems to be ignored as governments and business continue to make decisions as if the stores of nature are unlimited.

2.2.2 Short-term vs. long-term thinking

Sustainable development places a responsibility on individuals, businesses and nations to act in the interest of current and future generations. Climate disruption, extinctions and change in the chemistry of the land, air and oceans will deprive these generations of necessary means to meet their basic needs (Korten, 1996:5). There is a "mismatch between short-time-scale market and political forces driving resource extraction/use and longer-time-scale accommodations of the Earth system to these changes" (Werner, 2012). The reliance on short-term profit and earnings projections as a measure of the performance of a company creates the impression that the long term simply does not matter (Gore, 2009:331).

Government frequently makes decisions that may have significant implications for future generations., Gore (1992:170) however, notes, "instead of accepting responsibility for our choices, we simply dump huge mountains of both debt and pollution on future generations". Singer (2016:34) argues that it is morally unethical to make decisions that will bring suffering to innocent future human

beings and the Oxford Martin Commission for Future Generations (2013:61) calls for an end of discrimination against future generations. The Commission believes the well-being of future generations should not be discounted just because they do not currently have economic or political agency. Government decisions relating to investment and action to protect the environment should ensure that future generations are not worse off than the current generation. The Commission calls for a “revaluation” of the future, advocating that institutions and business look beyond the next reporting cycle and that political, legal and economic structures be adjusted in favour of future generations.

2.2.3 Public goods and externalisation

The benefits that humans derive from nature are often not priced effectively, because these assets are public goods and they may not have a market value. Also referred to as the “commons”, these public goods, for example air, water, soil, biodiversity, wilderness and the ocean are shared together rather than owned privately (Gore, 1992:183; Sandmo, 2014:16). Ecologist Garrett Hardin (1968) first described the “tragedy of the commons” - what is not privately owned will be destroyed by individual greed. Reaching agreement among individuals to use resources collectively is challenging at the best of times, even more so when the social contract is broken and the mentality is to accumulate as much personal wealth as possible (Chomsky, 2015:53).

Capitalism has demonstrated that the market is not interested in safeguarding the environment as a common good unless there is an economic incentive. Although the profit motive is a powerful motivator for entrepreneurship and innovation, it is also the reason why many corporations externalise their costs to the detriment of the environment and society as a whole. In fact, the ability to externalise some of their costs in the environment is entrenched in the business model of most of Western businesses. This is often with the express permission of government who regulates emissions, pollution, waste and extraction, rather than prohibiting it outright. The truth is that most industries and products will be unaffordable if all externalities, i.e. all the unquantifiable by-products and impacts on people and the environment, are included in the

cost of the product. Although many countries have accepted the principle of “polluter pays” where some waste and pollution are costed and accounted for, it is difficult to close the loop and to identify and cost all the impacts, especially long-term impacts such as climate change. The costs mostly fall on those without political agency – the poor, the young and generations not yet born (Korten, 1996:4).

2.2.4 Gross domestic product as a measure of progress

The Western definition of development has come to be associated with a particular model of change. The physical transformation of nature is measured in terms of economic value and growth, which is then further equated with progress. One of the indicators most frequently used in national accounting to judge “progress” is the GDP. The GDP is the “total value of goods and services produced by the factors of production” in a country or region over a specified period (Roux, 2014:17). The factors of production include natural resources, labour, capital and entrepreneurship.

GDP has become the international standard for measuring growth and economic activity in different countries, but GDP does not provide a comprehensive picture of total wealth. GDP figures, for example, do not include living conditions, health, education, the value of the country’s ecological assets, how much biodiversity was lost or how happy people are (Orr, 1991:52; Gore, 1992:185; Bergheim, 2006). GDP also does not measure goods and services transacted outside of the marketplace, for example childcare at home. Furthermore, GDP does not measure the harms that often accompany production, such as industrial pollution (Sachs, 2015:16). What is out of sight is out of mind, and “much of what we don’t see in our economics involves the accelerating destruction of the environment” (Gore, 1992:183). Absurdly, when expenditure is required to clean up pollution, the expenditure is included in GDP as a positive entry (Gore, 1992:187).

GDP was never intended to be a measure of the overall health or well-being of a nation’s economy (Gore, 2009:324). However, the focus on domestic production in the national accounts has the result that the market is essentially

'blind' to the consequences of its decisions, with large categories of inputs and outputs effectively ignored (Gore, 2009:325). Hawken (2009) sums up the situation: "We are stealing the future, selling it in the present, and calling it gross domestic product." In the words of the Commission on the Measurement of Economic Performance and Social Progress established by Nicholas Sarkozy, the then President of the French Republic, "the time is ripe for our measurement system to shift emphasis from measuring economic production to measuring people's well-being. And measures of well-being should be put in a context of sustainability" (Stiglitz, Sen & Fitoussi, 2009:12).

2.2.5 Increased wealth inequality

Capitalism has produced a very uneven playing field. The gap between rich and poor is widening (Soros, 2000:xix; Stiglitz, 2002; Piketty, 2006, 2014). Hardoon (2015:1) points out: "Global wealth is increasingly being concentrated in the hands of a small wealthy elite". In a scenario where most of the benefits are going to those who already enjoy a substantial level of physical comfort and security, questions about equity, equality and fairness are pertinent. The gross inequalities that have resulted from economic growth and globalisation help perpetuate poverty and its vicious cycles and hinder cooperation among parties of different socio-economic groups (Korten, 1996:4; Daily & Ehrlich, 2017:161). Ngosso (2013:4) and others (McDaid & Dowling, 2002:113) argue that development is not achieved if nature is not conserved. This is particularly true in developing countries where poor and vulnerable citizens often are the victims of environmental degradation.

As more and more people compete for access to livelihoods and resources, there is growing potential for escalating conflict over scarce resources. Soros (2000:xix) and Mellon and Chalabi (2005:45) warn that growing inequality is dangerous because the system does not offer benefits and hope for the poor and disenfranchised, which could lead to disruption and acts of desperation that may have consequences for the continued stability of the world. The former UN Secretary-General, Kofi Annan, summed it up well in his keynote address at the World Summit on Sustainable Development in 2002 (United Nations Secretary General, 2002):

Let us face an uncomfortable truth: the model of development we are accustomed to has been fruitful for the few, but flawed for the many. A path to prosperity that ravages the environment and leaves the majority of humankind behind in squalor will soon prove to be a dead-end road for everyone.

2.2.6 Climate change

Sandmo (2014:26) refers to the problem of global warming as “undoubtedly the most massive case of market failure that the world has ever seen”. Greenhouse gas emissions are not ordinary, localised externalities. The impact of emissions is felt on a global scale, with implications for future generations (Stern *et al.*, 2006). Despite the introduction of market-based incentive mechanisms to come to grips with the climate problem, global temperatures continue to rise (IPCC, 2018). Impacts such as increased ocean temperatures, ocean acidification and sea level rise are already measurable (Brierley & Kingsford, 2009:605; World Meteorological Organization, 2019:16; National Oceanic and Atmospheric Administration, 2017:1). Temperatures measuring 1.1°C above the pre-industrial period and 0.06°C above the previous record set in 2015 rendered 2016 the hottest year on record globally (World Meteorological Organization, 2017). Records were also set for rainfall, wildfire destruction, snowfall and drought in many parts of the world (World Meteorological Organization, 2017). Many of these records were again broken in 2019 (Law, 2019). It is estimated that the costs of these extreme events across the world run into billions of US dollars annually (World Meteorological Organization, 2017). Sea level rise threatens the future of low-lying countries including Kiribati, the Maldives, Bangladesh and the Netherlands. No one can afford to be complacent. The ice sheets of Antarctica are melting three times faster than a decade ago. If emissions continue unabated and the Antarctic ice sheet melts, the world’s sea level could rise by more than 15 meters by 2500, leaving almost no country untouched (DeConto & Pollard, 2016:591; National Snow and Ice Data Centre, 2018).

The ability of the atmosphere to absorb greenhouse gasses emitted by humanity is limited. Svante Arrhenius predicted as far back as 1896 that

emissions of carbon dioxide (CO₂) due to the burning of fossil fuels and other combustion processes could cause global warming (Baum, 2016). Arrhenius' predictions were confirmed when National Aeronautics and Space Administration scientist James Hansen testified to a United States Congressional committee in 1988 that climate change had indeed been observed (Shabecoff, 1988). Coal is particularly problematic as a source of energy. There currently are 6678 coal-fired power plants around the world and 903 in the pipeline or under construction (End Coal, 2019). It has been reported that,

If all coal plants in the pipeline were to be built, by 2030, emissions from coal power would be 400% higher than what is consistent with a 2°C pathway...Even with no new construction, in 2030, emissions from coal-fired power generation would still be more than 150% higher than what is consistent with holding warming below 2°C. (Climate Action Tracker, 2018)

When transport and industrial GHG emissions (including gas flaring and methane from oil and gas extraction and intensive agriculture) are added to this, it appears unlikely that the IPCC's target of 2°C warming could be reached in a business-as-usual scenario. McKibben (2012) reports that the world's major energy companies hold five times as much coal, gas and oil in reserve as climate scientists think is safe to burn. Eighty percent of those reserves of fossil fuel must remain locked away underground to keep the global temperature under 2°C (McKibben, 2012). In addition, Pfeiffer, Hepburn, Vogt-Schilb and Caldecott (2018) estimate that 20% of global coal-fired capacity would need to be stranded to meet the goals of the UN Framework Convention on Climate Change's (UNFCCC) Paris Agreement. Leggett (2005:128) issues a stern warning: "We cannot afford to burn all the oil [that remains], much of the gas must remain underground, and the great majority of the coal shouldn't even be considered."

Despite the warnings, countries will likely continue to use fossil fuels for decades to come because it makes economic sense (Hendler, Holliday, Ratcliffe & Wakeford, 2007:31). A further complication is that multinational

companies own the mines, gas fields, wells, energy infrastructure and distribution networks in many countries and their shareholders expect a return on their investment. Leaving oil and gas reserves unused could seriously affect the balance sheets of some of the world's largest corporations (McKibben, 2012). The risk of stranded assets due to fossil fuel phase-out will not allow a quick transition to alternative technologies and may become a powerful draw on the economy (Gore, 2009:330). The owners of high-carbon assets have chosen to defend their value by fighting against the reforms needed to solve the climate crisis (Gore, 2009:330). Hamilton (in Wright & Nyberg, 2015:xii) notes that some of these corporations "would sooner see the world destroyed than relinquish their power". It does not help that governments rely on the taxes paid by these companies and corporations to fund infrastructure development and other priorities.

Food production is another key driver of climate change. Agriculture and the related distribution chains account for approximately 50% of all human generated GHG emissions (Grain, 2012:97). Animal-based agriculture involving meat, aquaculture, eggs and dairy contribute up to 58% of different emissions from food production (Poore & Nemecek, 2018:990). It has been stated that "GHG emissions, in particular methane (CH₄) and nitrous oxide (N₂O), from the livestock sector are estimated to account for 14.5% of the global total of GHG emissions, more than direct emissions from the transport sector" (UN Food and Agriculture Organization, 2013; Bailey, Froggatt & Wellesley, 2014:2). The global warming potential of CH₄ is 28 times higher than that of CO₂, especially at shorter time scales (IPCC, 2007c; Grossi, Goglio, Vitali & Williams, 2018). Clearing of carbon stores such as savannahs and forests to produce animal feed, manure storage and use of chemical fertilisers and heavy machinery and other petroleum-dependent farm technologies also add to GHG emissions. The processing, refrigeration and the transport of food over long distances further add to global emissions (Grain, 2012:97). Bajželj, Richards, Allwood, Smith, Dennis, Curmi and Gilligan (2014) estimate agriculture's GHG emissions will increase by 77% by 2050 in a business-as-usual scenario. In this scenario, agriculture's GHG emissions could be so high by 2050 that they alone will push global temperature increases almost up to the

2°C mark. Bailey, Froggatt & Wellesley (2014) conclude it is unlikely that the increase in global temperature can be kept below 2°C without reducing dairy and meat consumption. Changing to a more plant-based diet is arguably one of the most impactful ways to mitigate climate change and reduce individual carbon footprints (UN Food and Agriculture Organization, 2013; Wynes & Nicholas, 2017).

Climate change could also drastically affect agriculture. The IPCC Fifth Assessment Report published in September 2013 (IPCC, 2013) noted concerns about the impact of climate change on livelihoods, hunger and food production. Changes in rainfall patterns, prolonged droughts and changes in seasonal temperatures could reduce the productivity of existing food systems and harm the livelihoods of those already vulnerable to food insecurity (High Level Panel of Experts on Food Security and Nutrition, 2012:10; WWF, 2014). If food production declines, food prices likely will rise. This at a time when one in six people are already undernourished and food production must increase to feed the estimated 9 billion people expected to be living on the planet by 2050 (UN Food and Agriculture Organization, 2013). Food shortages could lead to political instability and increased migration (Clayton, 2015). The IPCC (2013) has warned that climate change could slow or even reverse the progress on poverty reduction and development gains over the last 20 years.

Climate change will disproportionately affect the poor who already lack economic resources and are therefore less resilient to climatic shocks and stresses. There therefore is an urgent need to “re-centre” the global climate policy dialogue to focus on emerging nations and their populations, which encompass the majority of the peoples in the world. For example, the question of emissions should not be considered on a population basis, but on a per capita basis; consideration also needs to be given to emissions to date, as not all countries and all populations have contributed equally to the aggregate level of emissions that are causing climate change. One of the major obstacles is the economic model of the developed West, which is contingent on growth and is not prepared to take into consideration the concessions that need to be made geopolitically in order to get buy-in for emissions reductions from the developing world. It is not

fair to expect developing countries to simply forego development. In addition, a substantial amount of the emissions generated in developing countries are from multi-national businesses headquartered in developed countries exploiting resources and externalising their costs in the local environment. To suggest emissions is simply a question of development and population dynamics misses some of the more cynical political and economic forces at play.

Climate change is now considered one of the most serious threats facing humanity. Wangari Maathai, the 2004 Nobel Peace Prize winner warns, “climate change ‘is the challenge of all time’. No part of the world is immune. We are all in this together, irrespective of our level of contribution to the problem. Business-as-Usual for any one country would be a tragedy” (Maathai, 2009:3). To date, 195 nations have already signed the agreement brokered in Paris at the 21st UN Conference of the Parties to the UNFCCC in December 2015. With this agreement, countries agreed to limit global temperature rise to below 2°C above pre-industrial levels, aiming for 1.5°C. Each country submitted its action plan and is expected to review its plan every five years from 2020, with the ultimate goal of ensuring carbon neutrality by 2050. Yet, even though nations have publicly agreed to the Paris targets in an attempt to avoid serious adverse impacts, climate change has never received crisis treatment from world leaders in the same way a financial crisis, for example, commanded their attention. Klein (2014:6) makes the point that climate change “carries with it the risk of destroying lives on a vastly greater scale than collapsed banks or collapsed buildings”. The lack of action on climate change “demonstrates an extraordinary willingness of governments to sacrifice the lives of children and grandchildren for short-term gain” (Chomsky, 2015:63).

Critics of climate action argue that it is a veiled attempt to transform the global economic development model, redistribute wealth and destroy capitalism (Bryer, 2015). To reduce carbon dioxide emissions would require serious regulation of industry as powerful coalitions of industry interests make it difficult for many countries to adopt stricter emissions standards. Matters are further complicated when politicians are beholden to companies with vested interests in fossil fuels and big agriculture for financial and other support to be elected

into office. However, Stern *et al.* (2006), Klein (2014:7) and others (Steffen, Crutzen & McNeill, 2017:26) believe that mitigating climate change can be a catalyst for positive change, for example by reviving local economies; blocking harmful trade deals; investing in public transport infrastructure to limit carbon emissions from private vehicles; decoupling development and energy growth; facilitating vastly improved technology; and creating local, healthy food systems.

2.3 Governance for sustainable transitions

Does capitalism have to die for the planet to be saved? A recent paper by Järvensivu, Toivanen, Vadén, Lähde, Majava and Eronen (2018) for the UN's 2019 Global Sustainable Development Report suggests global sustainability and capitalism are incongruous with one another. Cullinan (2002), Klein (2014), Chomsky (2015) and Monbiot (2019) support this view. In the view of Daily and Ehrlich (2017:163), civilisation "is unlikely to persist if its major strategy is to fine-tune the present system in the hope that something approaching perpetual growth can be achieved". The WWF (2016) and others (Hattingh, 2001; Stiglitz, 2002; Kemp *et al.*, 2005; Stern *et al.*, 2006; Speth, 2008; Gore, 2009; Jackson, 2009; Porter & Kramer, 2011; Steffen, Crutzen & McNeill, 2017; UNEP, 2018) have a more pragmatic outlook, however. They advocate in favour of government regulating the market for social good, more sophisticated forms of economic growth such as the 'green economy' and a managed transition to a more sustainable economic model. There is no doubt, though, that the transition to sustainable development will require some drastic changes to the current economic system to challenge the status quo (Coenen, 2002; Kemp *et al.*, 2005:19).

