BEYOND THE HORIZON:

Consumer and restaurant/hospitality industry approaches to tackling marine plastic debris

This report aims to support conservation efforts, motivate the business case for educational campaigns and support policy analysis to develop specific instruments related to single-use plastics in South Africa.

2017

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Disclaimer
The project team takes full responsibility for the report's contents and conclusions produced in the report.

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ABBREVIATIONS AND ACRONYMS

CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEA	Department of Environmental Affairs
EPA	United States Environmental Protection Agency
FTT	Fair Trade Tourism
FTTSA	Fair Trade in Tourism South Africa
GDP	Gross domestic product
Kg	Kilogram
Km	Kilometre
LSM	Living Standard Measure
NGO	Non-governmental organisation
PETCO	PET Recycling Company NPC
UNEP	United Nations Environment Programme
WEF	World Economic Forum
WTTC	World Travel and Tourism Council
WWF	World Wide Fund for Nature

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EXECUTIVE SUMMARY

The World Economic Forum projects that there will be more plastic than fish in the ocean by 2050. Marine litter is a growing environmental challenge, with social and economic implications. Up to 80% of marine litter is plastic debris: about 5–12 million tons of plastics enter the world's oceans each year.

More than 50% of plastic waste ends up as land and marine litter in South Africa, compared to 11% in Brazil and 2% in the United States. South Africa is a worse offender than India regarding the release of plastic debris into the ocean. South Africans consume on average 2 kilograms (kg) of plastic a day. Much of this is packaging that escapes formal disposal systems and pollutes land and marine ecosystems.

This report focuses on marine plastic debris in South Africa and reports on interventions that aim to explore ways of minimising it by raising awareness of the problem with identified businesses in the restaurant and hospitality sectors and consumers in Cape Town, South Africa. The selection of pilot sites and participants was based on work undertaken by The Beach Co-operative in Muizenberg, Cape Town, and the association with seminal research work undertaken by Professor Peter Ryan on marine plastic debris on South Africa's sandy beaches. WWF South Africa's Marine Programme commissioned the study, which was funded by the WWF Nedbank Green Trust. Fair Trade Tourism South Africa (FTTSA) subsequently requested to be included in the study to gain an understanding of the level of awareness and commitment to this cause among its members. These results, while not part of the contracted study, have been included to add depth to the research findings.

This research assumes that stakeholders in the restaurant and hospitality industries would be more likely to participate in using best practice to reduce marine plastic debris levels because of the role that clean beaches and oceans play in their business or because they would have a personal affinity to the ocean due to their proximity and/or their hobbies, such as surfing.

The study comprised a literature review to determine the status of global and national levels of marine plastic debris and relevant initiatives, three pilot research studies to determine the appetite of the restaurant industry to effect change in this focus area and analyse industry and consumer levels of awareness of the challenge and desire to reduce and/or eliminate single-use plastics in South Africa. This report, the final deliverable of the project, presents the key findings of the research and provides a set of recommendations to inform the design of a national consumer campaign on this topic.

Key findings derived from the pilot studies and a series of surveys and interviews indicate that:

- Consumers would like to be more environmentally conscious when away from their homes. They are willing to support establishments that choose to use alternative plastic packaging options, but it is not clear how much extra they are willing to pay for these or whether the additional cost should be made explicit. More work needs to be done to educate consumers on the various terms associated with plastic litter and marine debris, and their potential to refuse, reduce, reuse and recycle plastics.

- The restaurant industry faces certain challenges when choosing to use alternatives to plastic packaging. There is a cost barrier, particularly for locally produced products, a lack of knowledge about these alternatives and general mistrust of new suppliers and distributors. There are also implications for the brand and procurement processes.
- Stakeholders in the hospitality industry, with a focus on Fair Trade Tourism (FTT) members, revealed that business ethos is a significant driver for the implementation of sustainability practices for most members. There is a significant range of single-use plastics and packaging items in use, however FTT members found it difficult to source environmentally friendly alternatives and find reliable suppliers.
- Any campaign wanting to bring about behavioural change within businesses and consumers regarding the use of plastics will need to consider design aspects, such as levels of understanding, language and capacity to transition. It will also need to standardise terms and definitions and offer staff training. It will need to encourage a sense of ownership, by providing the bigger context for marine plastic debris motivating participants to take an active role in driving this transition. A dedicated communication platform aimed at all stakeholders and providing accessible and relevant information would be key to the effectiveness of any campaign of this nature.

CHAPTER 1: INTERNATIONAL AND NATIONAL CONTEXT OF MARINE PLASTIC DEBRIS

1.1 Introduction

This report is the final deliverable in a study commissioned by WWF South Africa's Marine Programme and funded by the WWF Nedbank Green Trust. The study aimed to understand the role that consumers and the restaurant and tourism/hospitality industry could play in reducing and eliminating harmful and non-essential plastic pollutants. For the purposes of this research, harmful and non-essential plastics are considered plastics that have disproportionately large environmental pollution impacts and/or plastics that may be removed or replaced by low-impact alternatives. This includes single-use plastics, polystyrene packaging applications and shopping bags, plastic microbeads and plastic microfibres. The study also sought to consolidate the learnings gathered through the research process into a set of recommendations for best practice in designing and implementing a proposed national consumer-, restaurant- and hospitality-focused campaign to reduce and/or eliminate the use of single-use plastics.

The study comprised three work packages: a literature review of the global and national context of marine plastic debris, an analysis of primary and secondary data and the drawing up of key findings and recommendations. This report combines these three elements to provide recommendations for the design of a national consumer campaign. The report outlines the global and national context for marine plastic debris in chapter 1, presents the analysis of primary and secondary data in chapter 2, and provides a summary of the findings and a set of recommendations for the proposed national campaign in chapter 3. The results of the pilot studies are provided in the appendices.

1.2 International context and marine plastic debris

Marine litter, defined as "any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine coastal environment" (UNEP 2009:232), is a growing global challenge and increasingly the focus of research efforts (Galgani et al. 2015; Ryan 2015; Thompson 2015). It enters the oceans from vessels at sea and riverine- and land-based sources, and it can travel long distances, floating and dispersing across oceans or accumulating on the seabed (Galgani et al. 2015; Jambeck et al. 2015).

Between 60–80% of marine litter is plastic debris (Derraik 2002) and an estimated 80% of that debris originates from land-based sources (Ocean Con 2015; Ecowatch.com 2016). About 5–12 million tons of plastics enter the world's oceans each year and this figure is expected to grow by about 9% a year unless changes are made to solid waste management practices (Plastics Europe 2013; Jambeck et al. 2015), particularly for plastic packaging, which is often not managed appropriately and can escape the waste stream and enter the oceans (WEF 2016: UNEP & GRID-Arendal 2016).

A 2016 World Economic Forum (WEF) report predicts that there will be more plastic than fish in the ocean by 2050 as waste levels are growing at a faster rate than population growth due to increased production and use of durable synthetic materials. Plastic production has grown 650% since 1975 reaching 270 million tons in 2010 (Jambeck et al. 2015).

Production is expected to keep growing because of plastic's popularity as a cheap, lightweight and long-lasting material (Steyn 2016).

While plastics can concentrate on ocean floors, and at certain mid-ocean locations, such as the North Pacific Gyre (highest concentration recorded at 18 kg per kilometre^2 (km), the amount estimated to wash up on beaches is five times this, with an average concentration of 2 000 kg/km^2 (Ecowatch.com 2016). Plastic debris can also break down into smaller pieces. Microplastics (including industrial pellets, microbeads commonly found in cosmetics and clothing fibres), ranging in size from a few microns to a few millimetres, are also an issue as they settle on ocean beds and/or are ingested by fish, sea mammals and birds (Galgani et al. 2015).

Marine plastic debris reduces the productivity of natural ecosystems, particularly marine systems; clogs up urban infrastructure, such as inland waterways and wastewater outflows; and reduces the aesthetic appeal of coastal tourism and hospitality attractions (Jambeck et al. 2015). Dealing with the effects of marine plastic debris comes at significant environmental and financial costs.

This report focuses on marine plastic debris in South Africa and explores ways to minimise it through the raising of awareness among businesses and consumers of the problem.

1.3 South Africa and marine plastic debris

South Africans use about 1.4 million tons of plastic a year (PlasticsSA 2015); most of this (53%) is packaging from the food and beverage sectors (WEF 2016). The plastics packaging sector is an important contributor to South Africa's economy generating about R50 billion a year in sales, mostly for food packaging and employing about 63 000 people in 1 800 companies (Steyn 2016). This market is expected to grow by 5% by 2018 (Steyn 2016).

More than 50% of plastic waste ends up as land and marine litter in South Africa; this in comparison to 11% in Brazil and 2% in the United States (Ryan & Moloney 2016). A 2015 *Science* publication estimates that South Africa is the world's 11th worst offender regarding the release of plastic debris into the ocean (Jambeck et al. 2015). South Africa scored higher than India, a country known for its high levels of waste pollution, because it has a high per capita production of waste (about 2 kgs a person a day) and a high proportion (56%) of 'mismanaged' waste that does not enter formal disposal schemes (Jambeck et al. 2015).

About 26% of South African households do not receive waste collection services (DEA 2017), and there are high levels of non-compliance at waste dumps or many landfills, which results in wind or water-borne waste making its way to the oceans (Jambeck et al. 2015). This is compounded by low plastic recycling rates. Domestic production alone of polymer plastics reached almost 1.5 million tons in 2015 (Engineering News 2016), yet only 20% of plastics used in South Africa in 2015 were diverted from landfill. This is indicative of South Africa not having an established recycling culture (Engineering News 2016), despite good recycling guidelines and resources being available, but which may not have the necessary reach (Notten et al. 2017).

A 2015 survey of beach litter in South Africa found that 94% is made up of plastics, of which 77% is packaging (Ryan & Moloney 2016).

Research undertaken along Cape Town's beaches indicates that most litter found on beaches is from land-based sources and, of this, about 97% is plastics – mostly single-use plastics (Ryan July 2017, unpublished data). This work seems to indicate that litter loads spike after the first winter rains flush the Cape Flats wetlands and when wave action strips away the sand to expose buried litter. Most litter is introduced from land-based sources.

The volume of litter found on beaches is growing. The growth in recorded beach litter found in Cape Town's Table Bay tripled between 1994 and 2011, far exceeding the 60% growth in the city's population over the same period (Ryan & Moloney 2016). Beach clean-ups on East Beach, East London, have recorded on average 44 straws per metre of beach, despite daily cleaning (Ryan & Moloney 2016). It is not possible to make accurate cross-locational or country comparisons because reporting indicators are not standardised. In-depth beach surveys are only conducted every five years in South Africa with the next one occurring in 2020.

There are significant environmental and financial costs associated with marine plastic debris. A survey indicates that a litter density of more than 2 items of debris per metre would put off 40% of foreign tourists and 60% of residents from visiting the beach, which negatively affects income generated from the beaches and beach activities (Ballance et al. 2000). In addition, plastic debris negatively affects non-consumptive marine tourism activities, such as the viewing of marine mammals, birds, turtles and sharks. The value of non-consumptive marine tourism in South Africa has grown almost three-fold in South Africa to reach a direct value of R400 million and indirect value of more than R2 billion in 2013 (DEA 2015). The costs of cleaning beaches in South Africa has grown significantly reaching R3 million in 1994/95 just in the Cape Town metropole (Ballance et al. 2000). Alternative methods of reducing marine litter at source are therefore much needed.

The most common high-risk marine plastic debris washed up on South African shores are earbud sticks, drinking straws, bottle lids (sports/nipple), sweet wrappers (individual), expanded polystyrene, plastic shopping bags, microbeads and nurdles (small plastic pellets), and plastic single-use cutlery (Ryan & Moloney 2016). Therefore, the focus must be on reducing the production and use of these items. Of these, this study focused on straws, sweet wrappers and coffee cup lids, as expanded on in chapter 2.

1.4 International, national and localised mitigating efforts

Many initiatives to optimise systems and promote awareness of the need to reduce and/or eliminate marine plastic debris have been initiated by an array of stakeholders both nationally and globally. These efforts are, however, fragmented and uncoordinated and have failed to make any significant impact (Notten et al. 2017). Table 1 provides a list of example activities to illustrate the key and more commonly referenced international and national activities. As an overview, four main types of interventions were identified:

- **Beach litter surveys:** Mostly driven by scientists, these initiatives have been valuable in identifying the sources, types and volumes of plastic debris (for example, CSIRO n.d.; Ryan & Moloney 1990; Ryan et al. 2015; Engel 2017).

- **Formal beach clean-ups:** Run by municipalities and the government's Expanded Public Works Programme (Working for the Coast), these initiatives are primarily driven by the demand for clean beaches.
  They assist with removing large debris items (which account for more than 90% of the plastic litter by mass) before it breaks down into microplastics (Ryan & Swanepoel 1996), and create much needed employment. Informal beach clean-ups: Driven mainly by citizen action groups, these initiatives primarily act as awareness-raising exercises, although they also reduce the amount of large litter items, and some provide data on the sources, types and volumes of plastic debris (Ocean Conservancy 2017).
- **Plastic bag levies:** About 22 countries have banned the sale of lightweight plastic bags or placed a levy or additional tax on them to try and control environmental problems resulting from the use of plastic shopping bags (Bigfatbags.co.uk 2017). South Africa initiated a combination of regulation and a levy to curtail their use in 2003; the results have been limited, however, to the short term and the effectiveness of the levy has continued to decline despite its comprehensive application at store checkout points. It is argued that this is because the price is not high enough for consumers to notice and the lack of availability of substitutes that serve all purposes (Dikgang et al. 2015).
- **Alternative materials:** There has been significant development and growth in the development and use of bioplastics. The diversity of biomaterials and their properties make it difficult to make generalised assessments as to whether these are better or best options over non-biodegradable materials (Song et al. 2009).
- **Circular design economy:** The notion of a 'new plastics economy' is based on the principles of the circular economy. The goal is that plastics are never discarded, but rather re-enter the economy as valuable technical or biological nutrients. If designed and implemented effectively the levels of plastics leakage into natural systems (especially the marine system) would be significantly reduced (WEF 2016).

South African initiatives are diverse in origin, funding and support. Some are global in nature, while others operate at the micro-level; some are led by government departments and programmes, others by non-governmental organisations (NGOs) and some are grass-root community initiatives.

While not covering the gamut of all global and country-level initiatives, the following table provides an overview of measures taken to reduce single-use plastics. Two of the seven significant global initiatives are active in South Africa; with most activity in the country focused on specific items. There are no notable initiatives focused on reducing or eliminating items such as sweet wrappers or bottle lids.

Table 1: Examples of global, regional and national legislation and initiatives to minimise single-use plastics

Types of plastic	Global, regional and national legislation and initiatives
All high-risk plastics	• The Declaration of the Global Plastics Associations for Solutions on Marine Litter under the auspices of the Global Plastics Alliance – South Africa is a signatory.[1] • United Nations Environment Programme (UNEP) Regional and Clean Seas Programmes that aim to eliminate major sources of marine plastic and changing shopping habits.[2] • 5 Gyres – empowers action through science, art, education and adventure activities geared to solving the global health crisis caused by plastic pollution.[3] • Plastic Oceans – a global network of non-profit organisations that aim to change attitudes towards plastic within a generation.[4] • International Coastal Cleanup – an annual event hosted in more than 120 countries.[5] Many South African NGOs support this initiative. [6,7] • Greenpeace Plastics Pledge – a campaign to end plastic pollution of oceans. [8] • Honolulu Strategy – a global framework coordinated by UNEP and the National Oceanic and Atmospheric Administration that identifies actions to combat marine litter.[9] • Australian Marine Conservation Society, which works with organisations to deal with marine debris. [10] • The United States-based Plastics Pollution Coalition, which focuses on strategic planning and communication in efforts to stop single-use plastic use.[11] • The United States-based Ocean Conservancy that runs various campaigns to reduce marine pollution.[12] • The United States-based Plastics Ban List (Better Alternatives Now) that collaborates with 5 Gyres, Clean Production Action, the Surfrider Foundation and Upstream.[13] • Australian Green Party's Environment Protection Amendment Bill 2016, which if passed will ban plastic bags, packaging and microbeads in 2017.[14] • The Australian Take 3 for the Sea non-profit that aims to reduce global plastic pollution through education and participation. • The European Commission's Marine Strategy Framework Directive that provides management and traceability measures for marine pollution.[15] • The United Kingdom's Surfers Against Sewage NGO sees plastic pollution as its priority, providing education on ocean plastic, coordinating beach clean-ups, running various campaigns, such as deposit return systems and has a strong voice in parliament through the Protect our Waves All Party Parliamentary Group.[16] • India's Karnataka state and the city of Delhi's ban on the use or sale of plastic carrier bags, plates, cups, spoons, cling film, microbeads, etc.[17,18] • The Government of the Seychelles approved a ban on importing Styrofoam lunch boxes and plastic bags, plates, cups and cutlery from July 2017.[19] • The United States Marine Debris Research, Prevention, and Reduction Act.[20] <u>South Africa</u> • Plastics SA is a signatory to the Declaration of the Global Plastics Associations for Solutions on Marine Litter. [21] • Many South African NGOs support the International Coastal Cleanup initiative.[22,23] • African Marine Waste Network – launched by the Sustainable Seas Trust, Plastics SA and other partners in 2016.[24] • United Nations Patron of the Seas – South African Lewis Pugh promotes and supports initiatives such as beach clean-ups and the prevention of balloon releases.[25] • South Africa's Department of Environmental Affairs is planning to launch a waste awareness campaign in 2017/18.
Earbud sticks	• The United Kingdom's City to Sea and 38 Degrees: Switch the Stick campaign, which has been signed by Tesco, Sainsbury's, Asda, Morrisons, Aldi, Lidl, Superdrug and Boots UK, in partnership with water service providers.[26,27]

Drinking straws	• The Last Plastic Straw – a global movement adopted in several countries. It is supported by the last Plastics Pollution Coalition and aims to eliminate plastic drinking straws.[28,29] • The Last Straw campaign in Australia to reduce use of plastic straws in the country.[30] • Businesses in Tofino, Canada have banned the use of plastic straws.[31] • Straw Wars in the United Kingdom campaigns to ban the use of straws in London's restaurants.[32] • One Less Straw in the United States runs a pledge campaign to reduce usage.[33] <u>South Africa</u> • Turning the Tide – volunteer initiative to reduce straw use in Noordhoek, Cape Town.[34] • The Beach Co-operative – a volunteer initiative based in Muizenberg, Cape Town that focuses on reducing and recording levels of marine litter, among other initiatives.
Expanded polystyrene	• The Selangor and Federal Territories of Malaysia banned polystyrene packs in January 2017.[35] • United States' Save our Shores banned Styrofoam take-out containers in Monterey Bay.[36] • In San Francisco, United States, a ban on polystyrene came into effect in January 2017.[37] • In New York, United States, a ban was place on the use of polystyrene containers in 2017 – more than 70 cities have initiated such a ban.[38] <u>South Africa</u> • Mothers' Union in Southern Africa has a self-imposed ban on the use of Styrofoam.[39] • Blue Lagoon Campaign in Durban is driving an initiative to ban the use of polystyrene in the city.[40]
Plastic shopping bags	• Ethiopia, Rwanda, Mauritius, Morocco, Ivory Coast and Madagascar have banned single-use plastic bags.[41,42,43] • The European Commission adopted regulations in 2013 requiring member states to either charge for or ban single-use plastics.[44] It also drafted a directive on packaging and packaging of waste that focuses on reducing consumption of lightweight plastic carrier bags. A plastic bag tax will be introduced by end 2018.[45] • The French government has banned single-use plastic bags that hold less than 10 litres.[46] • Several United States large retailers either charge for or have banned the use of these bags: Washington DC – there is a charge and in San Francisco, Hawaii and California some retailers have banned their use. [47,48] <u>South Africa</u> • Government introduced a plastic bag levy in 2003. • The Two Oceans Aquarium runs a Rethink the Bag campaign.
Microbeads and nurdles	• Global initiative Beat the Microbead is supported by 91 NGOs in 38 countries.[49] • Rocha: Action against microplastics conducts education, advocacy and conservation work in Europe, but with a global reach.[50] • The United Kingdom banned the use of microbeads in cosmetics – this will come into effect end 2017.[51] • United States Microbead Free Waters Act 2015 that will ban the use of microbeads in personal care products in 2018.[52] <u>South Africa</u> The Ban Microbeads campaign has been established in South Africa.[53]
Plastic single-use cutlery	France – introduced a law to ban single-use plastic cups, plates and cutlery. To come into effect in 2020.[54]

Note: References for reach initiative are provided as end notes.

CHAPTER 2: REDUCING OR ELIMINATING SINGLE-USE PLASTICS IN CAPE TOWN'S SOUTH PENINSULA

As noted in chapter 1, this study aimed to understand the role that consumers and the restaurant and tourism/hospitality industries could play in reducing and eliminating harmful and non-essential plastic pollutants. This chapter outlines the findings of the primary and secondary research conducted in Cape Town. This data will inform recommendations for a national consumer and restaurant/hospitality industry campaign. These are presented in chapter 3.

2.1 Background and rationale

Aaniyah Omardien and Charmaine Adams, surfers and conservationists living in Cape Town's south peninsula, started tackling the problem of marine litter at Muizenberg beach in 2015. This is one of South Africa's most popular surf spots and tourism destinations. Aaniyah, who had previously worked for WWF managing their Marine Programme, used her networks to investigate potential project opportunities. She came across the pioneering work of Professor Peter Ryan, Director: FitzPatrick Institute of African Ornithology at the University of Cape Town, who studies marine plastic debris along the South African coastline. He suggested that work conducted at the intertidal zone at Muizenberg Surfers' Corner would provide a good comparison to his work on sandy beaches. They began a monthly clean-up of the intertidal pools at the beach in efforts to generate knowledge about these ecosystems.

Building on this work, and the growing interest in the activities being carried out, The Beach Co-operative was established in 2015 as a volunteer intertidal beach clean-up initiative at Muizenberg Surfers' Corner. It has grown into a dedicated collective of individuals working along the supply chain to address single-use plastics that end up in our oceans and on our beaches. The organisation has collected marine debris every full moon since March 2015, equating to more than 24 sampling efforts of debris collected, weighed and categorised to date. As with sandy beaches, plastics comprise the bulk of marine debris found in Muizenberg's intertidal rocky zone (see figure 1).