To conceptualise the sustainability transition, it is important to understand the nature of governance and decision-making that result in ecological degradation. Many of the unsustainable consumption and production patterns we see today "are largely determined by the way consumerist societies are organised, and fixed in place through the underlying rules and structures such as values, social norms, laws and policies" (Steinberg, 2015; WWF, 2016:13). There is also a

dire lack of understanding and knowledge of the complexity of the systems within which environmental and social development problems now manifest. Some of these socio-ecological problems are difficult to define, as they are inadequately understood; have multiple causes; could unfold over a long time scale; may include feedback loops; involve multiple stakeholders and disciplines; and may have global implications (National Research Council, 2012:4). These types of problems are sometimes referred to as meta-problems or “wicked problems”. They are difficult to solve due to their complexity, the extraordinary knowledge required, the diversity of people or opinions involved, the large economic burden they may have and their interconnected nature with other problems. They also have no clear end point or resolution, and because of complex interdependencies, efforts to solve them may have unintended consequences or create problems elsewhere in the system. Wicked problems present a challenge to traditional government organisational and management structures because they are dynamically and socially complex (Kahane, 2004:1). The climate crisis in particular raises difficult questions because it demands such a radical change in the way we think about resources and the economy (Stern *et al.*, 2006; Monbiot, 2007; Sachs, 2015:394). The contested and crosscutting nature of environmental problems, including climate change, require a different kind of policy response from government. “Implementing a commitment to sustainable development entails a substantial transition not just to a broader understanding and a more ambitious set of objectives, but also to more coherently interrelated institutional structures and processes of planning, administration, markets, tradition and choice at every scale” (Kemp *et al.*, 2005:17). Appropriate information is required to set goals and targets and measure indicators (Clark *et al.*, 2005:18). There is an urgent need for institutional reform, not only in the way markets and government function, but also in the values and mentalities that drive people’s behaviour towards the environment. It is also important to get the incentives right that will result in production and consumption choices that do not degrade the “public goods” of ecosystem services (Clark *et al.*, 2005:18).

Transitions are characterised by turbulence, disruption and fear of the unknown. However, transitions also are an opportunity for innovation.

Governance for sustainable development transition should create a wider playing field and foster free spaces for experimentation, learning by doing, and doing by learning. Nill and Kemp (2009:673) point out that technological and systemic innovations and rapid adoption across the board will accelerate a sustainable trajectory. However, it cannot be “innovation as usual”. It must be sustainable innovation, “shaped as much by environmental, social and economic measures, as enabled by technology” (Seebode, 2011:4). Sustainable innovation requires a greater understanding of the current system we live in and embracing its complexity. Sustainable innovation requires a shift in mentality. Seebode, (2011:20) makes it clear that

People, both individuals and groups, need to change their perspective, and acknowledge the inconvenient truth that we live on a finite planet with ever human inhabitants. This is not about losing or giving things up. On the contrary, we are living in exciting times in which everyone’s courage and creativity is not only important, but essential.

Convincing people to save water or energy, recycle their waste and use public transport is a complex challenge that must be addressed at a societal and individual level. In this regard, Rauschmayer *et al.* (2013:6) have stated: “Policies for sustainability transitions necessarily have three main characteristics: they are prescriptive with regard to dynamic societal processes, linked to the normativity of sustainable development, and are able to interlink both the societal and the individual levels” and that the sustainability transition involves “fundamental society-wide modifications that target on changing everyday behaviour of citizens/consumers”. The public’s understanding of nature, technology, the economy and the impact of their individual and collective lifestyles needs to change to reduce the impact on the environment. We need to change how we count, how we predict, how we work together. This is particularly urgent since the coming decades will be critical in determining climatic conditions for the next century.

2.4 Conclusion

Aristotle (350 BCE) has said that virtue lies in a “mean between two vices”. Today, most democratic nations consciously seek to maintain a balance

between individual liberty and collective action; between the creative power of competition and co-operation in pursuit of common goals; and between individual self-interest and respect for social values. “The search for such an elusive balance has been not merely for an optimal trade-off between economic efficiency and social fairness, but also for a the most efficient model of capitalism itself” (Bronk, 2000).

This chapter has argued that public policy based on the neo-liberal economic system has been unable to halt the deepening environmental and social crisis. The neo-liberal capitalist economic systems’ reliance on the destruction of nature for its own development and governments’ expectations of infinite growth on a finite planet are rooted in systemic market failures that are now threatening the lives and livelihoods of millions of people. The way we measure prosperity, the short-term mentality of business and externalisation of costs contribute to a failure of public policy to regulate the market for the public good.

A transition to a more sustainable model of governance is required to put the theory of sustainable development into practice. Complex environmental problems such as climate change require a fundamental shift in the systems of production and consumption. Within this framework, system innovation focused on the well-being of individuals and communities becomes a policy option, in addition to system improvement (Kemp & Loorbach, 2003:5).

Sustainable transition is underpinned by a growing questioning of the existing economic and social order. The economy vs. environment debate will not be easily resolved because economics is immediate and tangible and the environment is remote and externalised. However, when it comes to climate change and the environmental crisis, “nobody can be in doubt that the relationship between people and the planet are dangerously unbalanced” (WWF, 2018b).

Capitalising on human behavioural flexibility and ingenuity is critical as avenues for transforming global society into a sustainable enterprise (Daily & Ehrlich, 2017). Collective social values and aspirations are also important when it

comes to transitioning towards sustainability (Fischer *et al.*, 2007:621-624). Some signs of change in societal values have become evident; however, the critical question remains whether the trend of dematerialisation and “greener” consumer choices can become strong enough to trigger the urgent global transition to a sustainable society that is required.

The next chapter is focused on an exploration of literature from cognitive science and behavioural economics that could inform the development of public policy with a view to encouraging pro-environmental behaviour and thereby accelerate the transition to sustainable development.

Chapter 3: Insights from behavioural science relevant for sustainable public policy in local government in South Africa

3.1 Introduction

Numerous attempts have been made to pinpoint the determining factors of human behaviour and direct it towards more pro-environmental outcomes (Kollmuss & Agyeman, 2002; Jackson, 2005; Krajhanzl, 2010; Morris, Marzano, Dandy & O'Brien, 2012; Akintunde, 2017). Behavioural change has been called the “holy grail” of policy (Jackson, 2005:xi). Insights from the fields of psychology, sociology, political science, anthropology, economics, evolutionary biology and neuroscience have transformed the understanding of human behaviour and decision-making. There are now more than sixty theories and models of human behaviour (Darnton, 2008:1). “Theoretical models of human behaviour...are important for conceptualizing behaviour while also signalling how behaviour can be changed” (Williamson, Satre-Meloy, Velasco & Green, 2018:33). It is important to distinguish between theories that are concerned with the determinants of behaviour, and theories concerned with changing behaviour, an important distinction that is often ignored. Understanding what causes a specific behaviour will not necessarily provide a good foundation to pinpoint how best to effect change (Aunger & Curtis, 2007:2).

Early attempts to measure pro-environmental attitudes identified a gap between principles and beliefs, and environmental action – the so-called “value-action gap” (Blake, 1999; Kollmuss & Agyeman, 2002; Hargreaves, 2011:4). Although people might hold pro-environmental values, they often do not act in ways consistent with those values. Blake (1999) identified practical constraints, such as lack of money, time or information, and individuals’ belief in their ability to make a difference through their actions as possible factors that could prevent an individual from taking action.

A number of theories and models have been suggested to bridge the value-action gap. Some studies have attempted to isolate the individual beliefs, attitudes and values that can predict or explain specific behaviour (e.g. the

Theory of Basic Human Values). Factors that influence the relationship between attitude and behaviour, such as context, past experience, cultural and social norms, self-efficacy, knowledge, emotions, habits and routines, means available, social groups and social identity have been identified in other theories and models (Fishbein & Ajzen, 1975; Ajzen, 1985; Hines, Hungerford & Tomera, 1987; Fogg, 2009; Hargreaves, 2011). This study focuses specifically on self-efficacy and social norms as influencing factors to overcome the value-action gap. Relevant theories include the Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Theory of Environmentally Responsible Behaviour (TERB), the Fogg Behavioural Model, Social Norms and Social Practices Theory (SPT), Theory of Basic Human Values, and Schwartz's value circumplex. The concept of bounded rationality and Prospect Theory and Dual System Theory are also explored in this chapter in an effort to explain why people's decisions sometime deviate from what normative models of rational choice expect.

3.2 Bridging the value action gap

3.2.1 The Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Theory of Environmentally Responsible Behaviour (TERB)

The TRA (Fishbein & Ajzen, 1975) aims to explain the relationship between a person's attitude towards a behaviour and the person's actions as presented in Figure 3.1. The TRA suggests that individuals consider the expected outcomes of their behaviour before they take action. Their attitude towards the intended behaviour, as well as subjective norms and moral frameworks, thus forms an intention and this intention, in turn, influences behaviour (Akintunde, 2017:126). The theory assumes that stronger intentions lead to increased effort to perform the behaviour.

Following criticism that the TRA does not give enough weight to the broader social structures that govern behaviour, Ajzen (1985, 1991) expanded upon the TRA, formulating the TPB. The TPB is now one of the most widely cited and applied behavioural theories (Morris *et al.*, 2012:5). This theory also

emphasises the role of intention in behaviour, but makes provision for the instances where an individual may not be in control of all the dynamics that may influence the performance of the behaviour (Godin & Kok, 1995:87). People's belief in their capacity to perform a behaviour (self-efficacy) and perceived ability to take control over their actions and outcomes influence the strength of their intention to perform the behaviour (Baldwin, Baldwin & Ewald, 2006:1; World Bank, 2010b). The TPB explains pro-environmental behaviour in two ways. Firstly, the model requires that information be presented in a way that shapes positive attitudes toward the required behaviour. Secondly, a person must "feel" that he or she is proficient enough to perform the behaviour and perceive him- or herself to have control over opportunities, skills and resources required to perform the behaviour (Grizzell, 2007). Armitage and Conner (2001) analysed data from 185 independent studies and found the data generally supported the TRA and the driving factors behind behaviour.

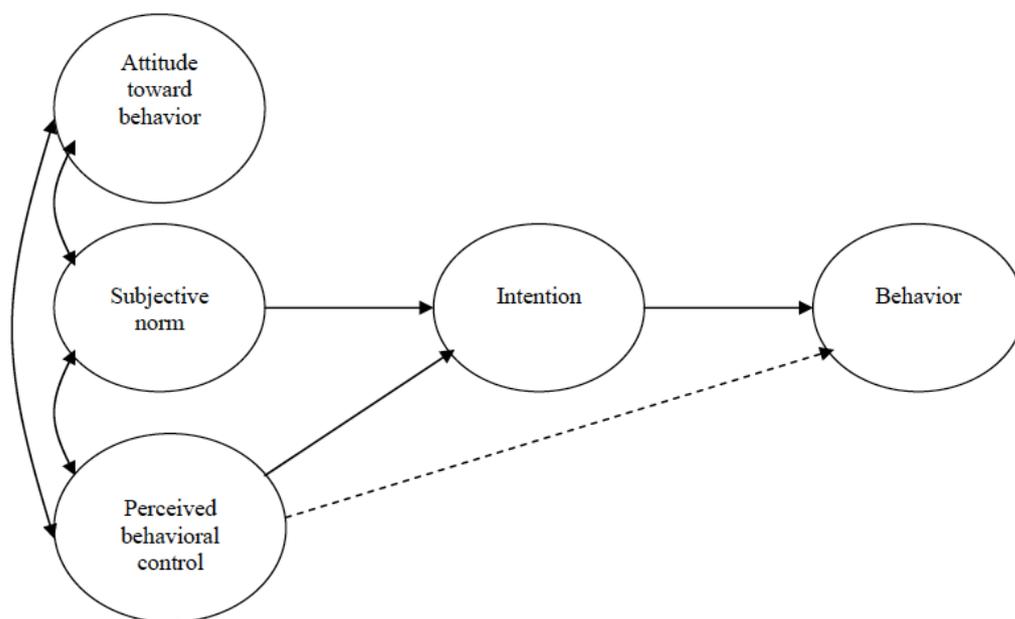


Figure 3.1: Ajzen's model of Theory of Planned Behaviour (Ajzen,1985, 1991).

The Theory of Environmentally Responsible Behaviour (TERB) proposed by Hines, Hungerford and Tomera (1987) and illustrated in Figure 3.2 further

developed the TPB, with a specific focus on environmental behaviour. This theory also emphasises attitude and self-efficacy (or “locus of control”) as major influencing factors of environmentally responsible behaviour. In addition, a sense of personal responsibility, together with skills and knowledge of action strategies and issues, forms an intention and gives an indication as to whether a person would adopt a behaviour or not (Hines *et al.*, 1987; Bamberg & Möser, 2006:14).

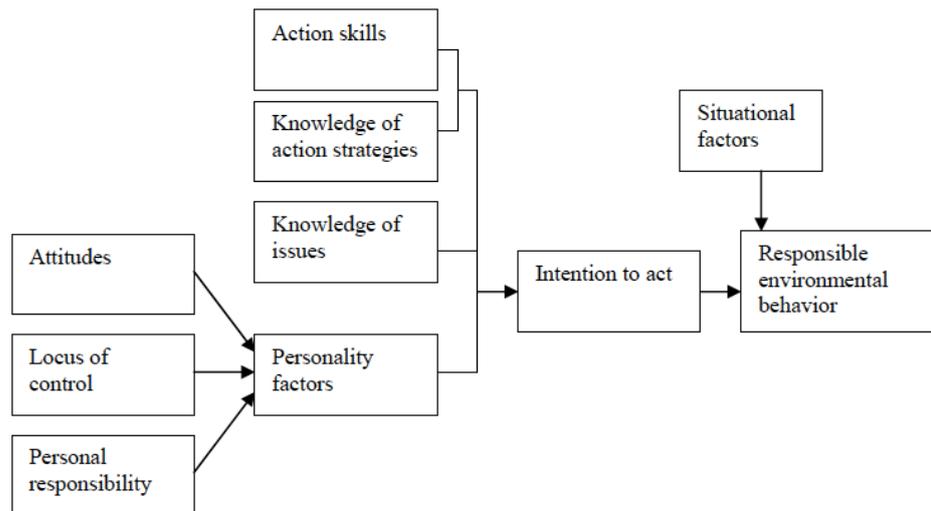


Figure 3.2: Hines, Hungerford and Tomera’s model of responsible environmental behaviour (Hines, Hungerford & Tomera, 1987).

3.2.2 The Fogg Behavioural Model

The Fogg behaviour model (Fogg, 2009:1) illustrated in Figure 3.3 suggests that behaviour is composed of three factors: motivation, ability and triggers. To adopt a behaviour, people need to be motivated and have the ability to perform that behaviour, while a trigger is also required. Motivators can include, for example, hope/fear, pleasure/pain and social acceptance/rejection (Fogg, 2009:4). Pleasure and pain produce an immediate response whereas motivators such as hope and fear have a delayed response in anticipation of a future positive or negative outcome (Fogg, 2009:4). People are also motivated by behaviours that increase or preserve their social acceptance (Fogg, 2009:4). Ability in this context refers to the individual’s perception of self-efficacy. Behaviours that require social deviance, much time, money, physical effort, cognitive resources or a break in routine, are not simple and may be difficult to

perform (Fogg, 2009:5). Triggers are explicit or implicit reminders to perform a behaviour at a given time (Fogg, 2009:6). Examples of triggers are alarms, text messages or advertisements. The timing of a trigger is important. Triggers act like prompts to try something new. Different audiences will be receptive to different triggers and market segmentation is therefore often used to inform triggers. One of the criticisms of the Fogg model of behaviour is that it is largely silent about barriers to change. Barriers can include limited knowledge, too little time, habits, scepticism, emotions, a lack of empowerment, prejudice, violence, social norms, poverty and physical barriers such as lack of infrastructure and facilities (DEFRA, 2008:7; Van Deventer & Mojapelo-Batka, 2013:199).

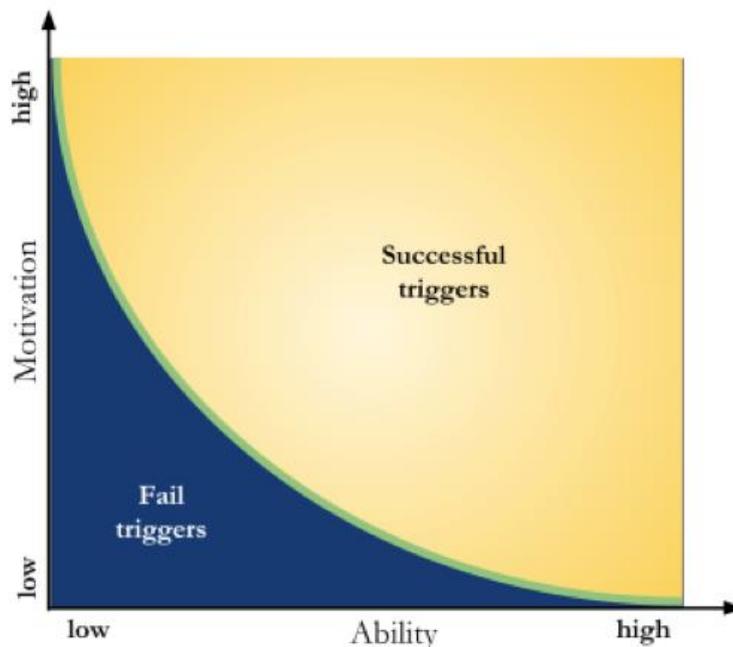


Figure 3.3: Fogg behavioural model (Wikipedia, 2019).

3.2.3 Social Norms and Social Practices Theory

Social norms as a factor that influences behaviour have been extensively studied in the social sciences. Social norms are explained as “the ideas members of a culture share about the way things ought to be done” (Nanda & Warns, 2011). Social or group norms thus represent the shared expectations of behaviours required by group members (Van Deventer & Mojapelo-Batka, 2013:51). Cialdini, Reno and Kallgren (1990:1015) note that it is important to

distinguish between injunctive and descriptive social norms as separate sources of human motivation when considering normative influence on behaviour. The descriptive norm describes what most people typically do or what is considered “normal” while the injunctive norm relates to the opinion of significant others (Cialdini, 2003:105).