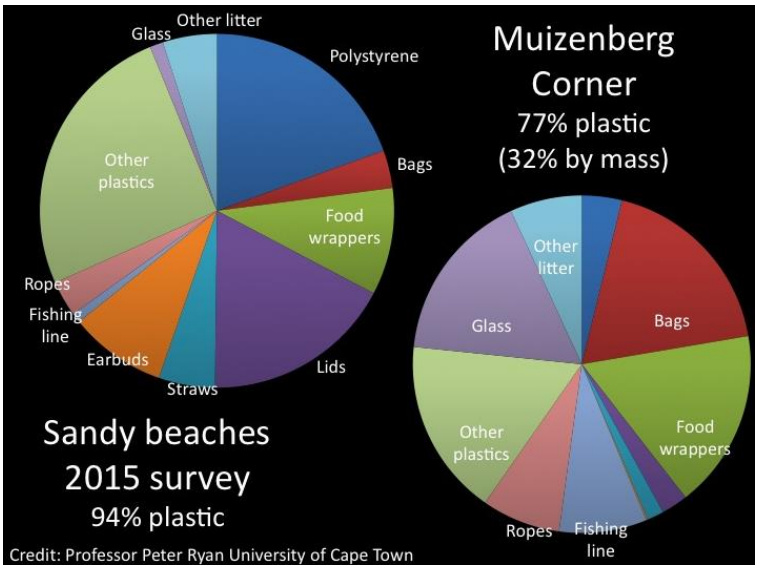

Figure 1: Plastics found predominantly on sandy and rocky intertidal areas

During the first clean-up, the team collected 758 items of litter filling 12 large refuse bags from one 130-metre-wide rock pool. Subsequent clean-ups netted an average of 360 items weighing about 5 kgs after cleaning and drying. Plastic bags are particularly well represented, but are often not easily visible as they fill with sand and form solid 'bricks'. The most commonly found items are plastic bags and flexible packaging (mainly chip packets, sweet wrappers, etc.). The next most abundant items are glass fragments, pieces of monofilament fishing line, synthetic rope and other plastic items. Lids, bottles, straws, expanded polystyrene and earbud sticks are much less commonly found in the rocky intertidal zone than they are on sandy beaches.

This work seems to indicate that litter loads spike after the first winter rains flush the Cape Flats wetlands and when wave action strips away the sand to expose buried litter. Most litter is introduced from land-based sources (Jambeck et al. 2015). About 97% of the litter found on beaches and 80% of intertidal debris is plastics. Of this, 77% is single-use plastics (Ryan July 2017, unpublished data). Litter is commonly found tangled in seaweed and mussels, covering sea urchins and ingested in sea anemones.

On realising that most litter at this location was single-use plastics, the team identified restaurants and consumers as significant intervention points to reduce marine plastic debris and Muizenberg, Cape Town, as a relevant pilot site. Many of the businesses close to Muizenberg beach are owned by people with a connection to the ocean, such as surfing, and their businesses often rely on the aesthetic beauty provided by a clean beach and a healthy ocean.

Figure 2, produced for The Beach Co-operative's June 2017 newsletter, indicates 11 restaurants based in the Muizenberg beach area – six of which were interviewed for this research, with the balance drawn from elsewhere in Cape Town's South Peninsula.

Figure 2: Restaurants in the Muizenberg area engaged for this study

The Beach Co-operative's mission is to engage with single-use plastics at all levels – to remove it from the beach, refuse it when making purchases, work with brands and companies wanting to use less plastic, and encourage manufacturers to design plastic packaging with a circular economy in mind (design for recyclability).

A Noordhoek-based community project – Turning the Tide – had engaged with restaurants and consumers in October 2016 to assess how the use of plastic straws could be eliminated through a 'Straws Suck' campaign. John Duncan, WWF South Africa's Marine Programme Manager, connected Turning the Tide with The Beach Co-operative to explore how consumers and restaurants understand the effects of marine pollution caused by plastic debris, as well as their role in reducing and eliminating harmful and non-essential plastics, single-use plastics specifically.

The rationale was that by working with consumers, particularly those with a connection to the ocean, and with restaurants close to the beach or associated with an outdoor culture and their consumers, a movement would form to apply pressure on producers and manufacturers of unnecessary plastics and to motivate for improved packaging designs that reduce the waste that enters our landfills and oceans.

The study assumed that restaurants situated close to the ocean would be more likely to participate in a trial to reduce single-use plastic to lower the levels of plastic debris that enters the ocean, and that they would be more likely to act to bring about behavioural change with their consumers.

2.2 Research aims and objectives

This research aimed to build on the work undertaken by Turning the Tide and explore how consumers and restaurants understand the effects of marine pollution caused by plastic debris, as well as their role in reducing and eliminating harmful and non-essential plastics, single-use plastics specifically. The study further sought to consolidate the learnings into a set of recommendations to inform the design of a national campaign to raise awareness of single-use plastics and motivate for their reduction and/or elimination.

2.3 Identification of the pilot sites

The Noordhoek and Muizenberg suburbs were initially identified as the two areas to conduct this research. This shifted to a broader focus on Cape Town's south peninsula, with an emphasis on coastal restaurants. A multifaceted approach was needed to reach the restaurants and food service outlets located close to the beach, whose local and tourist patrons would also enjoy access to an unpolluted beach and ocean. The team approached restaurants to ascertain their willingness to undertake a pilot study, which involved trialling alternatives to single-use plastics and gathering feedback from their customers in this regard. Additionally, FTTSA approached The Beach Co-operative to include the hospitality industry in this research.[1]

[1] The hospitality industry was not considered in the original brief for this project, and so does not form part of the WWF Nedbank Green Trust contract. The opportunity arose, however, to gain access to this market, which would enhance the quality of the research and it has therefore been included in this report.

Further surveys and interviews were conducted with selected FTT members, and two non-members for comparative purposes (see appendix 4).

2.4 Approach, methodology and methods

A mixed-methods approach was used to gather data from consumers and the restaurant and hospitality sectors.

The primary data for this research is sourced from:

- Semi-structured face-to-face interviews with 80 consumers and 20 restaurant managers/owners in the Cape Town area.
- Surveys with 180 customers in Noordhoek specifically related to use of plastic straws and their alternatives, as well as options to refuse the straw.
- Surveys and focus group sessions with two pilot coastal restaurants that showed an interest in trialling alternatives to sing-use plastic options in their businesses.
- Interviews with 31 FTT members and 2 non-FTT members, representing the hospitality industry.

Secondary data sources include:

- 'Rethink the Bag' data from the Two Oceans Aquarium campaign.
- Interview/focus group data from the PET Recycling Company's (PETCO) Gauteng consumer behaviour work and an online survey of South African citizens about recycling.

The following sections present the key findings that emerged from a review of the primary and secondary data, including those findings that form part of the recommendations for a national consumer campaign. These recommendations are presented in chapter 3

2.5 Key findings

2.5.1 Primary data key findings

Findings from 80 consumer interviews

The full reports for the consumer and restaurant surveys (including a sample of each questionnaire) can be found in appendix 1 and 2.

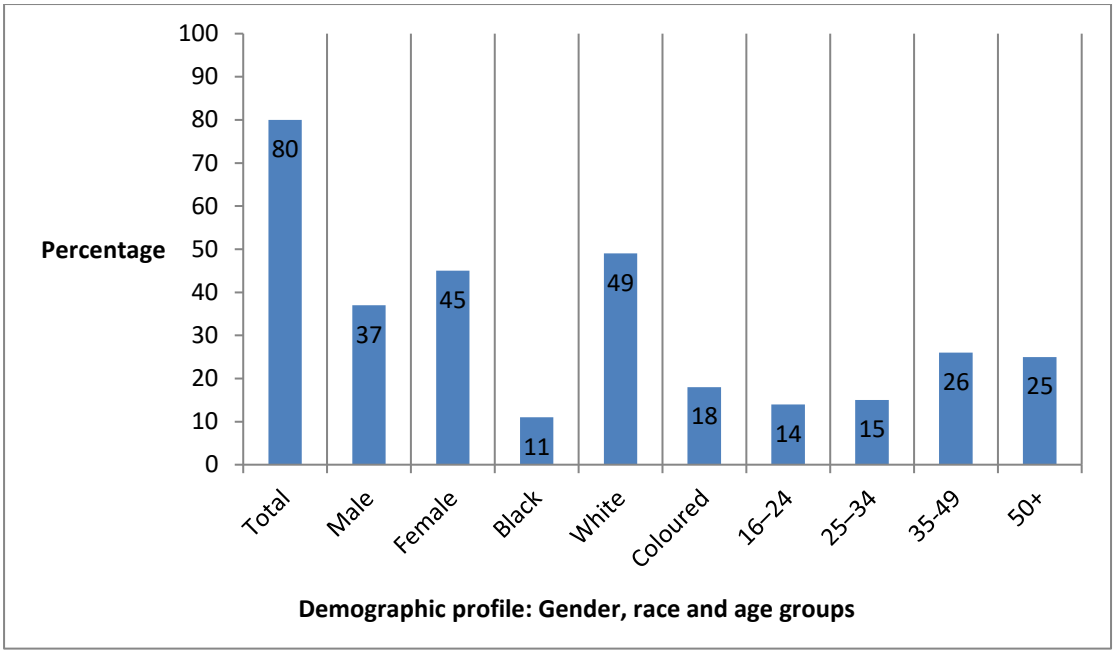

Figure 3: Demographic sample of 80 consumers

Note: One respondent did not indicate race and one respondent was Indian

The sample comprised 80 consumer respondents with the demographic characteristics described in figure 3. For almost all respondents, recycling is familiar to them and they do it at home. This is encouraging, but the study sought to learn more about their behaviour when they eat out, especially with respect to single-use plastic items and or items that cannot be recycled in South Africa. In particular, it sought to identify elements that would support a national campaign in South Africa.

These elements are outlined below (Omardien & Knipscheer 2017):

- A campaign that engages with consumers should emphasise **refusal** (e.g. declining the offer of straws or lids) as a way to reduce environmental impact. This is evident as most of the 80 respondents (94%) would continue to support restaurants that discontinued the use of straws.
- It should **redefine the meaning of the term recycling** because, despite marketing campaigns emphasising 'reduce, reuse & recycle', many respondents confuse the term recycling with reusing.
- It should encourage a sense of ownership because:
    - Respondents feel that they can influence the product choices that restaurants make and that they would support restaurants that make environmentally friendly decisions, even at a cost to themselves.
    - In particular, it appears that restaurants can safely stop giving sweets to patrons with their bill; almost no respondents said this would affect their choice of restaurant. This could significantly reduce packaging volumes and costs.
    - They are divided though on, and possibly not really aware of, what the extra cost might be, and whether it should be shown explicitly when making purchases.

- There may be scope to reduce these costs if restaurants offered cash discounts to incentivise customers who bring their own containers.

Findings from 20 restaurant surveys
Table 2 lists the 20 restaurants interviewed in Cape Town for this study.