Spaargaren and Van Vliet’s Social Practices Theory (SPT) (2000) argues that individuals develop a more coherent sense of self through engagement with social practice (Hargreaves, 2011:16). Some of these practices are difficult to change, as they are culturally and structurally entrenched (Butler, Parkhill & Pidgeon, 2016). Even when people want to change their behaviour, contextual and situational factors such as geography, infrastructure, institutional frameworks, access to capital, social networks and access to information may constrain their capacity for effective action (DEFRA, 2011). The dominant discourse, habits, routines, social norms, consumption patterns and social networks also affect what action an individual will, and is able to take. The model highlights that information alone is insufficient to facilitate behaviour change at a societal level. Proponents of SPT have begun to emphasise that unsustainable norms and practices is a systemic problem that is literally built into the infrastructure and systems of provision that make up everyday life (Spaargaren & Van Vliet, 2000; Shove, 2003). If a municipality, for example, does not provide facilities for recycling, safe roads for cycling or a decent public transport service, then green behaviours will be difficult to sustain (Ajzen, 1991).

3.2.4 The Theory of Basic Human Values and Schwartz’s value circumplex

The Theory of Basic Human Values holds that values are at the heart of how humans think and act. They shape much of our intrinsic motivation (Kollmuss & Agyeman, 2002:251). Values influence how empathetic people are; the types of careers they choose; purchasing decisions; what they eat; whether and to what extent they behave altruistically; how motivated they are to become involved in political activism, their attitudes towards public policies, their ecological footprint and their feeling of personal well-being (Holmes *et al.*,

2012:8). While values are not the sole determinant of behaviour, they are fairly good indicators and predictors of behaviour. To say that a person holds a value is to imply that they have “enduring beliefs that a particular mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-states of existence” (Rokeach, 1973:5). A change in values can result from changes in government policy, a major event, lived experiences, the influence of friends and family, peer groups and social movements, education, campaigns and media, a job, income and age. Intrinsic values are derived from a sense of meaning in life. These values, for example personal growth, self-acceptance, creativity, close relationships, social justice, concern for others and connection with nature are inherently rewarding to pursue (Holmes *et al.*, 2012:21) Extrinsic values, however, are centred on external approval or rewards, for example material success, wealth, concern about image, prestige, social status, authority and social power (Holmes *et al.*, 2012:21).

In formulating the Theory of Basic Human Values, Schwartz (2011) developed a model to classify the dimensions of values. Fifty-six value items represent ten universal human values, namely “universalism, benevolence, tradition, conformity, security, power, achievement, hedonism, stimulation and self-direction” as depicted in Figure 3.4 (Holmes *et al.*, 2012:14). Schwartz organised the ten human values into four higher-order groups, which are self-enhancement, self-transcendence, openness to change and conservatism (or conservation) (Holmes *et al.*, 2012:17). Self-enhancement, based on the quest of personal status and success, is defined by values of power and achievement, whereas self-transcendence, which is generally concerned with the well-being of others is characterised by values of benevolence and universalism. Openness to change centres on independence and readiness for change described by values of stimulation, intemperance and self-direction, whereas conservation is defined by values of conformity, tradition and security (Schultz, Gouveia, Cameron, Tankha, Schmuck & Franek, 2005; Holmes *et al.*, 2012:17). Schultz grouped the ten human values and four higher-order groups in a simple circular diagram called a circumplex (Schwartz, 2011). Holmes *et al.* (2012:18) point out that “values that appear next to each other on the

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circumplex are more likely to be prioritised to the same extent by a person”, whereas “values on opposite sides of the circumplex are rarely held strongly by the same person”.



Figure 3.4: Schwartz's value circumplex (Howell, 2013:282).

Schwartz's model is widely referenced in research papers, particularly in terms of categorising and evaluating values across many different cultures (Oishi, Schimmack, Diener & Suh, 1998; Schwartz, 1992, 1994; Spini, 2003; Schultz, Gouveia, Cameron, Tankha, Schmuck & Franek, 2005; Holmes *et al.*, 2012). Although not a complete theory of behaviour, it provides a credible model of the relationship between human values and how values affect people's attitudes and behaviour (Holmes *et al.*, 2012:58).

3.3 Bounded rationality and Prospect Theory

Many of the theories that attempt to explain the value-action gap assume behaviour to be the result of rational assessments by individuals acting in their self-interest. Rational Choice Theory (RCT) contends that behaviour results from individuals acting to maximise their benefits or utility. The assumption is that individuals consider their options and choose the option that presents the highest benefits and the lowest costs (Scott, 2000). Unsurprisingly, the RCT has been criticised as a limited theory for explaining actual behaviour (Simon,

1956; Kahneman *et al.*, 1982). There are now many documented examples of individuals who do not live up to the predictions of rational-choice theory. Irrational behaviour, for example smoking, texting while driving, eating unhealthy food, buying an inefficient car or sending perfectly recyclable material to a landfill cannot be explained by rational-choice theory. Given the effort and cost to collect information about options in the present and uncertainties about the future, people seldom have all the relevant information needed to make an informed decision. Herbert Simon (1956) proposed that humans have bounded rationality, meaning that individuals do not decide by optimising between choices but by “satisficing”, or choosing the action that meets a minimum level of benefit.

For a long time, these anomalies in human decision-making were not taken seriously. This changed with the development of Prospect Theory by Tversky and Kahneman in the 1970s and 1980s. Building on the concept of bounded rationality, Prospect Theory was a critique of Bernoulli’s Expected Utility Theory (EUT), the dominant theory at the time in analysing decision-making under risk (Kahneman & Tversky, 1979). EUT assumed that the total value (or utility) of wealth is what makes people more or less happy (Kahneman, 2011:275)., Tversky and Kahneman, however, showed that Bernoulli erred in his thinking as the model ignored the fact that these feelings were relative, being based on recent changes in their wealth and the different starting or reference points from which people consider their options (Kahneman, 2011:275). Tversky and Kahneman’s experiments showed that the perception of the utility of an outcome is more likely to be tested against whether it resulted in gains or losses, than against the new state of wealth (Kahneman, 2002:461; Thaler, 2016:30). In other words, people respond to changes in relative rather than absolute gains and losses (Cummins, 2012:49). Tversky and Kahneman found that, “roughly speaking, losses hurt about twice as much as gains make you feel good” (Thaler, 2016:34). Tversky and Kahneman also showed that the intrinsic positive and negative emotions associated with an event, object or situation, and the intensity of these emotions at the moment of transition, cannot be disregarded. They found that utility could not be divorced from emotion. Emotion is triggered by feelings such as pain and loss in decision-making

(Kahneman, 2002). Daniel Kahneman was awarded the Nobel Prize in Economics in 2002 “for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty” (Nobel Prize, 2019b).

In the formulation of Prospect Theory, Tversky and Kahneman (1979) showed that intuition plays an important role in decision-making. When problems arise, individuals intuitively rely on past experiences and relevant expertise to formulate a solution. If a problem is difficult and a solution does not come to mind quickly, there might be a switch over to a “slower, more deliberate and effortful form of thinking” (Kahneman, 2011:13). These psychological forces can broadly be described as two systems: a fast, automatic, unconscious and emotional system and a slower, deliberative, more controlled, conscious and analytical system (Samson, 2015:31). Stanovich and West (2002) labelled these cognitive processes “System 1” and “System 2”. “Fast” thinking (“System 1”) happens automatically and quickly, is intuitive and requires little effort, is associative and often emotionally charged. The operation of “System 2” is slower and involves more mental effort, concentration, deliberate thought and overt reasoning regarding the facts (Bechara, Damasio, Tranel & Damasio, 1997:1293; Kahneman, 2011:21). System 1 maintains and updates the model of what is “normal”. System 2 will defer to System 1 when a situation seems “normal” or within a set of norms we have come to expect (Gilbert, 2002; Stanovich & West, 2002; Kahneman, 2011:41). When a person encounters a problem, a novel experience or idea, or unclear writing or imagery, more mental effort is required and System 2 is engaged (Bargh & Chartrand, 1999; Smith & DeCoster, 2000; Kahneman, 2011:60).

Kahneman (2011:98) explains that System 1 often uses mental shortcuts or “heuristics” to reduce the cognitive effort of making decisions. Tversky and Kahneman (1974:1124) showed that people rely on these mental shortcuts “to reduce the complex task of assessing probabilities and predicting outcomes”. However, heuristics may also explain many systematic errors in preferences and beliefs, as System 1 can easily jump to conclusions without fully exploring the context or ambiguity that may be present (Kahneman, 2011). This can result

in errors in decision-making and cognitive biases (Kahneman, 2011:81). Cognitive bias is the tendency of the human brain to perceive information through the filter of preferences and personal experience that are most mentally available to us (Kahneman, 2011). The results from studies by Tversky and Kahneman (1974), Bechara et al., (1997:1293) and Finucane, Alhakami, Slovic and Johnson (2000:1) suggest that cognitive biases and heuristics sometimes guide behaviour sooner than conscious knowledge does. Cognitive bias thus helps to reduce the use of scarce mental resources in decision-making. However, this comes with the downside that it limits objective thinking and can lead to incorrect conclusions and judgements (Tversky & Kahneman, 1974).

The heuristics and biases approach in the study of intuitive judgement has been the topic of substantial research literature and many other heuristics of judgement have been added (Kahneman *et al.*, 1982; Gilovich, Griffin & Kahneman, 2002; Harris, 2010). Four cognitive biases frequently cited in the context of environmental behaviour are discussed below:

3.3.1 Status Quo Bias

When given a choice, people seem to have a preference for following the traditional course of action. Samuelson and Zeckhauser (1988) termed this phenomenon “status quo bias”. “Status quo bias is evident when people prefer things to stay the same by doing nothing...or by sticking with a decision made previously” (Samuelson, & Zeckhauser, 1988). Status quo bias is also present when people overvalue what is, and undervalue what could be (Kempf & Ruenzi, 2006:204; Cooney, 2011:42). When presented with conflicting choices or alternatives, humans often accept the status quo, as reflected in the old adage, “when in doubt, do nothing” (Fleming, Thomas, Dolan & Desimone, 2010:6005). Status quo bias and loss aversion often work together as forces to inhibit change (Tversky & Kahneman, 1991:1042; Cooney, 2011:44; Thaler, 2016:154). Status quo bias is evident, for example, in people’s reluctance to change to more environmentally friendly energy sources or modes of transport.

3.3.2 Present Bias

Standard economic theory presumes that people consider short- and long-term implications in their economic decisions. In practice, however, people do not always consider the future in such a rational manner (Sunstein, 2013:54). People may choose immediate gratification over choices that seem to be in their best interest in the long term. Studies in behavioural economics show that this “present bias” may be a factor that causes humans to discount the future disproportionately. People, for example, may think that saving for retirement is a good idea, but then end up spending their savings long before they retire. The 19th century economist Nassau William Senior said, “to abstain from the enjoyment which is in our power, or to seek distant rather than immediate results, are among the most painful exertions of the human will” (Senior, 1852:60). One of the explanations for present bias is that the future is not salient. It seems far away and we do not identify with our future selves. In the on-going battle between the “present self” and the “future self”, the future self often sees the present self winning. The present self is in control and the future self does not “have a lawyer present” to represent itself (Goldstein, 2011). Recent research has demonstrated the people often see their future selves as another person (Hershfield, 2011). “The more the future self feels like a stranger – that is, the more disconnected a person is from his future self - the less motivated he will be to plan for the future” (Hershfield, 2011:33).

Present bias is evident in people’s behaviour towards the environment. Some environmental choices, for example buying energy efficient appliances or LED lighting may require a higher upfront investment that people may not be willing to make, even though they will save money in the long term (Sunstein, 2013:57). People may also express the intention to live more sustainably, for example by driving less and recycling more, but then do not follow through or lapse back into old unsustainable habits when tempted. Present bias is also evident in the context of climate change. “The time lags between release of emissions of heat-trapping gases and subsequent impacts on the climate mean that the connection between actions today and their effects on the climate is difficult to perceive” as Moser and Dilling (2004:35) explain this. In the absence

of a coherent mental model to make sense of the bigger picture, people tend to focus on the present, which is more immediate and salient.

3.3.3 Optimism Bias

People may also be too optimistic about the future when they, in actual fact, should be taking immediate steps to protect themselves from misfortune. Our irrationally positive brain makes us believe the future will be better than the present and the past. We are predisposed to judge the odds of something good happening as better than average, especially if we are uninsured and unprepared (Sharot, 2011a, 2011b). It is this “optimism bias” that makes us look “on the bright side of life” (Sharot, 2012). Sometimes people are unrealistically optimistic, however. They over-estimate their personal immunity from harm and as a result may fail to take sensible preventative steps (Thaler & Sunstein, 2008:33).

Optimism bias is crucial for achieving progress in many spheres. This is most evident in visionaries who simply discount the risk of failure. However, it is important to know when to “cut one’s losses”. It is not easy to own up to mistakes, also for government, who may at times hold on to a doomed policy position in the hope that it will still turn out all right (Krugman, 2007). When outcomes are bad, people often blame decision-makers for “not seeing the writing on the wall” sooner. On the other hand, “a few lucky gambles can crown a reckless leader with a halo of prescience and boldness” (Kahneman, 2011:203). However, optimism bias can perhaps also explain inaction on climate change. Many people secretly hope some miracle technology will be invented that will save the biosphere from collapse before something too drastic has to be done. Monbiot (2007:206) has declared: “A faith in miracles grades seamlessly into excuses for inaction”.

3.3.4 Accessibility

Accessibility is one of the core concepts of the analysis of intuitive judgements. Accessibility refers to “the ease (or effort) with which particular contents come to mind” (Higgins, 1996; Kahneman & Frederick, 2005:271). Descriptive dimensions such as attributes and traits are more or less accessible at a

particular moment. Physical salience determines accessibility, for example an item's colour and size. Lack of physical salience can be overcome by deliberate attention; looking for a particular item, for example, could enhance the accessibility of its features (Kahneman, 2003:1453). Researchers have questioned why some thoughts are accessible at times and others are not. Kahneman (2003b:701) uses the example of the statements: "Team A beat Team B" and "Team B lost to Team A". Although these two statements convey the same information, the two versions make different thoughts accessible. Subtle influences can increase the accessibility of information. "Sometimes the merest hint of an idea or concept will trigger an association that can stimulate action" (Thaler & Sunstein, 2008:70). People may not even be consciously aware of the effect of the cue and yet simple cues can be powerful nudges.

Situations of high emotional and motivational arousal, so-called "hot" states, "greatly increase the accessibility of thoughts related to immediate emotion and current needs, and reduce the accessibility of other thoughts" (Loewenstein, 1996, 2000; Kahneman 2003a:1454). People may think they understand and can control themselves, but in the heat of passion or when provoked by a situation, everything changes with the "flip of an interior switch" (Ariely, 2009:89). In a state of arousal, the reptilian brain takes over and people may become unrecognisable to themselves, so that "Gripped by passion, emotions may blur the boundary between what is right and what is wrong" (Ariely, 2009:99).

3.4 Conclusion

Behaviour change theory has important implications to understand what may prompt individuals to adopt pro-environmental behaviours. The value action gap and some of the influential behaviour change models and frameworks that explain pro-environmental behaviour change or the lack thereof have been examined in this chapter. Behaviour change models such as TPB underscore the impact of attitudes, subjective norms, self-efficacy and personal motivation to change environmental behaviours.

Prospect Theory, developed by Tversky and Kahneman (1979) challenges the rational choice model that forms the basis of economic theory. In the development of Prospect Theory, Tversky and Kahneman found that people use heuristics (short-cuts) instead of always acting rationally in decision-making. They are also subject to bias in their choices. People may be biased towards the status quo when change is required or too optimistic about the future when they, in actual fact, should be taking immediate steps to protect them from misfortune. Present bias makes it hard for people to prioritise future concerns over current needs. Humans are also loss averse. The value function of Prospect Theory shows that people like gains, but they hate losses more (Kahneman & Tversky, 1979; Kahneman *et al.*, 1982; Tversky & Kahneman, 1991). People are also concerned about fairness and reciprocity and do not always respond to incentives as classical economists assume they may (Kahneman, 2011).

The literature points to self-efficacy as a critical component of self-directed behaviour change. The importance of a sense of empowerment and social support also appear to be a pre-requisite for behaviour change. Some of the most effective behavioural interventions simply make the ideal behaviour easier. Changing the default setting can have a dramatic impact on the choices that people make (or do not make) and most people are also mostly happy to accept the socially or institutionally-sanctioned status quo, which places a great responsibility on government and public policy makers to mindfully consider the defaults they propose.

Chapter 4: Use of behavioural insights in public policy in South African municipalities

4.1 Introduction

The science clearly indicates that a transition in domains such as energy, food, mobility and resource use is required to prevent ecological collapse and realise the ideals of the SDGs (Van der Steen & Loorbach, 2018:3). Individual behaviour is central to a sustainability transition, whether through altering daily habits such as saving water, switching off lights, recycling, use of public or non-motorised transport or eating a more plant-based diet, or purchasing behaviour such as energy efficient appliances or fuel-efficient cars. Government can play a role to create an environment in which individuals are encouraged and enabled to adopt pro-environmental behaviours.

In this chapter, the role of local government in leading and accelerating the sustainability transition in South Africa is explored. The chapter further explores how South African municipalities can use behavioural insights in public environmental policy and campaigns to promote changes in individual and household behaviours that have an impact on the environment. The chapter concludes by considering some of the criticism against using behavioural insights in public policy and how the concerns of critics may be addressed in the development of public environmental policy and local environmental governance.

4.2 Local environmental governance for sustainability transitions in South African municipalities

Government has the task of instituting policy, legislation and enforcement through a social contract with its citizens. The social contract is an agreement between individuals and the state whereby individuals willingly surrender some of their liberties to the state for the sake of cooperation and peace. In exchange, “the state is obligated to protect certain natural rights of citizens, act as arbiter in disputes and generally enforce the mutually agreed-upon contract” (Eassom,

2004:119). The reason for the social contract is summarised by Schelling (1978:127):

A good part of social organization – of what we call society – consists of institutional arrangements to overcome [the] divergences between perceived individual interest and some larger collective bargain... What we are dealing with is the frequent divergence between what people are individually motivated to do and what they might like to accomplish together.