Table 2: The 20 Cape Town restaurants surveyed (2017)

List of surveyed restaurants	
Harbour House, V&A Waterfront	Kauai, central business district
Vineyard Hotel, Claremont	Loading Bay, central business district
Tiger's Milk, central business district	Blue Water Café, Kommetjie
Café Caprice, central business district	Hang Ten, Muizenberg
Tiger's Milk, Muizenberg	vida e caffé, Muizenberg
Harbour House, Kalk Bay	Galley, Fish Hoek
Café Roux, Noordhoek	Fresch Foods, Muizenberg
Monkey Valley, Noordhoek	Red Herring, Noordhoek
Foragers, Scarborough	Yoffi Falaffel, Muizenberg
Olympia, Kalk Bay	Mariner's Wharf, Waterfront

Cape Town's restaurant sector represents about 20% of the national restaurant trade, which had an estimated value of R1.2 billion in 2010 (Welter 2012).

The sector is a significant end-user of food packaging and thus has a critical role to play in reducing marine plastic pollution. This is to its benefit because unpolluted beaches and ocean contribute to a positive eating and recreational experience for patrons. Therefore, restaurant owners and managers have the potential to bring about consumer behavioural change by offering alternative products, and recycling, reducing, reusing and discontinuing their use of single-use plastics.
Key insights gained from this survey are outlined below (Engel 2017):

- Most respondents (68%) did not have a sustainability practice code in place. Those that did cited the value or ethos of the restaurant (86%) or market advantage (14%) as the motivating factor for adoption of a sustainability practice code.
- Communication alone, whether through in-store displays or online media, is insufficient to result in behavioural change. Respondents echoed sentiments that 'consumers do not like to read' and that many customers ask questions despite answers being displayed on in-store signage. Significant consumer awareness is needed and this is perhaps best done through 'nudging' activities; for example, showing consumers how it is possible to drink a smoothie without a straw, using video clips, launching a campaign, etc.
- The time and cost to collate information on alternative options is a barrier to efficient implementation of waste management and the introduction of alternative plastic packaging materials.
  A recommendation was made to approach the City of Cape Town to provide an advisory service on efficient waste management practices and ways to reduce packaging and related costs.

- Only 16% responded to the question on the contribution of packaging cost to total cost. The packaging cost typically ranges between 1–2% and 5–8% depending on the product. Our consumer results indicate that respondents are price sensitive to packaging cost despite it only contributing a small percentage to total cost.
    - Willingness to pay for straws produced from alternative material: 91% of respondents indicating they were willing to pay 0–5% more and 9% were willing to pay more than 15%.
    - Willingness to pay for takeaway cups: 99% were willing to pay 0–5% more and 1% were willing to pay 10–15% more.

The results confirm that the consumer will need to pay for the additional cost of introducing a packaging alternative that is less harmful to the environment because currently it costs more to use these materials than conventional materials; for example, a plastic straw costs R0.07–R0.09 versus a paper straw, which costs R0.44. Businesses are less likely to or will not use an alternative if the consumer is not willing to pay for it. As demand increases, so will supply, which will potentially decrease prices as packaging of this nature becomes less of a niche product.

- Waste that is sorted is paper, plastic, glass, food scraps or other organic material and batteries. Stores and restaurants that rent space in larger shopping centres rely on the provided waste management facilities. Only 42% of respondents sorted waste with 91% delegating this task internally to staff and 9% outsourcing to external service providers. By waste type, most respondents recycle plastic and glass (37%) followed by those that recycle paper (19%); 11% recycle organic waste and batteries. Respondents noted that some of the recycling companies currently offering services were unreliable.

Findings from the Noordhoek consumer data (interviews, surveys)
Four trial interviews were conducted in October 2016 at the Noordhoek Farm Village regarding the practice of not providing straws or providing alternative paper straws. In addition, 97 customer bill surveys were undertaken to gain feedback on any potential challenges and the extent of customer buy-in. Running in parallel to the customer survey, an online survey – promoted via local community Facebook pages – was created to gather public responses to the issue. The questions followed the theme of the customer bill survey; 83 completed surveys were received.

A total of 180 responses were received from the on-line and restaurant surveys. The results indicate an overwhelming desire by the public to minimise and/or ban the use of plastic straws (98% supporting a ban). Over 95% of those interviewed recognised the environmental impact associated with plastic straws. Table 3 below presents the combined results of both surveys.

Table 3: Plastic straw consumer survey results (2017)

Questions	Total	
	Yes %	No %
Do you think plastic drinking straws pose a threat to the environment?	95%	5%
Would you mind drinking from a glass or can without a straw?	19%	81%
Would your children be happy drinking out of a kiddies' cup rather than using a straw in a glass?	91%	9%
If this establishment were to ban plastic drinking straws, would you object?	2%	98%
If you wanted to use a straw, would you be prepared to pay a small charge for a durable paper straw?	83%	17%

The survey provided opportunities for comments. A selection of respondent comments is provided below to give a deeper insight into consumer understanding of the problem and the obstacles to changing behaviour.

"Straws are an unnecessary convenience that destroys the earth and humans can certainly do without it!"

"I don't want them drinking straight from the can because it could be dirty … it wouldn't be the same for them if it was poured into a cup. Adults in the family don't use straws."

"Straws MUST go...should not be an option."

"I don't want straws to go away for hygienic reasons. However, I'd be willing to carry my own."

Since the conclusion of the trial, The Foodbarn, Red Herring and Café Roux have adopted a 'no plastic straw' policy.

Findings from surveys and focus group sessions with two pilot restaurants

The survey for this group was designed using some of Omardien and Knipsheer's (2017) key findings and recommendations. Their work indicates that 86% of survey respondents felt that restaurants could help to reduce marine pollution levels and that they felt a level of responsibility to influence restaurants' product choices. To this end they would be willing to support restaurants that made environmentally friendly decisions, even at their own cost. There was no clear consensus, however, on what they would be willing to pay and whether this cost should be made explicit. Recommendations from Omardien and Knipsheer's work suggest that campaigns should emphasise refusal of single-use plastics to reduce environmental impact and offer discounts to consumers that bring their own containers (2017).

This study focused on the sources of single-use plastics that end up as beach litter by working with and educating restaurants and consumers on plastic alternatives and gaining an understanding of the requirements for a transition and the possible obstacles to bringing about behavioural change.

The pilot study research was carried out at two restaurants – vida e caffé (vida e) in Muizenberg and Foragers at The Hub in Scarborough, within a four-week period on 7–8 July and 28 July–4 August 2017 respectively. The restaurants were selected to implement the pilot study based on their willingness to participate, familiarity with the issue and passion for environmental issues, as well as the owner or manager's dedication to making a difference.

vida e in Muizenberg is part of a chain of trendy coffee shops, with 42 stores in Cape Town and more than 70 across South Africa. The Muizenberg vida e is in the Roxy Surf Emporium shop on the beachfront, catering to surfers and other beachgoers (Smith & Omardien 2017). Foragers at The Hub is a local restaurant, deli and coffee bar located in the small coastal village of Scarborough, near Cape Point. While strongly supported by the local community, it sees most of its customers over weekends, particularly during the morning, as it is a favourite destination for passing cyclists (Smith & Omardien 2017).

Due to the distinct differences in these two establishments, the methodology for each had to be adapted to suit the location, type of service offered and clientele. The sample included 156 customer surveys covering three single-use plastic items.

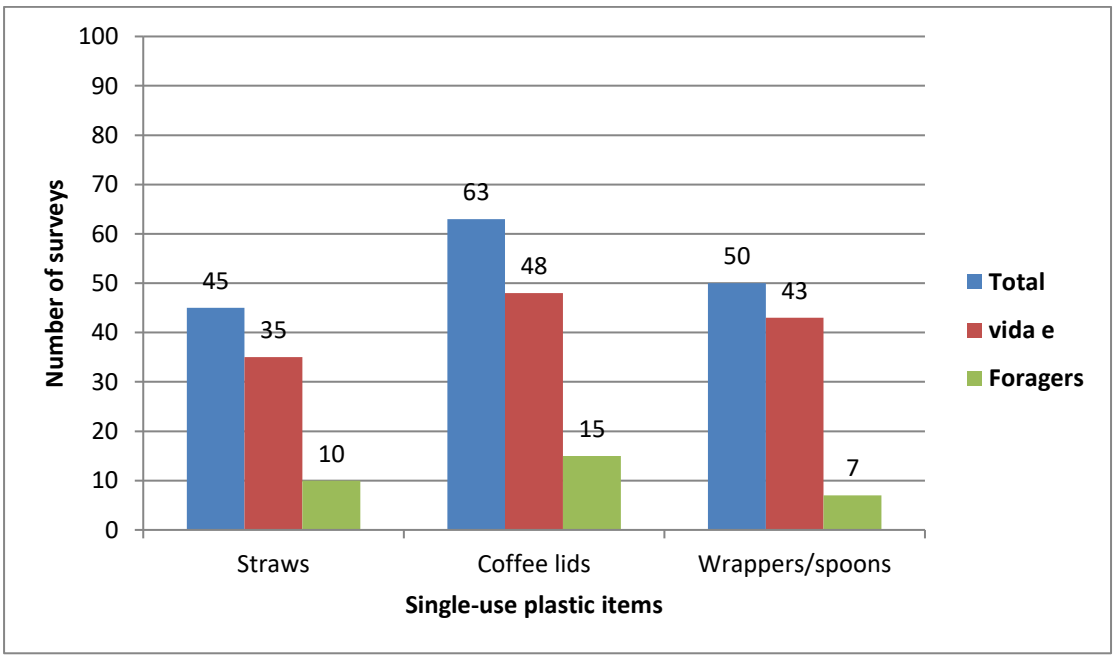

Figure 4: Sample of 156 surveys completed by customers at vida e and Foragers
Note: Foragers did not serve individually wrapped sweets. This survey was replaced by one designed to focus on takeaway ice-cream spoons.

The following conclusions are based on the findings from the two pilot study surveys (Smith & Omardien 2017):

- Most respondents do not need, want or use straws when they order a drink and thus restaurants can safely stop serving straws, unless customers insist (e.g. for a takeaway smoothie), in which case the customer should be satisfied with an alternative (e.g. paper) straw.
- For 52% of respondents, mini vida e chocolates appear to be an important part of enjoying the vida e coffee experience. However, some respondents were happy for the change that the biscuit provided and others admitted they would be satisfied with unwrapped chocolates. Further surveys at vida e carried out over a longer period could test whether customers are satisfied with receiving unwrapped mini chocolates or vida e's home-baked chocolate buns. Another recommendation would be to explore alternative packing (e.g. wax paper) for the chocolates.
- Regarding takeaway ice-cream spoons, while the number of responses were few (7), most respondents (71%) were happy to pay extra for a sustainably sourced wooden alternative because they preferred using products with less environmental impact and were happy to support the transition towards plastic-free alternatives.
- Takeaway coffee cup lids were generally required by respondents to prevent spillage. While most respondents who requested a lid were happy to pay extra for it, there was no clear agreement on how much, although most concur that the cost should not exceed R1. Most respondents would consider a discount of R1 to R2 an incentive to bring their own reusable coffee cup.
- Regarding reusable cups, more than 50% of the respondents would be willing to pay up to R100 for the cup, 28% would pay up to R150 and only one respondent was willing to pay up to R250.

FTT and the hospitality industry

Surveys were undertaken with FTT members (31) and non-members (2). The surveys aimed to understand the extent to which the Southern African hospitality industry has transitioned to more sustainable systems, and any support it needs in this regard.

The results of these surveys indicate that:

- Business ethos is a significant driver for the implementation of sustainability practices, with 61% of respondents ranking it as the most significant. Respondents noted market advantage (19%) and cost reduction (26%) as other notable drivers. About 45% of respondents indicated that mandatory requirements were not significant in this regard.
- Guest responsiveness and participation are viewed as essential to the implementation of sustainability practices. This is confirmed by a study undertaken with hotel guests in the United States.
- Most respondents (84%) sort waste on-site, suggesting that they have adequate resources and facilities to do so.

However, 55% also make use of an external provider for this function, which may indicate insufficient or ineffective sorting practices. Respondents recycled more than 80% of suitable waste.

- There is a significant variety of single-use plastics and packaging items used by respondents: tinfoil (81%), water bottles (81%), plastic clingwrap (74%) and condiment sachets (45%). Respondents note, however, the difficulty in sourcing environmentally friendly alternatives to these products and in finding reliable suppliers.
- Respondents showed a willingness to pay extra for plastic alternatives, with about half prepared to do so for alternatives for straws (55%), water purification systems (55%), refillable condiment containers in rooms (48%), reusable bags (39%) and lids for takeaway coffee (32%).

2.5.2 Secondary data key findings

Founder of the Rethink the Bag campaign Hayley McLellan has engaged with WWF South Africa regarding single-use plastic shopping bags and been part of the discussions about this study. WWF South Africa requested that the data she has collected be included in this research to further understand customer behaviour regarding alternatives to single-use plastics.

The PETCO research was brought to The Beach Co-operative's attention after a meeting with Janine Basson, PETCO's stakeholder relationships manager, who commissioned research on consumers understanding of and willingness to practice recycling.

Rethink the Bag campaign from the Two Oceans Aquarium

The Two Oceans Aquarium's 'Rethink the Bag' campaign aims to help eliminate single-use plastic shopping bags in South Africa (Aquarium.co.za 2017). Hayley McLellan, an environmental campaigner at the aquarium, initiated the campaign in 2011 to combat the threat of growing marine pollution.

Large shopping brands have started to take notice (Aquarium.co.za 2017). While no retailers have started to enforce the use of reusable bags or created incentives for customers to bring their own, all South Africa's major retailers now offer reusable alternatives. SPAR Western Cape and Namibia are the most vocal supporters of a plastic shopping bag-free country and are taking their first steps to eliminate disposable bags in their business model (Aquarium.co.za 2017). SPAR runs an annual bag exchange programme, which has been successful in removing hundreds of thousands of plastic bags from circulation and putting free reusable bags into the hands of their customers.

Rethink the Bag and SPAR collaboratively conducted 2 068 surveys between May and July 2017 at six Cape Town stores in high- and low-income areas to gauge customers' attitudes towards reusable and single-use shopping bags. Survey results indicate that (Aquarium.co.za 2017):

- 86% of shoppers would continue to frequent SPAR if plastic shopping bags were discontinued.
- 74% of those shoppers would fully support a ban on plastic shopping bags in South Africa.

PETCO surveys and focus groups

PETCO is South Africa's national industry body responsible for managing the extended producer responsibility obligations of the PET plastics industry. Established in 2004, it works to grow the collection and recycling of PET bottles, after consumer use, for its membership. It conducts regular research on its primary and secondary target audiences, which include governments, recyclers and consumers. Table 4 illustrates PETCO's engagement with its target audiences between November 2016 and February 2017.

Table 4: PETCO stakeholder engagement (November 2016 – Februaray 2017)

Target market	Type of engagement
South African consumers: LSM* 1–3 (Sample: Black Africans aged 18-55)	50 face-to-face interviews in Johannesburg
South African consumers: LSM 4–6 (Sample: Black Africans aged 18-34)	2 focus groups with 6 people each in Johannesburg
South African consumers: LSM 7–10 (Sample: All races aged 18-55)	Online panel (665 respondents)

** Living Standard Measure (LSM)*

The PETCO study aims to understand the behavioural shift of PETCO's target audiences towards embracing an anti-littering, reducing and recycling lifestyle.

The intention of its research is to give PETCO a better understanding of which consumers the company needs to communicate with to bring about its strategic objectives and how PETCO can improve its engagement strategy to provide consumers with more efficient and meaningful pathways via which to act (PETCO 2017). The first phase of the study provides a qualitative assessment of recycling attitudes and behaviour, primarily based on the findings drawn from engagement with the second and third target audiences. Key findings include (PETCO 2017):

- Respondents mentioned three main concepts related to recycling: reusing, 'green' environment and job creation.
- Higher LSMs (7–9) are motivated by the environmental benefits of recycling, while lower LSMs (1–6) indicate that their recycling behaviour is primarily economically motivated.
- Many respondents reuse rather than recycle in their households.
- There is not a significant level of importance attached to the notion of recycling, and respondents were generally apathetic towards the concept.
- When queried as to their level of awareness of PETCO and WWF, no respondents had heard of either organisation.
- Most respondents were not aware of how to recycle, where to recycle or what the benefits were. Education is thus crucial. Once they were made aware of the process and benefits, respondents were more positive in general.

The results of the survey indicate that this would need to be sustained, however, through promotional initiatives (competitions) or incentives (rewards systems).

- Respondents indicated the lack of physical infrastructure for recycling. Bins or bags would need to be provided along with training as to best use. Formalisation of waste collectors would help in this process while conferring dignity and recognition to this group.
- Educational initiatives would need to use appropriate platforms and channels, such as social media and word-of-mouth, but also work through government, community leaders and centres, schools, churches and corporate platforms. The implications of not recycling need to be emphasised.

2.6 Summary of findings

- There is a degree of misunderstanding regarding terms related to waste management, such as recycling and reusing. These terms must be standardised and defined for easy understanding across multiple stakeholder groupings, including consumers within different demographic groups and industry players.
- Recycling is not an embedded practice in South African culture – many people are now aware of the need to recycle or how and where to do it. There is also a lack of consistent physical infrastructure to support recycling in the country.
- Educational initiatives need to be targeted at different cultural groups, implemented in different languages and using appropriate channels for significant effect. Current communication of sustainability initiatives is generally ineffective; more creative ways to raise awareness must be found.
  Examples include 'nudging' activities, such as videos that show how to drink a smoothie without a straw.
- Higher LSM groups tend to have higher levels of environmental awareness and motivation to act, while lower LSM groups are driven more by economic motivations regarding waste management.
- The adoption of sustainability strategies and practices is led by larger hospitality stakeholders, who are perhaps held more accountable by shareholders and civil society. The most significant motivation for adoption, particularly among smaller operators, is alignment with the business ethos, along with the notion of market advantage. Legislative requirements are not rated as significant drivers of adoption of sustainability practices.
- There is a willingness to pay more for sustainable alternatives to single-use plastics (for biodegradable coffee cup lids, for example) among consumers and restaurant and hospitality stakeholders, but more research is required to determine the amount of this payment, and whether it should be made explicit to consumers.
- There is a lack of locally made sustainable alternatives, and industry stakeholders struggle to find reputable dealers offering products within their budgets and, sometimes, in their locale. This finding extends to recycling companies.

- Single-use plastics that can be targeted for elimination without noticeable repercussion are straws.

The findings of this research may assist with motivating for the business case for educational campaigns and supporting policy analysis to develop specific instruments related to single-use plastics that do not have an environmental post-consumer solution in their life cycle to keep them out of the waste stream. Chapter 3 consolidates the information of the previous chapters and proposes recommendations for the design of a national consumer campaign focused on single-use plastics.

CHAPTER 3: RECOMMENDATIONS AND CONCLUSION

This chapter summarises the areas for further research that arose from the primary and secondary data sources analysed in chapter two. Furthermore, it provides recommendations for the design of a national campaign to reduce and eliminate single-use plastics in South Africa.

3.1 Areas for further research

Various themes emerged during the research process that serve to inform the design of a national campaign focused on reducing and/or eliminating key single-use plastics. These include the need for a more detailed understanding of current attitudes to waste management, levels of implementation, and differing operating scales, as well as the opportunities and obstacles within these. The design and administration of the survey is critical in this regard. In addition, there is a general lack of awareness about the definitions of recycling terms and the sources, types and effects of single-use plastic litter.

It is critical that awareness and educational initiatives span the entire value chain (from producers to consumers) to support a transition to zero single-use plastics. To this end, further research is needed to:

- Improve understanding of how to apply a business model that incorporates alternative packaging suppliers, and how best to support them in offering domestically produced items where possible. This supports the recommendation that campaign participants are provided with a menu of alternative options to help them make informed decisions.
- Build on the foundation of this study and expand the sample size to determine how much consumers, restaurants and the hospitality industry are willing to pay for alternative packaging.
- Explore the link between the use of straws and hygiene, given that cooldrinks and alcoholic drinks, such as beer, are often not drunk with straws.
- Devise evidence-based incentives to encourage customers to promote the reduction and elimination of single-use plastics, such as allowing/encouraging them to bring reusable coffee cups and shopping bags, which would also benefit the business.

- Explore the possibility of a collaborative industry effort to build and manage an accessible information platform providing current statistics, case studies of bests practice and a database of alternative products to plastic packaging, among other aspects**.**
- Build the business case for brand, social and environmental value. Packaging is often associated with the product brand hence the implications for the business brand are important considerations in changing to alternative options. As illustrated in the case of vida e, the individually wrapped chocolate provided for free with coffee is a hallmark of the brand and there could be economic implications for its replacement with a non-packaged chocolate or alternative. Also in the case with Tigers Milk, where different departments in the Harbour House group had to consider brand implications before entering a pilot project of any nature.

3.2 Recommendations to inform the design of a national campaign

The following recommendations aim to inform the design of a national campaign. They are based on the findings gleaned from the primary and secondary data, as well as the team's experience in designing and administrating the survey, undertaking training at the pilot sites, and gaining general feedback from industry members and consumers. Recommendations have been categorised into a pre-campaign planning and preparation stage and an implementation and support mechanism stage.

3.1.1 Pre-campaign planning and preparation

Further studies need to be conducted to establish a baseline of indicators for all scales of hospitality stakeholders, and across different regions. The indicators used in this study could be broadened to capture the necessary information from stakeholders and consumers, including:

- Levels of awareness and initiatives.
- Drivers for adoption of sustainability initiatives.
- Capacity to implement such initiatives.
- Existing structural support, such as municipal facilities and services.
- Communication of initiatives.
- Opportunities (benefits) and obstacles to implementation of sustainability initiatives.
- Willingness to pay levels across different LSM groups.

This baseline study should comprise both large-scale restaurant and hotel groups, along with medium-size enterprises and small operators. While the findings indicate that sustainability adoption is more significant among larger players, it will be important to understand the constraints to adoption among smaller operators. An effective campaign will need to cater to all scales.