The context of local government in South Africa has changed significantly over the past two decades. Constitutional provisions adopted in 1996 (RSA, 1996) created local government as a distinct, but inter-dependent, inter-related sphere of government. The Constitutional objectives of local government now include accountable and democratic government; social and economic development; sustainable service provision; and community involvement in decision-making (RSA, 1996; De Visser, 2001). These specific Constitutional mandates contained in Sections 152, 153 and 156 and Schedules A and B of the Constitution (RSA, 1996) directly determine the duties and functions and the scope of decisions that local governments can take.

Local government must also uphold the Bill of Rights contained in the Constitution. Section 24 of the Constitution (RSA, 1996) establishes an enforceable substantive environmental right. Government, including local government, is compelled by S24b of the Constitution “to take reasonable legislative and other measures” to give effect to the environmental right (RSA, 1996). Environmental governance is a mechanism to realise the environmental right at local government level (Du Plessis, 2010:266). Du Plessis (2010:265) justifies local environmental governance on the principle of subsidiarity. Subsidiarity “encapsulates the idea that functions must be allocated to the level of government where they will be most effectively executed and fulfilled” (Humby, 2014:1681). Du Plessis (2010:266) has stated that,

In light of increased allocation of various environmental roles, duties and functions to municipalities in South Africa and the fact that local government often becomes an executor agent in terms of national and

provincial environmental law, the time seems right to delve further into the legally relevant overlap between local government and the notion of environmental governance.

The National Environmental Management Act, Act No. 107 of 1998 (NEMA) (RSA, 1998a) and the Local Government: Municipal Systems Act, Act No. 32 of 2000 (MSA) (RSA, 2000) have gone some way to institutionalise local environmental governance in line with the principle of subsidiarity. NEMA sets out principles for decision-making on matters affecting the environment and has established a system of integrated planning and management (RSA, 1998a). Section 4(2)(d) of the MSA (RSA, 2000) requires municipal Councils to “strive to ensure that municipal services are provided to the local community in a financially and environmentally sustainable manner”. The MSA defines environmentally sustainable services as those where

...the risk of harm to the environment and to human health and safety is minimised, potential benefits to the environment and human health and safety are maximised and legislation intended to protect the environment and human health is complied with.

The MSA (RSA, 2000) further states that “development” to be promoted must be “sustainable development” and includes

.. an integrated social, economic, environmental, spatial, infrastructural, institutional, and organisational and human resources upliftment of a community aimed at improving the quality of life of its members with specific reference to the poor and other disadvantaged sections of the community and ensuring that development serves present and future generations.

South Africa is a signatory to key international sustainable development agreements such as Agenda 21 and the 2030 Agenda for Sustainable Development (Agenda 2030). Agenda 21 was developed in 1992 at the UN Conference for Environment and Development in Rio de Janeiro and was the first global action plan for sustainable development. There are some similarities between Agenda 21 and the South African Constitutional requirements concerning the right to a safe and healthy environment; co-operative

governance; and integrated development planning. Agenda 21 also promoted effective partnerships with communities, a principle which is embedded in South African legislation, in particular with regard to the Integrated Development Plans required by the MSA (RSA, 2000).

World leaders adopted the 17 SDGs of Agenda 2030 at the United Nations Summit on Sustainable Development in 2015 (Urquhart & Atkinson, 2000; UN, 2015). The SDGs build on the foundations of Agenda 21, with an added strong focus on limiting carbon emissions and paving the way for a thriving net-zero emissions economy (UN, 2015). South Africa's commitment to Agenda 2030 is echoed in Chapter 5 of the National Development Plan that calls for environmental sustainability by 2030, by when "South Africa's transition to an environmentally sustainable, climate change resilient, low-carbon economy and just society will be well under way" (RSA, 2012). In order to give effect to South Africa's commitment to Agenda 2030 and the NDP, local government leaders in South Africa have to drive the strategic sustainability agenda through the development of public policy.

Public policy is one of the key competencies of successful local governance (UN Human Settlements Programme, 2005:9). Municipalities in South Africa may prepare and administer policies and bylaws to administer matters for which they are responsible effectively. Legislative and executive authority is vested in the municipal council (RSA, 1998b). In developing countries with major developmental requirements such as South Africa, local government in particular faces tension between its developmental mandate (shaping society so that economic and social aspirations are met) and the local environmental governance mandate (ensuring that natural systems are maintained). In a context where there is low trust in the ability of municipalities to meet their service delivery obligations; a broken social contract; high levels of poverty; inequality and scarcity; constraints on the availability of energy, water and other natural resources; aging infrastructure and infrastructure backlogs, as well as fiscal limitations, municipalities in South Africa are faced with competing demands from residents and high levels of complexity. In this context, innovative policy solutions are required to address the tension between the

need for economic and social development, and protecting and enhancing the ecological resource base (Ngosso, 2013).

4.3 Using behavioural insights in the development of public environmental policy at local government level in South Africa

In the past, public information campaigns promoting pro-environmental behaviour in South Africa typically focussed on disseminating general environmental messages to largely undifferentiated mass audiences. These rationalist approaches assume that faulty decision-making on environmental matters can be corrected by addressing the environmental “information deficit” (Burgess, Harrison & Filius, 1998). However, given the relatively low uptake of pro-environmental behaviours, such as energy and water saving and recycling in South Africa, there is recognition that more nuanced approaches may be needed to promote pro-environmental behaviour. Many people in South Africa are already aware of the need for more sustainable behaviour, and some already express pro-environmental values through social media and other platforms. However, there still seems to be a gap between what people may express as important and actual behaviour change towards the environment.

A growing body of evidence demonstrates that behavioural science insights can be used to develop more effective local environmental policies. At the core of the behavioural trend in public policy lies the insight that humans, in reality, do not behave in line with the assumptions of rationality postulated by standard economic and planning theory (Kahneman & Tversky, 1979; Kahneman, 2003b; Emmerling, 2018:37). Contextual drivers such as salient messages, defaults and social norms often trigger human behaviour, rather than more controlled and conscious decision processes (Kahneman, 2011; Dolan *et al.*, 2010). Behavioural science shows it is more efficient and effective to work with the grain of human nature. By acknowledging and embracing behavioural insights and tools, policymakers can work with individuals and communities to promote pro-environmental behaviour by addressing the human side of decision-making (Thaler & Sunstein, 2008; Emmerling, 2018:37).

Policy makers, for example, now have access to research that shows that people make better decisions when a low cognitive load is involved, e.g. when information is presented in a straightforward way and when they are not under pressure or feeling stressed. The use of behavioural sciences in government bring a human perspective to public policy and can assist in designing services and communication campaigns in a more thoughtful way, to make sustainable behaviours easier and more accessible to the average person. Behavioural science insights can further assist in regaining people’s trust in the capacity of government to solve pressing environmental problems in a fair and empathetic way. Interest in what can be termed “behavioural environmental policies” (BEP) is increasing. Schubert (2017) describes BEPs as “innovative policy tools that are designed with a specific focus on behavioural factors alien to the traditional homo economicus model, such as cognitive biases or limited willpower and attention” (Beckenbach, 2015).

To date, behavioural insights have largely been used in the later stages of traditional policy processes, mainly at the stages of implementation and evaluation to help optimise services or programmes (Philips, 2018). Rigorous testing and evaluation to understand “what works” is fundamental to good policymaking and behavioural insights can help government to understand why existing policies may not be working, which, for example may be due to loss aversion or cognitive biases. However, in the implementation and evaluation stages, many decisions about the policy architecture have already occurred. At this point policymakers have already defined the parameters of the problem and outlined potential solutions. They may also already have decided which policy instrument to use, such as incentives, taxes or regulation.

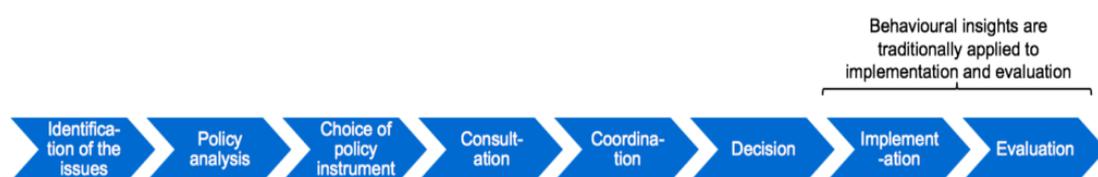


Figure 4.1: Traditional policy formulation process and application of behavioural insights (Philips, 2018).

Philips (2018) argues, “if welfare is our guide, we are obligated to apply behavioural insights at the early stages of policy design”. The Behavioural Insights Team in the Netherlands Ministry of Infrastructure and Water Management, for example, has integrated behavioural insights from the design phase of policy programmes through implementation in traffic congestion relief programmes. The behavioural science team in the United Kingdom’s Department of Work and Pensions is using behavioural insights to examine the underlying assumptions within policy decisions (Philips, 2018).

Climate change and ecological decline are extremely complex issues that require structural, system-wide responses. Benington and Moore (2011:13) argue that neither the technical solutions characteristic of traditional public administration, nor the market mechanisms advocated by new public management paradigms have been successful in addressing these complex or “wicked” sustainability problems faced by governments today. Public value has emerged in recent years as a paradigm that is beginning to acknowledge and address complexity. Public value thinking can assist in shaping the debate beyond what the “market” wants, to what the public most “values” and to what adds value to the public sphere (Benington & Moore, 2011:14). Public value thinking focuses on the wider community interest, including the needs of future generations (Benington, 2011:43). In the context of sustainable development, public value demands government to be the custodian of public assets for current and future generations (Benington, 2011:47; Burger, 2014:8). Newman and Clarke (2009:183) campaign for “publicness”, above all else, to be oriented around concerns for fairness, equality and social justice. Governance for increased public value requires a mutuality mindset looking past conflicting realities and, instead, looking for patterns and opportunities. Collaborative approaches generate mutual trust and understanding rather than animosity and suspicion (Sabatier, Focht, Lubell, Trachtenberg, Vedlitz & Matlock, 2005). It is therefore more likely that target audiences would adapt their environmental practices in line with public policy when they have been involved in the formulation of the policy (Lukas, Brooks, Darnton & Jones, 2008:464). Allen, Kilvington and Horn (2002:12) found that “Participatory and learning-based approaches to policymaking and management help develop a common

understanding of environmental problems and are an adaptive process in which technologies and behaviours are continually reviewed and fine-tuned". Environmental policymaking can therefore be seen as a negotiated learning process (Allen *et al.*, 2002:12).

Co-creation is a transition approach in which people come together to decide what has to change. The concept is based on the creation of an environment conducive to highly interactive engagement. Co-design and co-creation sustain synergy by aligning and coordinating the actions of key stakeholders (Suzuki, Dastur, Moffatt, Yabuki & Maruyama, 2010:2). The significance of co-design and co-creation derives from the ability for all stakeholders to participate actively in designing the new policies and solutions. The outcome is thus co-owned and stakeholders can hold each other to account for implementation. Co-creation moves away from the battlefield mentality of "for and against us" and the mentality of "me and my rights", to facilitate actively adopting a mutuality mindset and looking towards what can be done collectively to improve a situation and create more public value. In this context, participation is not aimed at generating public support for government policies, but a process of co-developing a vision and agenda and collectively carrying out practical experiments and projects (Kemp & Loorbach, 2003:21).

4.4 Behavioural insights for pro-environmental behaviour change

Insight 1: Meet people where they are

Policymakers often try to influence people to change their behaviour by presenting scientific facts and data as motivation. However, convincing people to change their behaviour is far more complex than providing information alone (Mullainathan, 2009). Many people have relevant information and may even hold pro-environmental values but may still not change their behaviour due to the problematic value-action gap. It is important to understand the context in which individuals and communities operate, as well as their culture, priorities, constraints and current frame of mind, and "to meet them where they are". According to Kerr (2012:10),

Changing environmental attitudes in itself is an extremely difficult task. People need to be given the space and time to examine their feelings, emotions and beliefs in order to change attitudes leading to behaviour change. In that sense, providing information isn't enough to promote environmentally-friendly behaviour change but encouraging people to think about their values will help.

Introducing empathy into public policy can assist government officials and policymakers to get in touch with citizens, to understand where they are emotionally, to slow down and listen attentively to their needs and fears and to remove the pain points that are preventing behaviour change. Empathy is created when we imagine ourselves "in someone else's shoes". The word empathy derives from the German word "einfühlung", which literally translates as "feeling into". There are nuanced differences between three aspects of empathy. Cognitive empathy enables us to see the world through other people's eyes, taking their perspective and understanding the mental models that make up their lens on events. Emotional empathy signifies "I feel what you feel". Emotional empathy allows an instant sense of the other person's emotions. Empathetic concern forms the basis of compassion, allowing us to "tune in" to other people's suffering (Goleman, 2018:98). Lack of empathy could be linked to violent, psychopathic and antisocial behaviours, but our empathy, our "tuning in" separates us from Machiavellians or sociopaths.

Insight 2: Promote happiness and well-being and avoid guilt and fear

The idea that emotion plays a role in shaping behaviour is not a new concept, but, oddly, is largely ignored in many behavioural models (Ledoux, 1998:21). Emotions, including happiness, joy, pleasure, surprise, shame, guilt and fear are short-lived, intense responses to challenges and opportunities. Emotions trigger an all-systems alert that can affect how we perceive things, what we remember and what kind of decisions we make (Etcoff, 2004). Humans have both a positive and a negative emotional system (Etcoff, 2004; Dobelli, 2013:119). The negative system is extremely sensitive. We are wired for dangers that are immediate and our bodies react physiologically by releasing hormones such as adrenalin so that we can move away quickly. Using affects or emotion as a shortcut in decision-making, also called the "affect heuristic",

can be far easier than rationally weighing up the advantages and disadvantages of a decision (Slovic, Finucane, Peters & MacGregor, 2002:397-420). Affects or emotions play a role in forming opinions, but can lead people astray when thinking about complex problems (Dobelli, 2013:119).

Procrastination (from the Latin *pro*, meaning “for” and *cras* meaning “tomorrow”) is rooted in emotions. When we promise to do something, for example save electricity or use public transport, we are in a “cool” state. Then life happens, hot emotions flow in, we might be under pressure for time and we end up giving up our long-term goals for immediate gratification (Ariely, 2009:111; Thaler, 2016:111). Ariely (2010:4) claims procrastination would not be a problem in a perfectly rational world: “We would simply compute the value of our long-term objectives, compare them with our short-term enjoyments, and understand we have more to gain in the long term by suffering a bit in the short term.” Possible solutions for procrastinators to focus on the long term could include automatic enrolment in sensible programmes, thereby ensuring that people make choices that will ensure that their inertia works for them. Simplification of processes also assists to overcome inertia, in particular in instances where people need to take steps in the present to secure benefits in the future.

Guilt and shame are two emotions often used in appeals related to environmental behaviour change. Shame is the disgrace a person feels in front of others when they have engaged in an act that is seen as unacceptable (Baldwin *et al.*, 2006:5). Shame tends to arise in relationships between individuals and groups (Jackson, 2006). The desire to avoid shame is a powerful motivator (Baldwin *et al.*, 2006:8). Many people do not want to be exposed as different or not doing their part, so they may change their behaviour to fit in with the group. Guilt is generally understood as an emotion that arises when a personal or social norm is violated (Thøgersen, 2006, 2009) and is believed to motivate through a breach of one’s internal standards (Burnett & Lunsford, 1994:33) and a lowering of self-esteem (Burnett & Lunsford, 1994:35). Bedford *et al.* (2011:22) found that, when individuals feel guilty about their environmental impact, for example through frequent flying, they may be motivated to use mechanisms such as carbon offsetting to alleviate this guilt,

thereby allowing them to feel they have done their bit in comparison to others. However, Cotte, Coulter and Moore (2005) warn that existential guilt have been over-used in environmental campaigns to the extent that people have become desensitised to these appeals. Referencing a 2018 Pew Research Centre study, Bobrow (2018) notes that, “even though nearly six in ten Americans say climate change is already affecting their local community, no amount of guilt or logic has reliably prodded people to fly less, recycle more, or keep offices at a temperature above frigid in summer”.

Fear is another motivator of human behaviour. Lexico (2019) defines fear as, “an unpleasant emotion caused by the threat of danger, pain, or harm”. Fear creates anxiety about the present and the future and prevents people from taking risks (Coulter & Pinto, 1995; Caplin, 2003:441-58; James, 2010:5; Kahneman, 2011). From an evolutionary perspective, the three most common responses to danger are fight, flight or freeze (Moser & Dilling, 2004:38). If threat information is ambiguous, perceived as manipulative, or comes from an untrustworthy source, it could evoke resentment or dismissal (Ajzen, 1991; Hine & Gifford, 1991; Bandura, 1997; Bator & Cialdini, 2000; Osbaldiston & Sheldon, 2002). People generally want to avoid personal feelings of distress and they react to reduce fear, and this may result in responses such as psychic numbing or apathy, or anger and violence (Moser & Dilling, 2004:39; Bateson, Nettle and Roberts, 2006:412). The fear of getting caught is shown to have a powerful influence on behaviour. When people know they are being watched, their behaviour is generally more conformist and compliant (Greenwald, 2014). The 18th Century philosopher Jeremy Bentham used this insight when he devised the “panopticon” for use in French prisons (Bowring, 1962). Crucial to the design was the fact that prisoners could not see into the panopticon, and so they never knew if they were being watched. The prisoners had to assume they were being observed at any given moment - the ultimate enforcer for compliance and obedience. The panopticon has become a symbol of extreme measures taken by the state and institutions to control people’s behaviour. However, people’s behaviour may change even at the suggestion of being watched. Bateson *et al.* (2006:412) found that placing an image of a set of eyes above an honesty station in a university coffee room increased the rate of

contributions to the honesty box. The results showed that even subconscious cues of being watched could alter human cooperative behaviour (Bateson *et al.*, 2006:413). In this regard, Moser and Dilling (2004:40) warn that fear as a motivator for urgent behaviour change should be used with caution, and only if policymakers also provide a sense of “response-ability” to deal with the problem. The focus should be on empowerment and bolstering people’s sense of self-efficacy.