A finding during this study pertaining to gathering such baseline information relates to the design of the survey and the possibility of conducting paperless surveys using a mobile app or in-store digital interface, as examples.

This work indicates that to ensure the capture of quality and relevant quality of data, the survey must:

- Include detailed multiple-choice questions.
- Ensure that space is left for individual comment.
- Cater to a broad range of businesses to enable consistency in results, allow for direct comparison and improve analysis.

Furthermore, the survey administration process must be flexible in that it can be tailored to context, size and operational characteristics.

The study has also highlighted the need for participating stakeholders to be provided with preparatory support prior to initiation of a campaign. This support should take the form of extensive briefing and training sessions and provision of informational material on the types of, effects from and alternatives (with costing) to single-use plastics.

This preparatory stage is key in that it will take time, particularly for larger restaurant and hotel groups, to embed the necessary policy and practices in their operations, as well as train their staff regarding the motivation for adoption and implementation processes.

It is crucial that awareness raising and education takes place along the longer value chain. The campaign will need to emphasise the continuance of waste-awareness activities outside of the home for those that recycle and educate restaurant and hospitality sector participants in the preferred waste management hierarchy, to eliminate or reduce single-use plastic items. Figures 5, 6 and 7 (Jenkin & Omardien 2017) indicate how stakeholders can facilitate this process.

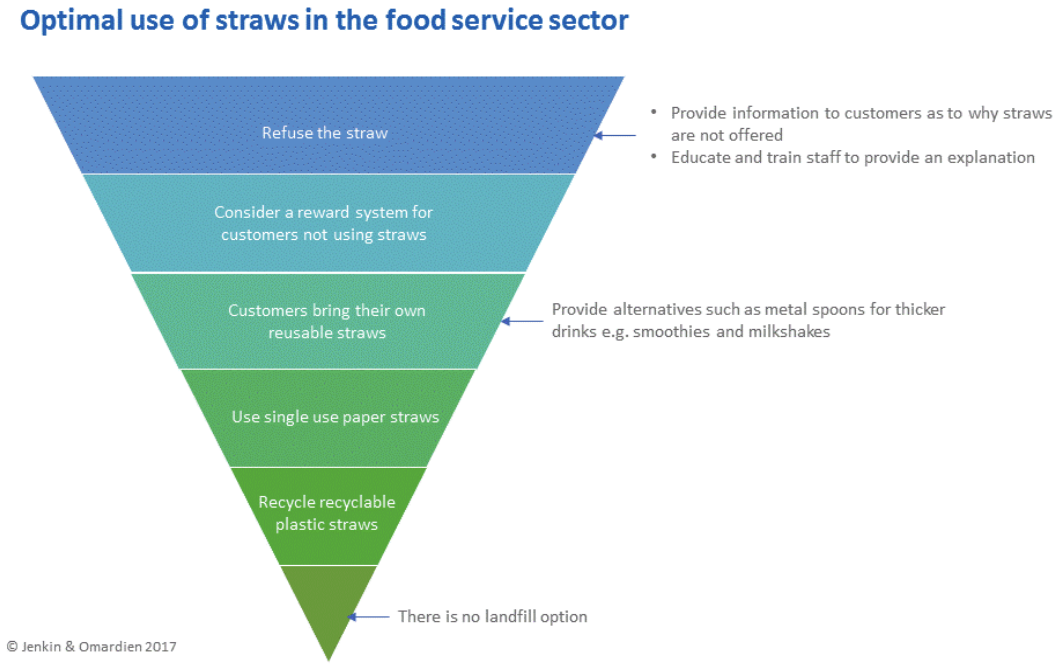

Figure 5: Optimal use of straws in the food service sector

Figure 7: Optimal use of complimentary sweets

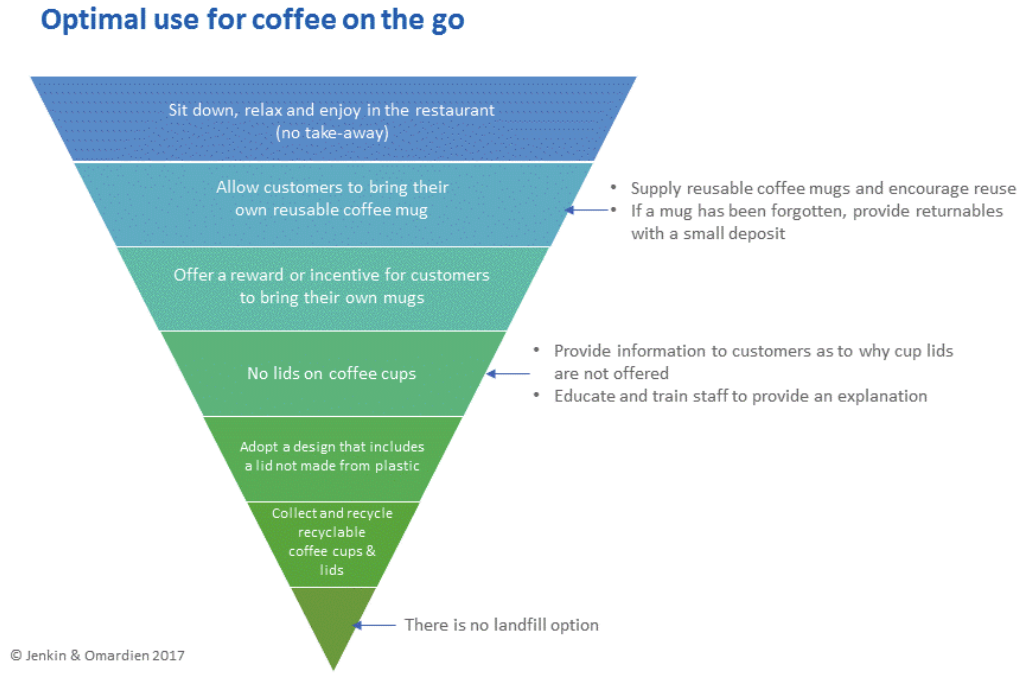

Figure 6: Optimal use of coffee-on-the-go

3.1.2 Implementation and support mechanisms

South Africa is home to a diversity of cultures, languages and income groups. Messaging must be designed and directed accordingly to bring about behavioural change. The South African Audience Research Foundation's widely recognised LSM that segments the population into 10 LSM groups using criteria such as access to finance, including insurance products, appliance use and connectivity could be useful in this regard.

A campaign must harness the apparent agency and desire of consumers to bring about change regarding marine plastic debris. This study indicates a high level of willingness to change behaviour and pressure the restaurant and hospitality industry to use more environmentally friendly products. To this end, campaign messaging targeted at consumers must:

- Raise awareness of the problem, using creative methods, such as videos, social media platforms and mini-campaigns, etc. This study indicates that there are relatively low levels of awareness regarding the problem of plastics, specifically single-use plastics, and the resultant marine debris, as well as misunderstandings of the meaning of terms such as recycling, reusing, biodegradable and the polymer codes.
- Motivate them to call for change when eating out or staying away from home and give them the necessary information to do this. And provide them with examples of how to do this – refusing straws or asking for biodegradable alternatives, etc.

A campaign must empower industry stakeholders to make the necessary changes in their waste management processes.

To this end, it must provide them with the business case for adoption of alternatives to single-use plastics, share best practice in this regard, raise awareness of the availability and benefits of these alternatives, and supply them with support in training their employees to embrace such a change.

Necessary support mechanisms for an effective campaign thus include:

- Clearly defined terms related to waste management.
- Training material for industry stakeholders, at all scales.
- An information portal, possibly a website, to act as a resource centre, containing:
    - The various business cases for adoption of sustainable alternatives.
    - Examples of best practice initiatives and businesses.
    - A guide to drafting sustainability strategies.
    - An updateable list of sustainable products and their applications.

These would help stakeholders make the transition to zero single-use plastic usage, particularly by overcoming the time and cost burdens associated with sourcing information regarding alternatives and best practice implementation, and by providing the information necessary to overcome obstacles to adoption, such as hygiene issues and theft of products.

A suggestion was made by a respondent that the City of Cape Town (and other municipalities) could play a role in this regard by providing an advisory service that would help the restaurant and hospitality industry reduce its packaging waste and implement waste management practices. This would align with municipalities' obligations to reduce waste going to landfill.

A resource hub, accessible through digital technology, can also help consumers make informed choices about plastic packaging. For example, a mobile app or messaging service that allows consumers to type in the product name and receive a notification as to whether it is recyclable or not; if it is, then where to take it for recycling. A platform similar in nature to the United Kingdom's WRAP platform (www.wrap.org.uk) would be useful starting point.

3.3 Conclusion

The literature review of global and local best practice regarding consumer engagement with the issue of plastic waste indicates many innovative activities undertaken by a multiplicity of stakeholders. These efforts are, however, fragmented and uncoordinated and have failed to make any significant impact. In addition, conservation issues tend to be localised in nature, despite the marine plastic pollution crisis being a global matter. There has been a strong media drive in the past year to raise awareness of marine pollution, specifically plastics. Recent campaigns include Parley for the Oceans, Plastic Free July, Straws Suck, 5 Gyres and Surfers against Sewage. This heightened awareness indicates an appetite and provides a platform for the coordination and consolidation of existing efforts into a robust, 'go-to' campaign focused on eliminating single-use and harmful plastics, and thus reducing marine plastic litter pollution.

Consumers have a unique role to play in influencing and exerting pressure on restaurants, retailers and the hospitality industry, and ultimately plastics manufacturers. This study's findings illustrate that consumers are willing and eager to play a role in reducing and eliminating the use of single-use plastics and to motivate for the use of recyclable packaging. Increasing consumer awareness, knowledge on the subject and their role in effecting change is key to changing behavioural patterns in this regard, and thus reducing levels of marine plastic pollution. As noted in the recommendations, messaging must be contextual and shaped to the worldviews and experiences of the different demographic groups in South Africa.

APPENDIX 1: CONSUMER APPROACHES TO TACKLING MARINE POLLUTION IN CAPE TOWN, SOUTH AFRICA

MAY 2017

The report is written under the umbrella of and funded by Green Trust (GT) project 5548 – Beyond the Horizon: Consumer and restaurant approaches to tackling marine pollution. The contracted consultant is Aaniyah Omardien, people and conservation consultant. John Duncan, senior manager of WWF's South Africa Marine Programme, oversees project execution.

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Disclaimer
The project team takes full responsibility for the report's contents and conclusions produced in the report. Aaniyah Omardien was the lead author.

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Background

A recent paper published in *Science* estimated that South Africa was the 11th worst offender in the world when it comes to releasing plastic waste into the sea (Jambeck et al. 2015). South Africa scored badly, coming in ahead of heavyweight polluter India, because of the unfortunate combination of a high per capita production of waste (estimated at 2 kg per person per day, almost as much as the United States) and the high proportion of 'mismanaged' waste not entering a formal disposal scheme (56% compared to 11% in Brazil or 2% in the United States). More than 80% of the annual flow of plastic litter into the oceans, such as drink bottles and plastic packaging, comes from land-based sources (Ecowatch.com 2016).