Joy and happiness are at the opposite end of the scale from fear. Happiness can be defined as “subjective well-being” – “a sense of either immediate pleasure or long-term contentment with the way my life is going” (Harari, 2014:425). Etcoff (2004) maintains that the pursuit of happiness is an inherent human quality; humans cannot wish not to be so; they are wired to seek happiness, to enjoy it and to want more of it. In terms of economic theory, it is possible to think of utility as a measure of happiness. The assumption is that, if people maximise utility or satisfaction, they maximise happiness. Tversky and Kahneman’s research has shown that happiness or utility depends on relative rather than absolute levels of wealth (Kahneman, 2002). What others have, and what a person used to have are the two most likely reference points, according to Cartwright (2011:398), while. Conley (2012:173) expresses happiness as an emotional equation of gratitude over gratification:

Wanting what you have (gratitude)

Happiness equation = Having what you want (gratification)

Harari (2014:437) notes that “happiness is not a surplus of pleasant over unpleasant moments. Rather, happiness consists in seeing one’s life in its entirety as meaningful and worthwhile”.

The UN has recognised happiness as a “fundamental human goal” (UN, 2011) and has invited member nations to measure the happiness of their people and to make use of happiness as a guide to policy. The small Himalayan Kingdom of Bhutan is internationally known for its policy of promoting “gross national happiness” instead of economic growth (Singer, 2016:195). When the Bhutan

government ministry proposes a policy, it is first screened to see whether it supports the goal of promoting gross national happiness. While a debate on agreeing whether public policy should focus on experiencing happiness or life evaluation is still necessary, it either way is anticipated that measures of happiness will become part of the national statistics in the decades to come (Kahneman, 2010).

Insight 3: Reduce psychological distance and emphasise personal relevance

Many climate scientists and environmental activists believe that people would be motivated to act and change their behaviour if the world population just knew the solid science behind climate change and their role in contributing to ecological harm (DeSombre, 2018:2). However, global environmental trends are highly complex and people struggle to relate to the scale of it (Van Vugt, 2017:244). In this regard Gore (2009:304) has said:

The impact of global warming seems remote and the distributed effects make it difficult to ascribe an unambiguous cause-and-effect relationship between what is happening to the earth as a whole and what is happening to a single individual in a given time and place.

Psychological distance could be one reason for the lack of action to arrest climate change and environmental degradation. Psychological distance refers to things that are not part of our immediate reality, or are not felt in the present moment. If people, for example, think climate change is unlikely to affect them, they may be less likely to be concerned about solving the problem. In other words, if the impact of climate change feels psychologically distant, people will be less motivated to take action. To bridge the gap, studies suggest that discussions about environmental damage and climate change should focus on how it affects communities and families at a local level, for example by calling attention to the real-life experiences of people (Slovic, 2007; Baddeley, 2011:22; Singh, Zwickle, Bruskotter & Wilson, 2017:93; Van Vugt, 2017:244). Focusing on the experiences of real-life communities and families helps people to see others as individuals, thereby appealing to their compassion and empathy. Another technique to reduce psychological distance is to use stories.

Humans are natural storytellers and are intrigued by stories. The cave paintings at Lascaux in France and Aboriginal and San art in Australia and South Africa are early examples of storytelling. Harari (2014) believes that humans evolved because we developed the ability to tell each other stories. “The ability to transmit information about intangible things such as spirits, nations, limited liability companies and human rights is an important outcome of the cognitive revolution” (Harari, 2014:41). Stories can uplift, motivate, inspire and energise people (James, 2010:5). People respond strongly to stories about individuals in distress, but find it difficult to care about more abstract suffering on a larger scale (Slovic, 2007). It is therefore important to put individuals at the heart of the story to help people identify with the characters and thereby reduce psychological distance.

Insight 4: Be mindful of loss aversion

The human brain is wired to give priority to bad news as a survival strategy (Kahneman, 2011:301). “Fight or flight” is an ancient system which evolved for dealing with situations of physical danger, a rudimentary survival mechanisms or instinct. Survival depends on approach or avoidance, which essentially are strategies for achieving pleasure and avoiding pain. As a result, people tend to respond more strongly to losing something than to an opportunity of equivalent gain (Tversky & Kahneman, 1991:1047; Ariely, 2010:32). Kahneman and Tversky found that “roughly speaking, losing something makes you twice as miserable as gaining the same things makes you happy” (Thaler & Sunstein, 2008:33).

Loss aversion is well illustrated in the context of climate change. As Monbiot (2007:xvi) notes, “at the moment we want it all: palm-fringed beaches, monster trucks, plasma screen TVs and a clean conscience”. Monbiot (2007:40) believes that “one of the reasons why professional climate change deniers have been so successful in penetrating the media is that the story they have to tell is one that people want to hear”. People are open to the dissenting voices “because we are simply too comfortable, and we have too much to lose” (Monbiot, 2007:214). People therefore tend to support those policies that have minimal impact on their lives (Bord, Fisher & O’Connor, 1998:83).

It is important for government to be aware of loss aversion in the design of public policy. Due to loss aversion, a message that emphasises that people are losing money, for example, by using energy inefficient appliances in their homes may be more effective than a message that they will save money in the future by investing in more energy efficient appliances (Sunstein 2013:61). Another example is levying a tax on plastic grocery bags. The District of Columbia in the United States of America (USA) experimented with rewards and fees and found a tax on plastic shopping bags, enlisting loss aversion, to be more effective than credit for not taking bags (Sunstein, 2013:65). The lesson for public policy, to discourage behaviour, therefore is that a fee is likely to have a bigger effect than a reward, even if the fee is small or nominal (Sunstein, 2013:65).

Insight 5: Adjust the frames

The manner in which information is presented or “framed” can influence perception (Sunstein, 2013:61). Frames are “mental structures that order our ideas” (Holmes *et al.* 2012:36). Small and apparently insignificant changes in framing can have a profound impact on the way the message is conveyed (Thaler & Sunstein, 2008:85) because people absorb new information through pre-existing “frames of reference” (Moser & Dilling, 2004:36; Holmes *et al.*, 2012:38). “Associations between words, ideas, emotions and values reflect mental connections that have formed between them over time” (Holmes *et al.*, 2012:38). As Cartwright (2011:40) pointed out, when we see something, intuition and perception automatically kick in to give us the impression of what we are looking at.

A number of studies have shown that framing has an effect on decision-making, particularly when probabilities must be calculated (Tversky & Kahneman, 1981; McNeil, Pauker, Sox & Tversky, 1982; Shafir, 1993; LeBoeuf & Shafir, 2003). In decision-making, framing effects arise when alternative formulations of the same situation highlight and make different aspects accessible (Cartwright, 2011:40). How a message is conveyed and received depends on where the emphasis is placed and what information is included and excluded (Holmes *et*

al., 2012:36). People tend to be passive decision makers and they do not always check whether reframing the question would produce a different response (Thaler & Sunstein, 2008:37). Knowing that people react more strongly to immediate dangers, policymakers could be tempted, for example, to frame a problem such as climate change as an impending disaster in the hope that it would lead to more urgent action. As Tickell (2002:737) suggests, we may need a “useful catastrophe or two” to “illuminate the issues”.

Visual imagery and metaphors can frame issues through implicit associations between concepts. Aristotle defined metaphor as the process of, “giving the thing a name that belongs to something else” (Koren, 2010). Thinking of one concept in the abstracted terms of another is a powerful tool and central to human cognition (Lakoff & Johnson, 1980). Metaphors allow people to use their knowledge and experience to provide an understanding of countless other subjects, and metaphor therefore is an effective and strong tool to frame complex issues quickly (Holmes *et al.*, 2012:36). The “urban metabolism” is an example of a metaphor that may help people understand complex urban systems for evaluating the input-output relationship of cities and their biophysical environments and describing the interconnected institutional, social and economic processes that both sustain and endanger the planet (Newell & Cousins, 2015:704). Ecological footprint, natural capital and ecosystem services are other examples of metaphors. The ecological footprint represents human demand on ecological services and renewable resources (WWF, 2016:13). The concept of natural capital involves the comparison of the productivity of the natural system with other forms of capital (World Bank, 2018). Ecosystem services describe nature as a “stock that provide a flow of services” (Norgaard, 2009:1219).

One approach towards overcoming loss aversion and present bias in pro-environmental behaviour change campaigns is to frame sustainability as the “smart” choice of those focused on the future. Environmental communications could associate “modern” with green and present sustainable living as a necessity, not a luxury. Appeals to say “no” to high water use, high carbon, high food miles and waste could create a collective dream that galvanises everyone

to be “future smart”. Another angle could be to ask people to think about their legacy. Researchers have found that people make more far-sighted choices, also about the environment, when asked to reflect on how they want future generations to remember them (Gore, 2009:316; Zaval, Markowitz & Weber, 2015).

Insight 6: Catch people doing something right

Self-efficacy is a factor in a number of behaviour change theories and models. The assumption is that people will only change their behaviour if they believe they have a good chance to succeed. Cognitive representations of future outcomes may create the expectation that certain behaviours will produce anticipated benefits or avoid future difficulties (Bandura, 1977:193). Conversely, behaviour may be restricted if people believe individual action is futile (Kaplan, 2000). For behaviour to change, people need to see themselves as agents of change and as part of the solution.

People’s sense of efficacy can be improved through message framing and feedback (Cheng, Woon & Lynes, 2011). Public policy campaigns should be designed to set clear goals, as well as to tell people when they will receive feedback and to acknowledge success when they have reached the goal. Campaigns should focus on behaviours that individuals can change (i.e. behaviours that are in their sphere of influence) and emphasise what difference their contribution will make (Cooney, 2011:36). Holmes *et al.* (2012:43) suggest that policy makers pay particular attention to the language and media used for engaging people to change behaviour. Many people find the use of “apocalyptic” language and imagery disabling. A barrage of negative, even terrifying information and the conventional “doom and gloom” predictions of a ravaged future can trigger denial or paralysis and foster a collective sense of cynicism and fatalism that is unlikely to inspire pro-environmental behaviour (Gore, 2009:314). It is hard to maintain a positive attitude when facing a deluge of bad news, knowing that any and every action, even eating and going to work, has a negative impact on the world. Rorty (1989:7) suggests environmental policymakers should “borrow from the Romantics the view that in politics, as in life, imagination is more important than reason”. People should be encouraged

to dream about an abundant future, creating a new mood of gratitude, joy and pride rather than sadness, fear and regret. Instead of using negative language, the lexicon of sustainability should focus on synergies, abundance, optimism and the net benefits to be enjoyed rather than the sacrifices to be endured so that people will not frame pro-environmental behaviour as a loss or as painful. Research has shown that campaigns should instead focus on positive emotions, such as pride in making the “right” choices rather than guilt when making the “wrong” choices (Schneider, Zaval, Weber & Markowitz, 2017). Adopting a more moderate discourse and focusing on synergies will encourage people to see themselves as participants in a co-operative effort to protect the planet.

It is important to understand what may prevent an individual from engaging in the target behaviour. Often people do not engage in the “right” behaviours because these may be more difficult, more inconvenient and costlier, more time consuming or simply less rewarding than the “wrong” behaviours (Cooney, 2011:183). To improve the chances of successful behaviour change, Blanchard and Johnson (1983:39) suggest trying to “catch people doing something right”. Celebrations of success produce positive feelings and can motivate people to try even harder. Cooney (2011) recommends creating practical opportunities for people to try out new behaviours. Examples could include free trials of organic vegetable box schemes or sponsored bikes for commuters. By showing people how, and structuring choices in a way that makes behaviour change seem easier, new pro-environmental habits could be formed (Gore, 2009:316).

Commitment (or pre-commitment) is a frequently used behavioural device to motivate positive change. Commitment as a strategy counteracts people’s lack of willpower. “The greater the cost of breaking the commitment, the more effective it is” (Dolan *et al.*, 2009). If commitments are made publicly, people are likely to honour such commitments to avoid reputational damage (Yoeli, 2018) and if made privately, to avoid cognitive dissonance (Festinger, 1957). Sunstein (2014) notes that committing to a specific future action at a particular time tends to be a good motivator for action, while reducing procrastination at the same time. Cooney (2011:95) suggests asking people for

a small and personal commitment to start off with. People could be asked, for example, to sign a pledge to turn off the lights when they are leaving the house. A personal commitment sets a new reference point and helps people to create a positive self-image of being the “kind of person” who behaves “in the right way” (Cialdini, 2008; Cooney, 2011:93).

“Save More Tomorrow” is a programme aimed at helping employees in the USA to save money for their retirement. The programme illustrates pre-commitment to a future goal by giving employees the option of pre-committing to a gradual increase in their savings rates every time they get a raise, thereby avoiding the perception that saving presents a loss of current disposable income (Thaler & Benartzi, 2004:170). “People’s inertia makes it more likely that they will stick with the programme, because they have to opt-out to leave” (Samson, 2015:39).

Insight 7: Help people make better choices

A choice is the selection of one among numerous possible alternatives. Being able to choose is seen as a basic human freedom. Choices are influenced by unconscious and social factors, so people often choose by guessing or by looking to see what others are choosing or base this on what they think other people may think about their choice (Saleci, 2013). It is a common misconception that people should be given as many choices as possible (Iyengar & Lepper, 2000:995). This assumes that people have the time, attention and knowledge to choose between a multitude options. People are more likely to use decision shortcuts if presented with too many options or complex choices (Samson, 2015:29). Although having some choice is generally good, too many choices tend to make people less satisfied, no matter which option is chosen (Schwartz, 2005; Harris, 2010:183). Iyengar and Lepper (2000) refer to this as “choice overload”. Choice overload can be reduced by simplifying the choice attributes, providing information about the consequences associated with each choice, placing the choices in categories and conditioning for complexity by introducing information slowly (Iyengar, Jiang & Huberman, 2003; Johnson *et al.*, 2012). One way of narrowing down choices is to give

people only two options, for example support or oppose, or a clear yes or no. However, this may result in a win-lose situation. Ariely (2009) found that, when given three choices, people will more often take the middle one. The first and third options are set as reference points, or anchors. People compare the options relative to each other (Simonson & Tversky, 1992:292). According to Ariely (2009:3), “most people don’t know what they want until they see it in context”. Ariely (2009:3) also uses the metaphor of an airplane landing to explain that “people like to have runway lights on either side of them to guide them where to touch down their wheels”.

Thaler and Sunstein (2008:75) identify several other situations in which people are less likely to make good choices. These include choices that have delayed effects (e.g. benefits now, costs later) and those that are complicated; have a high degree of difficulty; are infrequent (i.e. no opportunity for trial and error); do not offer feedback; and decisions where the relationship between experience and choice is ambiguous (Thaler & Sunstein, 2008:79). In these situations, people may need a “nudge”. Examples of nudges can include default options, priming, framing, simplification, salience, disclosure, public warnings, pre-commitment, reminders, feedback, incentives and social norms (Dolan *et al.*, 2009:18; Sunstein, 2014:5). “Green nudges” are nudges designed to promote pro-environmental behaviour and foster greater compliance with environmental legislation. The goal of nudges should be to make people’s lives simpler, easier and safer (Sunstein, 2014:2). Sunstein (2013:9) notes that the best nudges have high benefits and low costs.

To explain what a nudge is, it is also necessary to explain the concept of choice architecture. Choice architects are people or institutions who use nudges and design to influence the choices of other people (Thaler & Sunstein, 2008:85). “A choice architect is anyone responsible for framing a decision that others will take” (Cartwright, 2011:451). Sunstein (2013:9) defines choice architecture as, “the social environment against which we make our decisions”. Good choice architecture steers individuals in a certain direction, hopefully towards positive helpful outcomes, while maintaining their freedom to choose (Sunstein, 2013:9). Good choice architecture can also help build capacity so people can

later make better choices on their own (Thaler & Sunstein, 2008:99). Bad choice architecture provides inconsistent signals to people that can result in reduced performance and sub-optimal decisions (Thaler & Sunstein, 2008:84). Vagueness can produce inaction, even if people are informed about potential consequences and risks. “What appears to be scepticism, intransigence, or recalcitrance may just be a response to ambiguity” (Sunstein, 2013:60).

Thaler and Sunstein (2008) highlight expecting error, using defaults and giving feedback as three principles of good choice architecture. People often make decisions not on strict logic, but based on approximate “rules of thumb” (or heuristics), which may lead to flawed assumptions. Good choice architecture anticipates the potential errors that people could make and tailors the design to minimise the chance of errors in human decisions. The second principle is to use defaults where possible. Croson and Treich (2014:338) explain: “In many situations, people do not actively or consciously choose, and this may lead to poor outcomes.” Defaults are pre-set courses of action that come into effect if the decision-maker takes no action (Thaler & Sunstein, 2008). By believing they may have more time in the future to make a more informed decision, many people go with the default option. Of course, a significant number never get around to doing so. Inertia and status quo bias imply that, if there is a default option, it is to be expected that many people will select this regardless whether it may be good for them or not. People tend to favour the default option because it is just easier to go with the default than to choose a different option. Johnson *et al.* (2012) found that individuals simply consider whether the default option satisfies them when an option is pre-selected, instead of evaluating all the options separately. Behavioural tendencies toward “choosing” the default are reinforced “if the default option comes with some implicit or explicit suggestion that it represents the normal or even the recommended course of action” (Thaler & Sunstein, 2008:85). McKenzie, Liersch and Finkelstein (2006) have noted that defaults are commonly perceived as conveying an endorsement, while Jachimowich, Duncan, Weber and Johnson (2018) found that “defaults are more effective when they operate through endorsement (defaults that are seen as conveying what the choice architect thinks the decision-maker should do)”. Defaults can influence environmental behaviour, for example by

promoting green energy and setting default printing options to save paper (Pichert & Katsikopoulou, 2008; Sunstein & Reisch, 2014; Ebeling & Lotz, 2015)

The third principle of good choice architecture is feedback. “Well-designed systems tell people when they are doing well and when they are making mistakes” (Thaler & Sunstein, 2008:92; Gore, 2009:316). Examples of feedback could include robot lights (red, yellow, green), “smiley” and “sad” emoticons, eco-indicators (for example eco-labelling), dashboards, smart meters and transparent bins to see the waste that was disposed. Hargreaves, Nye and Burgess (2010) and Strengers (2011) found that consumption of water and energy can be reduced by making hidden costs more salient or visible, for example by installing real-time smart meters in the home that display water and energy use as it occurs. In another example, the Southern California Edison utility company introduced an “Ambient Orb” to their customers. When a customer is using a lot of energy, the small ball glows red. When energy use is modest, the ball glows green. The feedback provided by the ambient orb made energy use visible (Thaler & Sunstein, 2008:196). Municipalities could also, for example, provide information on how much electricity or water a household has already saved and quantify the savings in monetary terms (Abrahamse, Steg, Vlek, Rothengatter & Rothengatter, 2007). Similarly, seeing that the credits on a pre-paid meter reduce may be a more powerful motivator to save energy or water than simply seeing the cost on a utility bill when it arrives weeks later.

Insight 8: Simplify

The human mind cannot derive meaning from the enormous amount of data we are presented with every day. Our attention filters a fraction of what goes on around us (Lupi & Posavec, 2016). Fogg (2009) and Sunstein (2013) previously advocated that policymakers simplify decision processes. We are less likely to perform behaviours that require more time, more money, physical effort, mental energy in the form of memory and attention, more steps and breaking with social norms, according to Fogg (2009:6). McKenzie-Mohr (2000) as suggested that making sustainable behaviours easier, less costly and more convenient than the alternative non-sustainable activity can enhance motivation and

Kahneman (2011) warns not to overwhelm people with detail. Most people only want a basic understanding and do not need to know the intricacies. Kahneman (2011) therefore suggests that policymakers test the audience to see how much detail they want, as experts will have different information requirements from novices. Maeda (2006:1) notes that one of the easiest ways to achieve simplicity is through “thoughtful reduction”. “When it is possible to reduce a system’s functionality without significant penalty, true simplification is realized” (Maeda, 2006:2).

Another way policymakers could assist people is by translating raw data into visual models that are easier to understand. Examples of visualisation include graphs, barometers, animations, infographics and illustrations. Cognitive psychologists have found that the human brain creates mental models to make sense of the world (Jones, Ross, Lynam, Perez & Leitch, 2011). By visualising ideas, we assist the brain to make ideas clearer, more accessible, interactive and more persistent, thereby creating greater meaning from abstract information (Jordan, 2008).

Insight 9: Engage social norms and make sustainable behaviour the social default

The human brain is wired to seek relationships with other people. It is a basic human desire to connect with others and form and maintain enduring interpersonal attachments (Baumeister & Leary, 1995:522; Van Vugt, 2017:245). Yet, one of the main criticisms of theories and models that analyse and explain behaviour change is the lack of consideration of the social contexts in which people perform their actions. “Individuals are not calculating automatons. Rather, people are malleable and emotional actors whose decision-making is influenced by contextual cues, local social networks and social norms, and shared mental models” (World Bank, 2015:3). Our identities are shaped by values and norms from our social environment and dominant narratives (Cialdini, Reno & Kallgren, 1990:1015). Hargreaves (2011:12) notes, “the novelty of normalisation is that, rather than introducing an absolute sense of right or wrong behaviour, it produces a relative sense of rightness or wrongness”. In the context of pro-environmental behaviour, what needs to be

changed then is “that which does not measure up to the rule, that departs from it” (Foucault, 1975:178). However, because people care a great deal about what others think of them, they might slavishly go along with the crowd without objectively assessing information for themselves (Thaler & Sunstein, 2008:55). This could lead to groupthink, misconceptions and the spread of biased or false beliefs (Janis, 1971:84; Thaler & Sunstein, 2008:54).

The Internet and social media have revolutionised the way people organise and create communities around matters of common interest. The vast majority of content now uploaded to the Internet is by average users via social media postings and video and blog posts. The Internet has become much more interactive, with people commenting, sharing and contributing, not just reading. With more than 2,7 billion people now using social media (nearly a third of the planet’s population), technology is making it increasingly possible for government to connect with multiple online communities through targeted communications and to actively engage in conversations with individuals and groups of citizens to better understand their needs. Social media also is largely free, making it an inexpensive way for government to share policy-relevant information with citizens. The Internet and social media furthermore make it possible for groups to organise around issues they wish to see addressed. However, Monbiot (2007:214) warns that the Internet can create a false impression of action, thereby leading to a belief that, “we can change the world without leaving our chairs”.

Language is the main vehicle for the transmission of cultural knowledge and is an important aspect of social life (Krauss & Chiu, 1998:41). Language provide humans with a tool to transfer ideas and understand each other. It is at the core of many social psychological phenomena, including personal identity, social interaction, social perception, intergroup bias and stereotyping, and attitude change (Krauss & Chiu, 1998:42). Pagel (2011) notes that language is “essentially a piece of neural audio technology for rewiring other people’s minds”.

Our ability to create symbolic representations of the world and sharing it with others distinguish humans from other animals (Gore, 1992:197). Harari

(2014:115) notes mythology enables “millions of strangers to cooperate on a daily basis”. The social norms sustaining these imagined orders are based on a belief in shared myths. “When the Agricultural Revolution opened opportunities for the creation of crowded cities and mighty empires, people invented stories about great gods, motherlands and joint stock companies to provide needed social links” (Harari, 2014:115). Believing in a particular imagined order enables people to “cooperate successfully and forge a better society” (Harari, 2014:124).

The social norm of reciprocity involves in-kind exchanges between people. Reciprocity can be positive (e.g. returning a favour) or negative (e.g. punishing an unhelpful action) (Fehr & Gächter, 2000; Fehr & Schmidt, 2003). Social norms exchanges, such as reciprocity, differ from market norms exchanges (Ariely, 2009:68). For market norms to emerge, “it is sufficient to mention money (even when no money changes hands)” (Ariely, 2009:74). Introducing market norms into social exchanges can violate established social norms and hurt relationships. “Once this type of mistake has been committed, recovering a social relationship is difficult” (Ariely, 2009:76). For example, if something was free before, e.g. access to a park, and people must pay to enter, the nature of the relationship has changed. People now use a different set of rules to evaluate the relative value of the entrance fee against their enjoyment of the park – a classic economic cost-benefit analysis. For example, they may no longer feel guilty about littering or damaging the infrastructure, because they pay for using the park whereas previously the social contract demanded that everyone do their bit to make sure that the park is maintained.

Although people may be reluctant to admit it, many people measure their success against the outside world’s parameters. Materialism and social, peer or parental expectations often drive these extrinsic motivations. For many individuals, in particular the youth, the perceived support of referent others is an important influence on behaviour. Kerr (2012:12) notes that, in these cases, aspirational messaging can promote pro-environmental behaviour: “Instead of aspiring for status symbols associated with high carbon emissions, people can be encouraged to aspire for low carbon status symbols, like having solar panels

on their roofs or driving electric or hybrid cars.” Hargreaves (2011:13) cites other examples of social judgement approaches that pro-environmental change campaign managers could consider. For example, environmental conduct could be placed within a broader national or international context, “thereby providing a norm against which everyday behaviour could be judged and which offer(s) a vision of ‘good practice’ to be aspired to” (Hargreaves, 2011:13). People could also be asked to rate their own environmental behaviour, for example by stating how regularly they performed pro-environmental acts. This isolates the environmental aspects of behaviour and presents it as something one should care about (Hargreaves, 2011:13).

Normative feedback is another tool in pro-environmental behaviour change programmes. For example, the Sacramento Municipal Utility District has developed a simple, reader friendly Home Electricity Report that specifies how a customer’s energy use compares with that of both “efficient neighbours” and “all neighbours”. Depending on their energy use, people are ranked as great, good or below average. They are also told how much money they are paying extra per year because of their inefficient energy use. Equally important, consumers are given personalised tips that are specific to their energy use and housing profile. The tips include “quick fixes” (such as unplugging appliances), and “great investments” (such as periodic maintenance of the cooling and heating system) (Thaler & Sunstein, 2008:259; Allcott, 2011:1982). Laskey (2013) tested the efficacy of these approaches in San Marcos, California by involving nearly 300 households. “All of the households were informed about how much energy they had used in previous weeks; they were also given (accurate) information about the average consumption of energy by households in their neighborhood” (Thaler & Sunstein, 2008:69). As a result, above-energy users reduced their consumption. However, against expectation, below average increased their energy use, perhaps because they felt they had “room” to increase their consumption (Schultz, Nolan, Cialdini, Goldstein & Griskevicius, 2007:429). However, when the messages about comparative energy use was combined with a non-verbal sign (“smiley” or “sad” face) indicating energy consumption was socially approved or disapproved, the “boomerang” effect disappeared (Schultz *et al.*, 2007).

As a simple nudge, disclosure can promote greater transparency and behaviour change towards the environment. A case study of the USA toxic release inventory showed that mandatory disclosure of toxic chemicals stored and released by businesses resulted in significant reductions of toxic releases throughout the USA (Hamilton, 2005). Environmental activists and the media tended to target the worst offenders, creating a kind of “environmental blacklist” (Fung & O’Rourke, 2000). No company wanted to be on the blacklist because of the bad publicity. Those on the list were motivated to reduce their toxic releases (Stephan, 2002) and others took action to ensure they did not appear on the list. The inventory created “a kind of competition, in which companies enact more and better measures to avoid appearing to be significant contributors to toxic pollution” (Thaler & Sunstein, 2008:193). It appears that USA Supreme Court Justice Louis Brandeis was right when he said, “sunlight operates as the best of disinfectants”. What Brandeis meant was allowing people to see what is being done (or not done) can help to improve performance (Sunstein, 2013:79).

Insight 10: Strengthen pro-environmental values

A large body of evidence shows individual values are important in leading people to express greater concern for the environment. People express their environmental values in different ways, for example by giving money to causes they care about, volunteering, or simply taking part in discussions and voicing their opinion about environmental issues. Gardner (2004:58) has noted that behaviour change will not be sustainable unless the underlying value system is also addressed. Researchers have wrestled with the issue of individual environmental values and behaviour change for several decades. Much of the effort has focused on predicting what values would lead to pro-environmental behaviour change. Jansson, Marell and Nordlund (2011) found three sets of values strongly correlated with green behaviour. The first is social-altruistic values. These values are engaged when consumers base decisions on the perceived cost and benefits for society. The second are biospheric values, where individuals base their decisions on the perceived costs and benefits to the planet. The third is egoistic values. In this case decisions are based on

whether benefits outweigh costs to themselves. Altruistic and biospheric values relate positively to green behaviour, while egoistic values were found to have a negative correlation to green behaviour (Jansson *et al.*, 2011). Carrete *et al.* (2012) support these findings, concluding, “specifically, committed environmentalists value wealth, personal influence, and power less than they do unity and other aspects of altruism”. Brown and Kasser (2005:360) and Cooney (2011:175) found that linking pro-environmental behavioural change requests to intrinsic values such as compassion, self-respect and social responsibility helps to promote positive emotions and feelings of well-being and may therefore be more successful.

People are guided by different kinds of values that are sometimes conflicting. As market participants, they may try to maximise profits but as human beings, they may have concerns for family, their community or the environment. It is important to think about which values the media and policymakers should engage. Pro-environmental behaviour could be “marketed” as “eco-chic” for the status conscious or a chance to save money for the frugal. However, tailoring environmental behaviour change communication to appeal to extrinsic values such as status or the opportunity to save money can have the unintended consequence of strengthening the very values that pro-environmental policy is trying to change, thereby impeding lasting change (Corner & Randall, 2011:1008; Holmes *et al.*, 2012:43). Holmes *et al.* (2012:1) therefore stated: “To build a more sustainable, equitable and democratic world, we need an empowered, connected and durable movement of citizens. We cannot build this kind of movement through appeals to people’s fear, greed or ego.”

Insight 11: Get the prices right

“Getting the prices right” is key to making the markets work effectively for a sustainable transition (OECD, 2002:7; Thaler & Sunstein, 2008:190). Where the prices of goods and services do not reflect the associated environmental costs, consumers do not get the right financial cues about the true costs of their consumption patterns (OECD, 2002:17). Environmental economists have devised various approaches in the attempt to put monetary value on environmental resources and pollution to make these values more salient. One

approach to “getting the prices right” involves calculating marginal costs or contributions and adding it to the price. In the case of pollution, this would involve knowing the extra environmental damages caused by each increment of pollution from each polluter. Cost-benefit analysis is another approach to making hidden costs more salient. This approach is often used to evaluate new infrastructure projects or policies. It involves expressing both costs and benefits in comparable terms, for example by ascribing a monetary value to them. Cost-benefit analysis is controversial, however, when it attempts to put a price on human life, health and nature (Heinzerling, 2014). Politically, it may also be difficult for government to pass legislation that raises the price of consumer goods and services to include environmental costs. Ethical and political issues aside, the sheer technical and analytical difficulty of applying these approaches to large-scale projects and public policy interventions make it almost impossible to get the right answer consistently (Pearce & Barbier, 2000). In such a case, subtle nudges such as feedback and disclosure may be more acceptable as strategies to make people aware of the hidden costs of a product or service (Thaler & Sunstein, 2008:191).

Where government does intervene in the market, it must make sure that it gives appropriate incentives. Thaler and Sunstein (2008:187) have proposed two approaches that governments could use to “get the prices right”. Governments could impose taxes, penalties or user charges on those who pollute, for example a tax on greenhouse gas emissions or effluent charges to disincentivise pollution. “Feebate” and “rebate” schemes charge polluters a fee depending on the volume of pollution. Good performers get their money back in the form of a rebate in proportion to their output (Speth, 2008:95). Government could also introduce a “cap-and-trade” system. In such a system, polluters would be given the right to pollute a certain amount (cap). The right to pollute could be traded in the market (Thaler & Sunstein, 2008:188). Gore (1992), though, has warned against perverse incentives that could have negative economic and environmental effects. For example, in 2015, the estimated level of financial support and subsidies awarded in OECD countries to agriculture that was potentially harmful to nature amounted to \$100 billion (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem

Services, 2019:21). Government subsidies for mining, logging, agriculture and fossil fuel production distort the market, incentivise environmentally destructive behaviour and discourage needed investments in renewable energy and energy efficiency infrastructure (Gore, 1992:240; Coady, Parry, Sears & Shang, 2015:5; Wimberley & Alvarez, 2018).

Incentives do not work if people do not notice them (Chetty, Looney & Kroft, 2009) or do not understand them (Liebman & Zeckhauser, 2004). Incentives also are most effective when they are present at the time when the behaviour is to occur. Charging for plastic bags in grocery stores, for example, draws attention to the negative impact of plastic bags in the environment and increases shopper's motivation to bring reusable shopping bags. However, Evans, Maio, Corner, Hodgetts, Ahmed and Hahn (2013:122-125) found if the motivation for behaviour change is purely financial, it is unlikely that it would be sustained once the incentive is removed. Value-based motivation is more likely to endure over time (Cialdini, Reno & Kallgren, 2006; Cummins, 2012).

Status quo bias and present bias (also called hyperbolic discounting in economic terms) can derail incentives that require a large upfront investment. People tend "to discount the future very heavily when sacrifices are required in the present" (Laibson, 1997:443). By developing incentives that use longer time frames, if properly aligned with the horizons over which individuals and families consider an investment in something like a home, government can assist people to make better decisions about whether to invest in environmental technologies where there is an upfront capital outlay.

Another strategy that government could use to promote pro-environmental behaviour is to reduce tariffs or making government services free. Getting something for "free" is psychologically powerful as no trade-off is expected (an example of loss aversion in reverse) (Samson, 2015:46). Ariely (2009:63) argues that "free" is an ace in the hand of the policymaker. Shampanier, Mazar and Ariely (2007:742) found options that do not have a downside (or cost) could invoke a more positive emotional response. On the other hand, people often react negatively if something had been free before now have to be paid for (an

example of status-quo bias) (Thaler, 2016:131). Six years ago, Tallinn, in Estonia, made public transport free after 75% of the residents voted for the plan (Gray, 2018). Free public transport makes it easier for people to access economic opportunities while curbing carbon emissions and reducing congestion caused by private vehicles in cities. That proposal is now being considered for other cities in Europe, including Paris and Bonn, in an effort to improve air quality (De Clercq, 2018; Staudenmaier, 2018).

Incentives can backfire if they are not adequately scoped and assessed upfront. For example, people may use the presence (or absence) of incentives to infer socially desired behaviour. Large personal incentives can deactivate socially responsible behaviour in favour of individual motives (Bowles & Polanía-Reyes, 2012). If an incentive cannot be maintained for an extended period, it may be best not to use it, as removing incentives can trigger loss aversion. An example is carbon dividends. Paying a portion of carbon-pricing revenue as a dividend to citizens could help policymakers overcome some of the obstacles to carbon taxes. The challenge, however, is that once families get used to the additional income, it may be harder for government to cut fossil fuel use if it means the dividend payments from the carbon economy will also reduce. It is perhaps not surprising that some of the major oil companies are backing the proposed Baker-Shultz Carbon Dividends Plan proposed by the United States Climate Leadership Council (2017), whereby a proposed tax on carbon emissions in the USA would be returned as a “dividend” to Americans. These companies are “banking” on government continuing to allow fossil-fuel use with support from the American public who will benefit financially under the plan. Perversely, the companies’ support for the initiative is on condition that the plan protects them from future lawsuits holding them accountable for climate change (Yoder, 2018).

Insight 12: Build trust in the sustainability movement

Trust is a factor in pro-environmental behaviour change. From a cognitive perspective, building trust “is a change process that involves a reorganisation of individual and collective schemas through repeated experience of positive interaction. Thus, trust has to be earned over time, which can occur only if there

is a long-term commitment to the process” (Beratan, 2007). It takes time build trust, but it could be destroyed in an instant, and could take a lifetime to rebuild.