A report provided by United Kingdom-based Eunomia Research & Consulting found that despite the high profile of projects intended to clean up plastics floating in mid-ocean, relatively little ends up in this location (Ecowatch.com 2016). Barely 1% of marine plastics are found floating at or near the ocean surface, with an average global concentration of less than 1 kg/km^2 (Ecowatch.com 2016). This concentration increases at certain mid-ocean locations, with the highest concentration recorded in the North Pacific Gyre at 18 kg/km^2 (Ecowatch.com 2016). By contrast, the amount estimated to be on beaches globally is five times greater and, importantly, the concentration is much higher at 2 000 kg/km^2 (Ecowatch.com 2016). While some may have been dropped directly or have been washed up, it is clear there is a 'flux' of litter between beaches and oceans. By removing beach litter, we are, therefore, cleaning the oceans.

The findings from this report support other research undertaken in South Africa. A survey of beach litter around South Africa in 2015 led by Professor Peter Ryan and Professor Coleen Moloney found that 94% of litter washing up on South African beaches is plastics, of which 77% is packaging (Ryan & Moloney 2016). It follows that most marine litter is plastic packaging – single-use applications – that is particularly prone to inappropriate disposal. The amount of litter washing up each day in Cape Town's Table Bay tripled between 1994 and 2011, far outstripping the 60% growth in population in Cape Town over the same period (Ryan & Moloney 2016). It follows that we urgently need effective solutions to curb the increase of plastic waste.

Research design, objectives and methodology

The aim of this component of the project was to interview consumers from the Cape Town area and gain insights into and an understanding of the problems associated with key harmful and non-essential plastic pollutants, and consumers' willingness to change behaviour in response. The research also explored how consumers felt about recycling and the extent to which they would be willing to change their behaviour when consuming food and drinks away from home, with a specific focus on plastic packaging.

Research objectives

In more detail, the research was designed to understand the following from the perspective of the average middle-class Capetonian consumer:

- Levels of awareness of the local and global marine litter problem.
- Levels and source of awareness of the purpose and means of recycling.
- Their understanding of their ownership of/responsibility for the problem.

- Their likelihood of changing their purchasing behaviour to using an alternative to plastic packaging.
- Levels of understanding of and willingness to act to find solutions to the marine litter problem.

Research methodology

Aaniyah Omardien and Charmaine Adams approached Professor Peter Ryan of the University of Cape Town to investigate how they could develop and be involved in a project related to marine conservation in 2015. Ryan suggested monthly beach clean-ups at Muizenberg Corner in the intertidal zone to complement his research work focused on sandy beaches. Ryan has been collecting data along the South African coastline related to marine litter, specifically plastics, since the late 1980s.

Ryan and Moloney's (2016) research has indicated a few key plastic items that need to be refused and/or banned to start reducing the amount of plastic entering our oceans:

- Styrofoam.
- Earbud sticks and plastic lolly sticks.
- Plastic straws and individual sweet wrappers.
- Sports drink bottle lids.

Anecdotal understanding, research and discussion of the marine plastic pollution problem formed the basis for the design and sequencing of the interview and survey questions. Diony Lalieau of Mesh Research was tasked to design the consumer questionnaire, comprising multiple choice and open-ended questions, with input from Aaniyah Omardien. The draft questionnaire was tested with 23 individuals and informed the final questionnaire design. The team, with the help of three students, conducted 80 interviews with consumers over a period of three weeks from 1–24 February 2017. The sample comprised 80 respondents with the demographic characteristics described below.

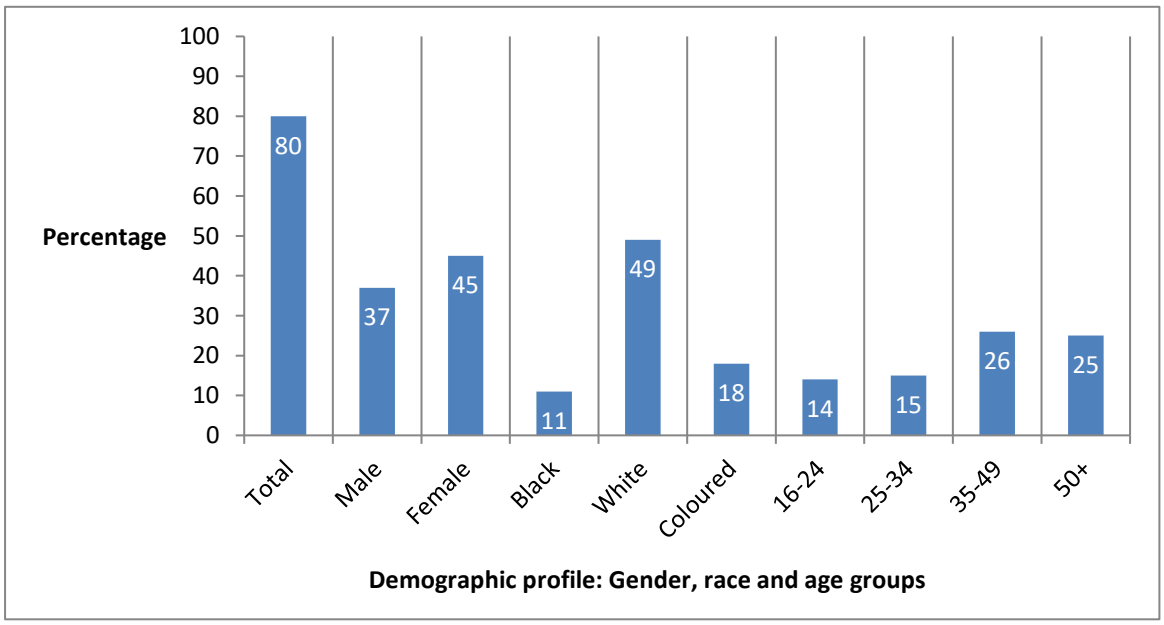

Figure 8: Demographic sample of 80 consumers
Note: One respondent did not indicate race and one respondent was Indian

Mark Webb of Targetlink Research provided an initial analysis of the questionnaires. Karen Knipscheer of Karen Knipscheer Research and Aaniyah Omardien performed further analysis and compiled this report.

Summary of main findings

The main findings arising from the analysis of the questionnaire are summarised below.

Awareness of the term recycling

All respondents had heard of the term 'recycling'. When asked what it meant to them, a variety of interpretations were given:

- Most (48 respondents/60%) confirmed that they reuse, meaning a product is used again for its originally intended purpose, while 13 respondents/16% mentioned that they reduce their waste.
- Twenty-one respondents (26%) try to limit the impact of litter on the environment.
- Only 15 people (19%) included in their responses a description of the action of getting their waste collected and processed: "Separating plastic, paper, tins, bottles for re-use", "We reuse and repurpose everything we can to alleviate the burden on the ecosystem."

Source of awareness of recycling

Respondents were asked how they became aware of recycling. The options provided were the newspaper, radio, television, school and/or friends.

- Respondents had been informed about recycling both at school and through the media.
- More than half the respondents (51%) mentioned television and radio and 30 (38%) mentioned newspapers. Thirty-five respondents (44%) mentioned school as an influence, and 24% mentioned family, friends and/or colleagues.

Messages regarding marine or ocean plastic litter

The kind of messaging that consumers are open to receiving, related to creating more awareness on the marine plastic debris issue, can be divided into hard-hitting imagery, statements of facts and information around the lifecycle of single-use plastics. Broadly equal numbers of respondents were in favour of each category.

Recycling at home

Most consumers (90%) claimed to recycle at home. The demographic breakdown below reveals that this is evident across gender, all age groups and races included in the sample.

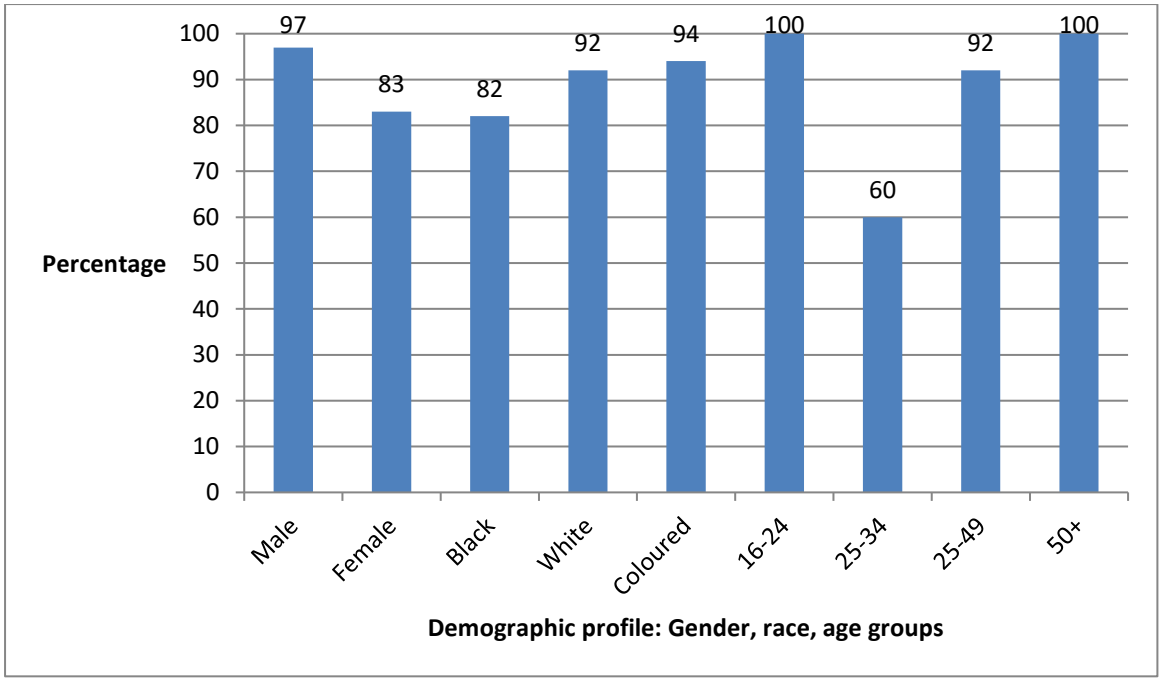

Figure 9: Respondents on recycling at home

When asked why they recycle:

- 50% mentioned a desire to reduce their impact on the environment or to "save the planet".
- 31% mentioned their motivation as fulfilling their duty as responsible citizens.
- 15% said their reasons for recycling were related to reducing waste and 4% because of what they learned from the school and media.

About 10% of respondents do not recycle and mentioned logistics and a lack of municipal support and recycling facilities as the reason.

Responsibility and impact

Respondents took personal ownership of recycling.

- 88% did not believe that it was solely the government's responsibility to recycle.
- 98% felt their personal recycling efforts to be worth it and that it made a positive impact.
- 94% of respondents accepted that they were to some extent responsible for the waste that ends up in the ocean.

Do consumers have the power to influence restaurants in terms of packaging?

Although most respondents (72%) felt that they do have the power to influence restaurants in terms of packaging, 28% felt that they had no influence in this regard. Younger respondents appeared to be more likely to feel that they could influence restaurants. This demographic is represented in the following figure.