Trust is an important component of effective policymaking. Trust bestows legitimacy, and thus facilitates greater public willingness to abide by decisions and proposals made by government. “Fair and reliable public services inspire public trust... Public ethics are a prerequisite to public trust and a keystone of good governance” (OECD, 2000). Social capital in the form of trust is an important corner stone for pro-environmental action. “Having confidence in the benevolence of other individuals and institutions lies at the heart of any collective effort to protect the environment” (Van Vugt, 2017:246). This is particularly important because citizens cannot “opt out” of public goods. Everyone is affected when air quality deteriorates or river water is polluted because environmental standards are not upheld by government and industry (O’Neill, 2006). The Oxford Martin Commission for Future Generations (2013:48) warns of a growing mistrust of leadership. To obtain and maintain trust, authorities must make fair and respectful decisions. Research by Thaler (2016:131) found that perceptions of fairness are related to the endowment effect. People feel entitled to what they have become accustomed to, and perceive deterioration in fairness as a loss. The status quo therefore becomes the reference point of fair treatment.

There are many examples of the public’s trust in the sustainability movement having been abused by governments and industry, for example by “green washing” (providing misleading information) or making false claims about sustainability. As a result, many people are sceptical of environmentally friendly product and service claims. Government can assist to build trust in the sustainability movement by providing credible, consistent, accurate and verifiable information about its own products and services. Government can also require certification from industry, e.g. through eco-labels that accurately represent product or service sustainability characteristics.

In scenarios where trust in government messages may be low, public managers could consider making use of trusted third parties, or “influencers” in civil society

to “spread the word”. Influencers already have a measurable and observable influence as well as social connections and they can therefore reach a certain target audience (Cooney, 2001:156; Gladwell, 2002:38). When influencers change their behaviour, more of a ripple effect is created. However, Holmes *et al.* (2012:61) warn against the use of attention-grabbing celebrity spokespeople associated with social status, wealth and other self-enhancement values.

4.5 Criticism of using behavioural approaches in public policy

Mainstream economists often view behavioural economics experiments with scepticism because these experiments are typically conducted in laboratory settings with nothing at stake. Economists argue that people, if given a chance, will “get it right” because they learn from experience and avoid mistakes (Barberis, 2013:179), although Thaler and Sunstein (2008:76) had earlier noted that “Unfortunately, many of life’s important decisions do not come with many opportunities to practice”. Some critics have also dismissed behavioural economics as “a distraction to the robust application of ‘normal’ economics to policy” (Dolan *et al.*, 2009:77). For example, behavioural economists may argue the way to reduce carbon emissions is to harness techniques such as comparison with neighbour’s emissions, whereas classical economists argue in favour of just getting the price of carbon right, and letting the market take it from there.

Some commentators criticise the biases and heuristics approach as an oversimplified understanding of human behaviour. Smets (2018) argues that “oversimplification and overgeneralization obscure the actual complexity of human behaviour”. Some critics perceive behavioural nudging as a simplistic set of cognitive tricks, for example of changing the way information is framed or using superficial nudges such as emoticons to create normative influence (Baddeley, 2011:26). Some critics have referred to behavioural insights as “pop psychology” and decrying the publication of a number of general readership books with accessible language styles that have made behavioural effects easily interpretable and personally relevant. Beratan (2007) criticises the view that humans are poor decision-makers as naïve and unhelpful. Although

humans do not always choose optimally, it is the inevitable consequence of complexity. There are no right answers in a complex system, so every decision will be right or wrong in some way.

Concerns have also been expressed that nudges are manipulative and invisible and therefore potentially insidious., Con men admittedly are also expert at framing and nudging, and it is not inconceivable that behavioural insights could be used to exploit people's fears, insecurities, emotions and aspirations, or trick people into making decisions that they will later regret. Against this, Sunstein (2015:1) argues that choice architecture cannot be avoided and if welfare, autonomy and dignity are the guiding principles, nudging is actually required on ethical grounds. Nudges preserve choice. The best nudges move people in the direction they would go if they were fully rational (Sunstein & Thaler, 2003:1159). That is the central point of good choice architecture. Nudges do not take away choices, and people can ultimately still go their own way. For example, when a default is changed, the options do not change – only the framing of those choices are changed. Thaler and Sunstein (2008:11) make the point that nudging is not a form of coercion. In fact, it is the opposite of commands and prohibitions, tools often used by governments. Nudges are easily reversible and therefore less intrusive and less dangerous than regulations and other forms of government intervention that may take a long time to change. An important principle of nudging is not to burden people who are acting rationally (Bhargava & Loewenstein, 2015:396). Although people will sometimes simply choose the default option without giving it a second thought, this is not always the case. Most people will try to make sense of the way in which the choices are presented (Krijnen, Tannenbaum & Fox, 2017:1). They will look for cues in the choice architecture and try to rationalise why choices are presented in the way that they are. They will also consider who is presenting them with the choice (Krijnen, 2018). For that reason, it is important for choice architects to consider how their nudges may be interpreted to ensure they have the intended effect.

Government's role in nudging people is not universally accepted and the question is often asked whether it is ethical for government to attempt to change

people's behaviour, even if the goal is to improve their lives. Government campaigns aimed at influencing the attitudes of a community towards a cause or position is seen by some as propaganda or government "putting a weight on the scales", diminishing agency and control (Thaler & Sunstein, 2008:239; Jachimowich, Duncan, Weber & Johnson, 2018). The concern is that government and policymakers cannot be trusted to be benign or competent, or to know what is best. Critics see a slippery slope towards highly intrusive interventions and visions of Orwellian repression and mind control. In reality, behaviour change is an inevitability of public policy. Campaigns, communication, policy or institutions are rarely value-free (Corner & Randall, 2011:1010). The actions of policymakers, government officials, markets and fellow citizens have a big impact on behaviour. In the public policy context, "doing nothing" is rarely a neutral option (Dolan *et al.*, 2009). Very often a choice must be made. However, people's choices do not always promote their welfare. In such situations, good choice architecture could be important, even indispensable (Sunstein, 2013:197). Sunstein (2013:199) argues that, if government is concerned with people's welfare, approaches that may count as "paternalistic" should not be automatically ruled out of bounds. However, there should be transparency and political safeguards. Nothing should be hidden and it should never involve sacrifice of personal liberty. Nudges must not preclude any options or significantly change the economic incentives. They should be visible, public, transparent, scrutinised and monitored within the boundaries of the law (Sunstein, 2013:203).

Some authors question the focus on individual behaviour change to avert the environmental crisis. Individuals could argue it is government's responsibility to take action, as their individual actions will not have much effect. "The problem can seem so huge and complex that you feel powerless to act" (Seebode, 2011:10) and Gore (2009:16) has argued that it is unfair to place the burden of solutions to complex issues such as climate change on individuals alone; he argued that concerted global action is necessary. In spite of this, Kerr (2012:1) and Reynolds (2010:45) contend that the actions of individuals, as well as their advocacy to change laws and policies, are important. Osbaldiston and Schott (2012:258) stated:

Most people are not in positions of power where they can directly influence government or corporate policy, but all people consume materials and energy in their daily lives, and as such, each person can choose to adopt behaviours that are comparatively better for the environment.

Individual choices have a significant impact, for example, on curbing GHG emissions through the transportation, food and family planning decisions people make (Wynes & Nicholas, 2017) and Williamson *et al.* (2018) estimate that scaling up individual behaviour change could reduce projected global emissions by one-third by 2050. “At the heart of all action are personal values, so a good place to begin is to reflect on your own belief systems” (Seebode, 2011:10). Reynolds (2010:45) has found that people are more motivated to change their behaviour

...when led to do so through an expression of what they value intrinsically – their friendships, their communities, the places they live, or their own sense of self-development. Values matter, and they matter particularly if we are to build public demand for sustained political change

Change experts (for example Covey, 1989; Senge, Smith, Kruschwitz, Laur & Schely, 2008; Godin, 2008) provide models showing how individuals can drive change and Seebode (2011:10) has claimed, “When people apply collective creativity, knowledge and energy, great things (can) happen.”

External validity is a problem that is inherent in the randomised control trials used in the many behavioural science studies. The results may not be applicable to all types of people outside of the study because of potential effect modification, but these studies are often held up as proof that a certain behavioural intervention will be successful. Most studies also do not consider results over a more prolonged period, for example by recording how attitudes may have changed over time. Generally, there is no assessment or long-term follow-up indicating whether experimental treatments applied during the research resulted in permanent lifestyle changes or behaviour. Consequently, understanding how to foster long-lasting behaviour change and embed new habits is relatively underexplored (Liebe, Gewinner & Diekmann, 2018).

4.6 Conclusion

The local government role in leading and accelerating the sustainability transition in South Africa has been explored in this chapter. Municipalities have a strong mandate to formulate policies and bylaws to promote sustainable development. In the course of service delivery, municipalities in South Africa can make a range of pro-environmental requests to the public, for example to use public transport, save water and energy and to recycle. How local government in South Africa can use behavioural insights and tools in public policy to accelerate the transition to sustainable development has also been examined. It is suggested that local government can use “green nudges” and (dis)incentives such as tariffs to make the desired behaviours easier. Deciding when and how to intervene is not always easy. Too much intervention can lead to accusations of paternalism and of running a “nanny” state, while too little could let people feel that there is no leadership from government on important matters such as climate change. It is important for policymakers to be mindful of how people experience government services. Public policymakers can assist in encouraging constructive behaviour change by removing some of the barriers that prevent the adoption of pro-environmental behaviours, for example by making it easier to sign up for recycling services, simplifying municipal water and energy bills and incentivising the use of public transport through integrated ticketing and easy-to-use fare top-up options. Through elegant simplification, public policy could assist in creating decision-support systems and user experiences that are mindful, clear and simple. Another insight from behavioural science literature is that it is hard for people to optimise their choices. When there are too many combinations of outcomes people suffer choice overload and they may delay choosing, simply choose the default option, or what is worse, choose not to choose at all, even when it goes against their self-interest. Because of human fallibility, decision systems should be designed to be as forgiving as possible. Behavioural science research has shown that people like to compare favourably with their neighbours, especially when social values are involved. Public policymakers could encourage pro-environmental behaviours by

emphasising that others have already adopted a specific behaviour. It is important to identify and emphasise values that are constructive when promoting sustainable development. The focus should shift from unsustainable values such as materialism, instant gratification, privilege, selfishness and greed, to values that foster empathy, sharing, hope, collaboration, patience and action for the benefit of society. The chapter concluded by considering some of the criticisms levelled against using behavioural insights in public policy and how these concerns may be addressed.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

It is now widely accepted that human activity is the leading cause of climate change and other environmental problems (Vlek & Steg, 2007; Steg & Vlek, 2009; Kunreuther & Weber, 2014; Van der Linden, Maibach & Leiserowitz, 2015). Rapid population growth, industrialisation, urbanisation and consumption are resulting in more and more natural resources being consumed, more land being developed for human habitation and production, and more harmful by-products released into the ecosystem and causing loss of biodiversity, pollution and climate change (UNEP, 2008; Millennium Ecosystem Assessment, 2005; IPCC, 2007a, 2007b, 2013, 2014, 2018; OECD, 2016; World Bank, 2010a; WWF, 2012, 2014, 2016, 2017, 2018a, 2018b; GCEC, 2015). Natural disasters, loss of livelihoods, poverty, inequality and food insecurity are increasingly affecting human life and well-being.

Despite overwhelming evidence of the looming crisis, we seem to lack a sense of urgency to change our economic and political systems in response to it. To date, most of the action to address environmental decline and climate change on the part of government and industry has focused on making incremental changes to regulations and production processes in the hope of addressing the planetary crisis without disrupting the world's economy. However, given the scale of the problem and the existential threat to humanity and many other species, this is no longer a sufficient response. The IPCC's special report on Global Warming of 1.5 °C notes that limiting global warming to 1.5°C will require "rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems" (IPCC, 2018:21). Responses that match the size of the challenge have to be designed (Klein, 2014; WWF, 2016:14).

A major challenge for governments all over the world is to convince people to accept the level of change that is required. Individual action to address environmental problems is often resisted, particularly if it requires curtailment

behaviour. Cognitive limits and biases skew people's interpretation of the evidence and emotional defences encourage denial. In this concluding section the aim is to draw out the key findings from the research and derive recommendations for application of behavioural insights in public policy at local government level in South Africa. Areas for further research into the use of behavioural science insights in public policy in South Africa with the aim to accelerate the transition to sustainable development are also identified.

5.2 Answering the Research Questions

This study aimed to answer the following research question:

How can local government in South Africa apply behavioural insights in public policy to promote pro-environmental behaviour and accelerate the transition to sustainable development?

This problem was explored by answering three key sub-questions. The answers to each of these sub-questions are summarised below.

5.2.1 Why is progress towards sustainable development so slow and difficult and how can governance and public policy assist to accelerate the sustainability transition?

As discussed in Chapter 2, modern capitalist economies are effective engines for wealth creation. The incentive of personal enrichment has proven a strong motivator for innovation, investment and development. However, neoliberal market economies have certain inherent weaknesses that need to be addressed through public policies and other mechanisms outside of the market-driven supply and demand transactions. For example, the externalisation of costs (including emissions), growing income inequality and accelerating resource depletion are often not factored into the equation. Corporations rarely report or fully disclose their impact on nature and the cost of their business to society unless forced to do so by regulation. Their short-term reporting timeframes, coupled with the pressure to show profit and produce a return for investors act as a disincentive to voluntary disclosure and costing of externalities. As a result, most modern Western societies temper their free-

market economies with public policies in an attempt to balance the short-term development and growth imperatives of the market with long-term social and environmental concerns.

Climate change is a major challenge to the world economy. International efforts have not succeeded in stopping the warming of the planet at an alarming rate. While economists typically advocate market-based policy tools such as carbon pricing to tackle issues such as climate change, natural scientists and activists are advocating far more profound political engagement and proactive governance, akin to a “Marshall Plan”, to accelerate the sustainability transition (Gore, 1992; Chapin, Pickett, Power, Jackson, Carter & Duke, 2011; Klein, 2014; Aronoff, 2017).

Transition management is a normative model that assumes sustainable development as a long-term goal. Transition teams (including policymakers) can use a transition perspective as a lens to analyse particular sustainability problems (Van der Steen & Loorbach, 2018:11). The transition to sustainable development requires some drastic changes to economic, social and governance system (Muller, 2018:32). However, this kind of social transition is not simply a case of change management. Society needs to reinvent itself. It needs to break out of deeply rooted paths (Van der Steen & Loorbach, 2018:5) and re-evaluate established values (Van der Steen & Loorbach, 2018:12). Although government cannot prescribe societal dynamics, it can organise and design systems that facilitate gradual changes, thereby enhancing the chances of sustainable outcomes in the longer term (Van der Steen & Loorbach, 2018:23). In a sustainable transition, individual pro-environmental choices could assist in accelerating a cultural shift by normalising behaviours. Manning (2009:5) notes that “a push towards larger policy change is much more likely when many individuals (the grass-roots level) are in favour of the change”. Although individual sustainability will not solve the environmental and climate crisis, it can pave the way for broader social change. Moving to a more sustainable society inevitably will lead to some disruption in the patterns of production and consumption. The disruption may be uncomfortable, particularly where there are deeply entrenched interests in the status quo. To overcome

resistance, governance systems need to be inclusive, innovative, responsive, pragmatic, post-competitive and focused on relationships and creating public value (O'Flynn, 2007:361).

5.2.2 What do the literature and secondary studies reveal about insights from behavioural science affecting human behaviour change?

As discussed in Chapter 3, behaviour change theory provides insights into how to motivate individuals to adopt pro-environmental behaviour. Many people already know behaviour change is necessary, and they may even hold pro-environmental values, but they still struggle to bridge the value-action gap. The Theory of Reasoned Action and the Theory of Planned Behaviour attempt to explain the relationship between attitude and actions. For actually performing a behaviour, individuals must have a positive attitude towards the behaviour and must feel they have the ability to execute it successfully. In addition, the Theory of Environmentally Responsible Behaviour emphasises that a sense of personal responsibility and confidence in their skills and knowledge provides a further indication whether a person would adopt a pro-environmental behaviour or not. The Fogg Behavioural Model adds the requirement of a trigger that serves as a reminder to perform a behaviour at a given time. Social and group norms also influence behaviour. Psychological research shows that people fear being socially rejected. They do not want to be different from other people and they feel entitled to what others have access to. Many people's behaviour is strongly influenced by their peer group and social networks. To an extent, social and group norms also influence government priorities in the provision of public infrastructure. Social pressure, for example, can result in public investment in cycle lanes and recycling facilities because people want to do their bit for the environment by driving less and recycling their waste. In this respect, the role of individual and group values is also important. In a society where the majority of citizens hold pro-environmental values, it should follow that government and the market respond by investing in environmental restoration and strengthening of the green economy. Sadly, in most Western countries the media and advertising industries often strengthen extrinsic values such as concern about image, material success, wealth and social status to market their products and

increase sales, often to the detriment of the planet and local communities. To date, none of the leading behaviour change theories has independently been able to explain pro-environmental behaviour change fully. However, an integrative application of these theories can assist in addressing contemporary environmental problems (Akintunde, 2017:120).

Prospect Theory has shown humans are not the consistently rational, self-interested, utility-maximising agents portrayed in neoclassical economic models (Kahneman & Tversky, 1979; Kahneman, 2003). In contrast, humans have bounded rationality (Simon, 1956; Kahneman, 2003a, 2003b). Humans also rely to a great extent on automatic, emotional, subconscious judgements rather than conscious, deductive, controlled and rule-based processes. Human behaviour is therefore often triggered by emotions and contextual drivers such as social norms, salient messages and defaults (Dolan *et al.*, 2009; Kahneman, 2011). Prospect Theory offers insights into why losses loom larger than gains and people may experience loss-aversion when asked to change their behaviour.

5.2.3 How can local government in South Africa use behavioural insights in the formulation of public policy to accelerate the transition to sustainable development?

As discussed in Chapter 4, local government in South Africa has a strong mandate to promote a sustainable transition. Sustainable development thinking can help municipalities to avoid the dangers of short-sighted decision-making that could harm the environment and the social fabric. The transition to sustainable development is an opportunity for innovation in public policy. Behavioural theories and research offer new tools and insights that can assist policymakers in making better predictions about the welfare outcomes of existing environmental policies and inform the development of new policies. From the policymaker's perspective, behavioural insights can assist in formulating public policies that help individuals to make decisions that will maximise their well-being (Chetty, 2015:2). Another reason for using behavioural insights in public policy is the low cost of many behavioural interventions, including defaults. In the South African local government context,

where resources are limited and ratepayers are becoming increasingly weary of footing the bill for failed policy interventions, behavioural insights would provide a valuable tool for public policymakers to scope the most cost-effective approaches.

This study reports 12 identified behavioural science insights that can inform the development of public policy aimed at promoting pro-environmental behaviour change. These insights, depicted in Figure 5.1, can guide policymakers to test their assumptions at various stages of the policy formulation process.

When government issues pro-environmental appeals, it is important to be aware of the context, cultural norms, service delivery priorities, constraints and the audience's current frame of mind, as "[d]iscussions about feelings, emotions and benefits have a huge role to play in helping people change attitudes which will ultimately lead to sustainable behaviour change" (Kerr, 2012:10). People often react affectively to messages. For example, humans are loss-averse and they will react strongly if requested to give up something up or to curtail their behaviour, especially if they perceive the request to be unfair. Fear and guilt appeals may work to change behaviour in the short term, but research has shown that messages that focus on well-being and long-term happiness are perhaps a more effective strategy for long-term behaviour change. Celebrating successes also produces positive feelings and can motivate people to try even harder to live in a more sustainable way.

People often struggle to link abstract concepts such as climate change and actions in their daily lives. Presenting scientific facts on their own is often not persuasive enough because many people perceive it as too remote and distant. Policymakers can reduce psychological distance by sharing stories and personal accounts from other people who have been affected, for example, by climate change, thereby appealing to people's natural tendency to empathy and compassion, and creating a closer emotional connection between the impact of the problem and the required behavioural changes.

People are passive decision-makers. They do not always check whether an alternative framing of the same issue provides a different answer. Changing the emphasis and including or excluding certain information can change the way the message is conveyed. Policymakers can use visual imagery and metaphors to provide an alternative formulation that may help people understand complex environmental issues better. However, policymakers need to be aware that, although frames can provide useful shortcuts and mental structures, they can also distort our thinking and lead to bias.

Humans rarely make totally rational choices. People do not always have the time, attention and knowledge to weigh up all the options. When presented with too many choices, people sometimes use shortcuts in their decision-making, which may lead to adverse consequences down the line. Policymakers could guide people to make better environmental choices by changing the presentation of choices and gently “nudging” them, for example, by providing default options. By simplifying choices in this way, sustainable behaviours can be made easier, cognitively and emotionally less taxing and more convenient. It is important, however, to understand that policymaking is not neutral. People do sometimes perceive nudges such as defaults to indicate a recommended course of action, therefore “policymakers need to be aware of the implicit messages conveyed by their choice of default” (McKenzie, Liersch & Finkelstein, 2006).

Many people are motivated in their environmental choices by social norms and the opinions of those in their social networks. Social pressure can be a powerful motivator and could be used with direct appeals and normative feedback to motivate desired pro-environmental behaviour changes. Social and environmental concern and action are motivated by a set of underlying values. Policymakers should therefore consider which values to endorse and what the implications could be for individuals, communities and the environment.

It is important to get the prices of environmental goods and services right to achieve a sustainable transition, it. The market is unlikely to factor in externalities unless forced by government regulation. While governments often

intervene in the market by providing incentives to individuals and businesses, policymakers should consider the long-term implications of incentives as they can distort the market, incentivise environmentally destructive behaviour and discourage needed investments in sustainable and innovative technologies. At a time when trust in government is declining, it is important to provide public services in a way that is transparent and fair to all stakeholders.

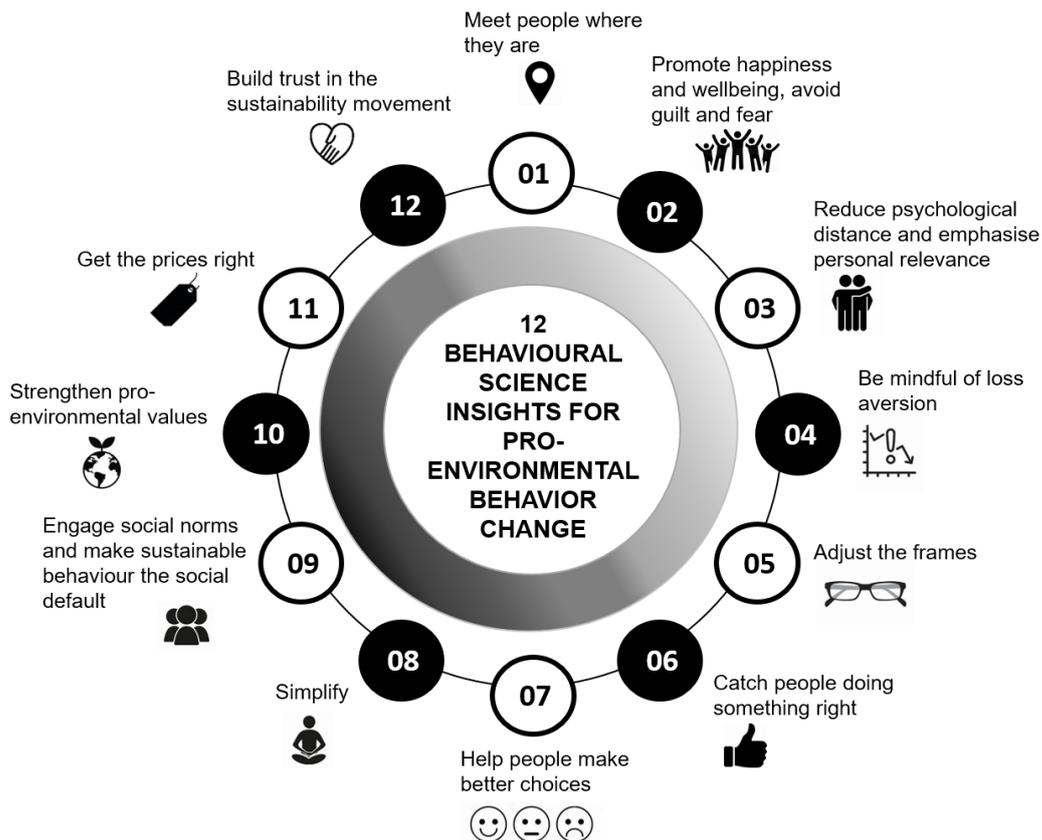


Figure 5.1: Twelve behavioural science insights for pro-environmental behaviour change (Graphic developed by the author).

The use of behaviour science in policy formulation has been criticised, mainly because many of the behavioural effects described in the literature were experimentally observed in laboratory settings that do not mirror the real world. Critics argue that these experiments conducted in mainly artificial environments do not equate to real day-to-day thinking and problem solving. Critics also argue that nudges exploit human weaknesses. Just because nudges may be easily reversible, it does not mean all risks or manipulation are eliminated. People can

still be steered towards options that may be exploitative down the line. These are valid criticisms and it is very important that policymakers use the power to nudge judiciously and remain aware that changing the choice architecture could have some unintended consequences.

5.3. Recommendations

The application of behavioural insights in environmental policy starts with a recognition that problems are complex and that policymakers is unlikely to have all the information they will need to evaluate alternatives and make a final recommendation. Wicked problems such as pollution, resource depletion and climate change are complex, multi-causal, resistant to change and rarely amenable to solutions that focus only on the implementation of one programme in one part of the system (Philips, 2018). Given that solutions to these problems require behaviour change from individuals, behavioural insights can provide useful insights into the design of environmental policies to promote the required behaviour change. Behavioural insights furthermore offer new tools such as framing and defaults that can expand the set outcomes that can be achieved through policy. The challenge is to make the application of behavioural insights more systematic within the current policy process and governance systems.

Policymakers in South African local authorities cannot afford to be less diligent than other professionals “whose success depends on learning the body of knowledge relevant to their field” (Cooney, 2011:189). Designing policies for a sustainable transition require greater in-depth understanding of how people make decisions (Beratan, 2007). Becoming more acquainted with behavioural science literature adds another dimension and can improve the effectiveness of policies that advocate more sustainable lifestyles. Policymakers need to be aware, for example, that human biases, loss aversion, self-efficacy, values and social norms are key psychological factors that influence pro-environmental action. It is about starting small and local to understand what works and then scale up for application to a wider context. It is the belief of this author that policymakers who are familiar with the research on behavioural change and those who have a clear and realistic view of the barriers to behaviour change

are more likely to succeed in developing public policies that may lead to long-term pro-environmental behaviour change. For example, research has shown that people fear being socially rejected and their decisions are often guided by social norms. Therefore, the more policymakers in South African local governments understand how to make sustainable lifestyles the norm, the more likely the chances that others will join in (Van Vugt, 2017:245).

Innovative and new approaches in public administration often rely on brave officials and politicians who are prepared to try something new and learn the necessary lessons while doing something different. They need to be allowed space to experiment with possible solutions to gain understanding of what works best in each context. There is also an emerging need to do more thorough regulatory impact assessment before new policies and regulations are adopted. Regulatory impact assessment is not compulsory in South Africa, yet there are clear benefits and lessons from jurisdictions where it is mandatory in certain cases, such as the United States. The transition to sustainable development is an opportunity for innovation in public policy. Kahneman (2008) has argued that applied behavioural science has become part of the innovation agenda, noting, “there is a technology emerging from behavioural economics”. Local government can use behavioural insights and innovative policy instruments such as green nudges to help people make better choices. Behavioural insights and tools can be leveraged in tandem with other innovations such as big data, artificial intelligence, machine learning and virtual reality. The challenge is to expand and adopt the innovative approaches that have been tested in laboratory settings, so that more people can benefit. Local governments should also be encouraged to recruit behavioural science experts and practitioners and strengthen relationships with the research community to make better use of empirical findings from behavioural science studies in public policy design.

Public policy should create the right conditions for happiness and well-being to occur. Most people want to live in a world that is freer, fairer, more democratic, less corrupt and more enjoyable. Public policy should aim to improve human performance and create an environment that is conducive to people being

healthy, productive, safe, creative, sociable and happy. Local government should identify opportunities to streamline processes that may otherwise delay or limit the participation of residents in environmental programmes. Removing administrative hurdles, simplifying procedures and improving the manner in which information is presented to residents can achieve this. Municipalities also need to develop the required infrastructure to support pro-environmental behaviour change, for example by providing public transport, non-motorised transport infrastructure, recycling facilities and smart water and energy meters.

Policymakers need to take a step back and put themselves in the shoes of the communities who will be affected by their policies. They need to show empathy and a deeper understanding of people's current realities, as this will affect how they respond to policies that call for pro-environmental behaviour change. Perhaps, in time, empathy could be added as the 5th "E" in the design of public policy in South African local government, alongside efficiency, effectiveness, economic and equity principles as already legislated (RSA, 1996, 2003).

5.4. Further Research

There is still much to learn about the use of behavioural insights in environmental policy to promote sustainable development. One of the challenges encountered during the study was related to the fact that a large percentage of the reviewed studies were based on a single case study or on limited attitudinal surveys at a particular point in time. Many studies also relied predominantly on convenient (student) samples from educated, developed, wealthy, democratic societies. "Researchers – often implicitly – assume that either there is little variation across human populations, or that these 'standard subjects' are as representative of the species as any other population" (Clayton, *et al.*, 2016:206). Generalisations should therefore be handled with caution. It is important that behavioural researchers and public policymakers working on the global environmental and climate problems move beyond the Western context to examine perceptions and behavioural engagement in a variety of settings (Steg, Bolderdijk, Keizer & Perlaviciute, 2014).

Implicit in much of the academic and policy discourse is the assumption that there is agreement about the pro-environmental behaviours to be promoted. In some cases, the answer is straightforward, but in other cases, the social and political implications may be more problematic. People may generally be open to appeals to conserve energy and water (within reason), and may not need too much convincing of the benefits of using renewable energy over polluting coal-based energy, but not everyone will agree to a wind farm or solar installations in their “back yard”. Appeals to reduce consumption may also sit uncomfortably with governments locked into public policies aimed to stimulate economic growth and increasing GDP, and individuals may resist policies that require them to give up personal luxuries such as air conditioning or a private car that they have worked hard to afford. The relationship between well-being, consumption and economic growth is an area of potential further research.

Behavioural economics research has exposed the limits of mechanistic theories of human rationality. Town planners and urban designers should take note. The contribution of behavioural insights to public policy focuses on humans and their actual versus theorised behaviour. The application of behavioural insights to design problems, and using design thinking to solve complex urban problems, has potential to improve living conditions in the fast urbanising cities and towns in South Africa. Well-designed cities enhance how people experience life, share and create ideas, and how people walk, play and stay active. “Behavioural scientists and designers who work together can create cities that make life better for the people in them”, as Klotz (2018) points out. Maeda (2006:39) earlier had stated: “The best designers marry function with form to create intuitive experiences that we understand immediately.” Using design thinking, policymakers are encouraged to step back, gain understanding of the requirements, be thoughtful, concentrate on quality and focus on solutions that make life more enjoyable and easier (Martin, 2007). The focus must be on improving the performance of people and creating more forms of value (Norman, 1990). Coming fully armed with knowledge of behavioural tendencies and levers, policymakers can work with stakeholders to design more robust and effective solutions, so that pilot studies and systematic measurement and

analysis can inform urban regeneration and infrastructure development projects with human needs in mind.

5.5 Conclusion

Human activity is the primary driver of change in the Earth's biosphere today. Humanity is not only consuming renewable resources at a faster rate than ecosystems can regenerate them, but also continues to release larger amounts of greenhouse gasses into the atmosphere than ecosystems can absorb. The resulting loss of ecosystems and climate change pose a significant threat to humanity.

Much changed in the world's understanding of climate change since the first IPCC reports. For example, sea level rise is expected to occur faster and Antarctica's ice sheets could collapse more quickly than initially anticipated. Ocean acidification and warming has resulted in the loss of entire ecosystems, most notably coral reefs, in many parts of the world. Extreme weather can now be linked to climate change in real time and global warming of 1.5 degrees Celsius is pretty much locked in to the current economic system of production and consumption. The climate system is changing much faster than scientists predicted, and human action to curb climate change is moving far too slowly.

It is a sad indictment on governments and the international community that the right to a healthy environment is still out of reach of millions of people, more than 40 years after it was recognised internationally as a basic human right. Literature on sustainability transitions, cognitive science and behavioural economics indicates that the convergence of the current Western economic system and political models, globalisation and a degree of human irrationality may be at the heart of the problem. Free market capitalism has lifted millions of people out of poverty, but has also led to environmental degradation and increased inequality in many parts of the world. Globalisation has resulted in multi-national companies that require global supply chain networks of natural resources and labour to produce consumer goods and services, but these companies also produce waste in the form of carbon emissions and pollution,

which are often externalised in the environment. The convergence of these issues is evident in the loss of biodiversity, mass extinction of species, increased pollution, increased inequality and climate change that threaten the health and livelihoods of many communities. It is clear that the current governance system has not succeeded in preventing the worsening state of the global environment. Improving governance at all levels thus is an urgent priority. The world needs a new kind of policy leader who can look beyond traditional boundaries. The transition to sustainable development requires ethical, trustworthy, compassionate and empathetic leaders who put people and the planet first and are not motivated by self-interest.

Conducting this study involved analysing behavioural science literature to gain a better understanding of some of the psychological, emotional and social factors that influence individuals' behaviour towards the environment. The primary aim of the study was to synthesise useful insights to inform the process of environmental policy formulation at local government level in South Africa, in support of a sustainable transition. The objective was to improve public environmental policies and promote behaviour change towards the environment.

Policymakers increasingly recognise that human behaviour is at the core of many environmental problems. However, changing the behaviour of one person is hard, let alone involving millions of people around the world. In theory, people may know what the "right" thing is to do, and yet they may still do not actually do it. Furthermore, although people might think they are in control of their behaviour, many decisions that affect the environment happen at a sub-conscious level and are therefore subject to biases and other cognitive factors. This means that governments can no longer rely on provision of information alone in the hope that it will lead to pro-environmental behaviour change. Research has shown that a more sophisticated approach to environmental policymaking is required through drawing on new understandings in science of the sources of human motivation and behaviour change. Given the complexity of contemporary environmental problems, and the inability of individuals to navigate them, policymakers, by using the "power of suggestion", can "nudge"

people towards pro-environmental behaviours by carefully considering how choices are presented.

Policymakers are embracing behavioural insights and approaches because the environmental challenges are complex and traditional policy instruments such as incentives and taxes do not seem to have achieved the required outcomes. The approaches summarised in this study provide potentially powerful insights for policymakers to address environmental policy challenges. As policymakers gain a better understanding about what really drives human behaviour, policies can be adapted to help individuals make sensible environmental decisions.

The transition to sustainable development requires ethical leadership, good environmental governance and sound public management to create and protect public value. Local government needs to be modest and open to changes in its own routines, mentalities, vested interests and institutions if more than incremental change is to be accomplished. Empathy is a way of contributing to necessary shifts in the compassion, resilience, emotional, social and cultural intelligence required in the sustainability transition. It is hoped that the behavioural insights synthesised in this study may also “nudge” local government officials and policymakers in South Africa to think more mindfully about the impact of the public policies they develop.

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