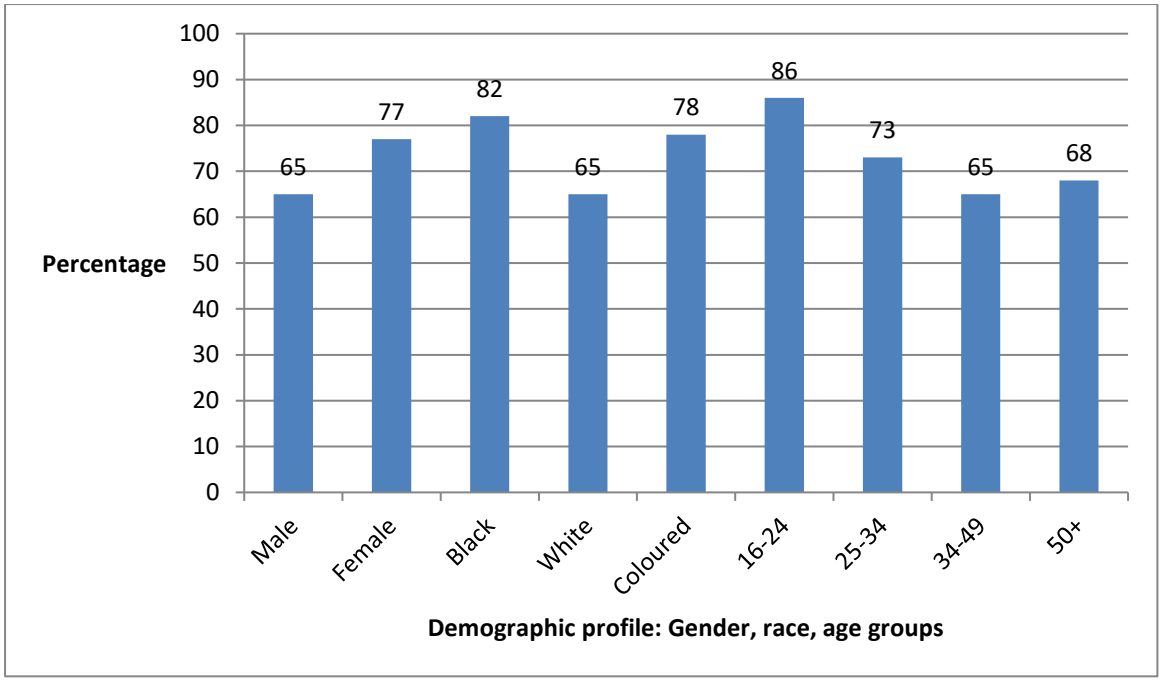

Figure 10: Respondents on their power to influence restaurants in terms of packaging

Could restaurants play a role in reducing pollution that ends up in the ocean?

- 83% felt that restaurants can really make a difference when it comes to reducing ocean pollution.
- More than 90% of respondents within both genders and all races, and all respondents between the ages of 25 and 34, felt that restaurants could play a role in reducing ocean pollution.

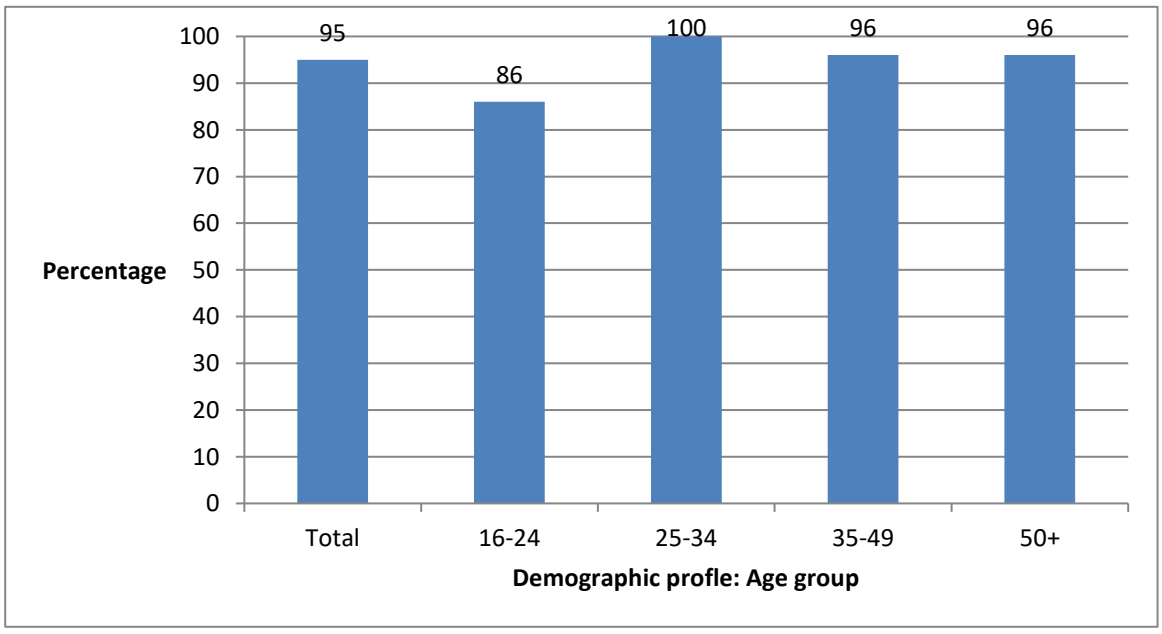

Figure 11: Respondents on whether restaurants could play a role in reducing pollution

When asked what method or methods restaurants could use to reduce their contribution to ocean pollution, respondents made the following recommendations (each respondent could select more than one option):

- 39% mentioned improving the recycling of the products and packaging used.
- 29% mentioned switching to biodegradable packaging.
- 29% mentioned doing away with single-use plastics like drinking straws.
- 11% mentioned switching to returnable containers and using less packaging.

Supporting restaurants that make changes to reduce pollution

Consumers were unanimous in saying they would support restaurants that made positive changes in this regard and most (81%) had heard of environmentally friendly packaging.

Influence of environmentally friendly packaging

- Some respondents (21%) claimed that they had been influenced in the choice of where to eat by the availability of such packaging, but most had not (79%).
- If restaurants use environmentally friendly packaging, over half of respondents (56%) say they would be more likely to support them, with males (73%) and older respondents (76%) more likely than female and younger respondents.

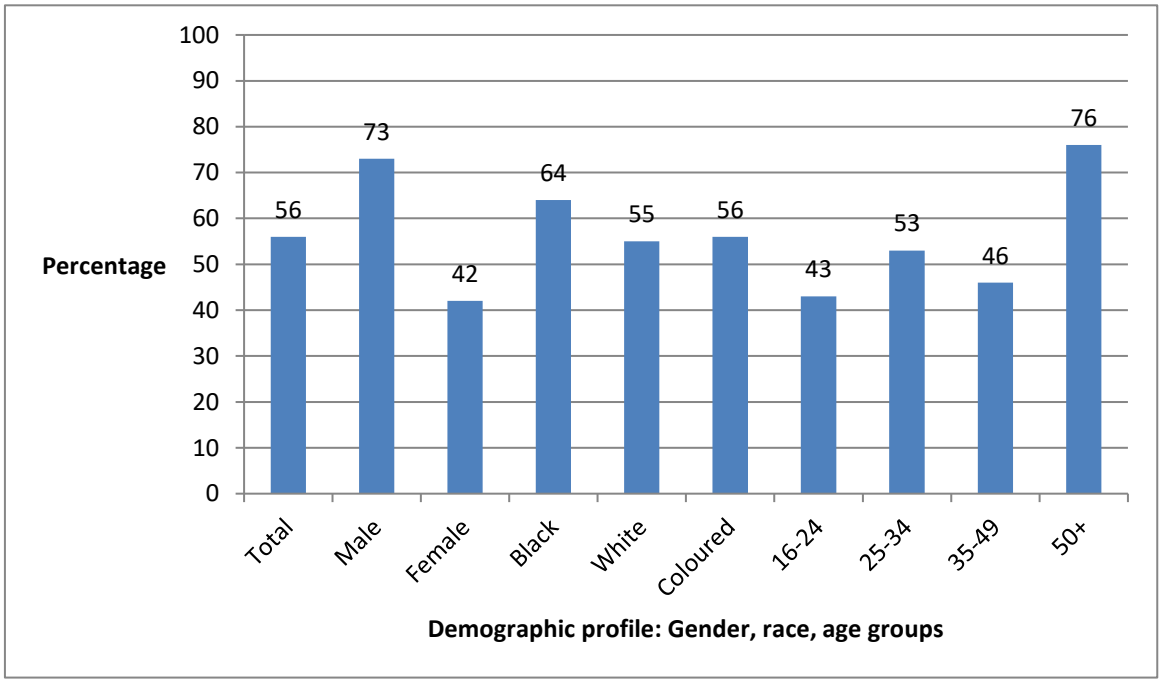

Figure 12: Respondents on supporting restaurants using environmentally friendly packaging

If restaurants were to charge extra for packaging, just under half of the respondents would be more selective about packaging (47%) and a large portion (43%) would pay and continue to support the restaurant. Only one in ten would avoid the restaurant in future.

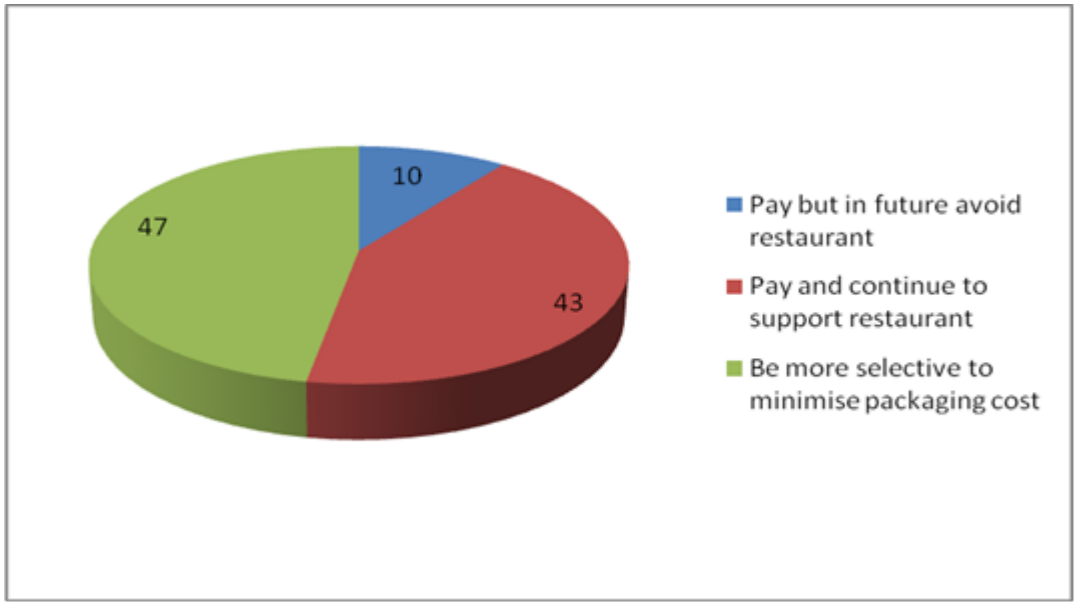

Figure 13: Respondents on charging more for packaging

Women and African respondents, in particular, would be more selective about packaging to minimise cost. Men are more inclined to pay and return to the restaurant in future.

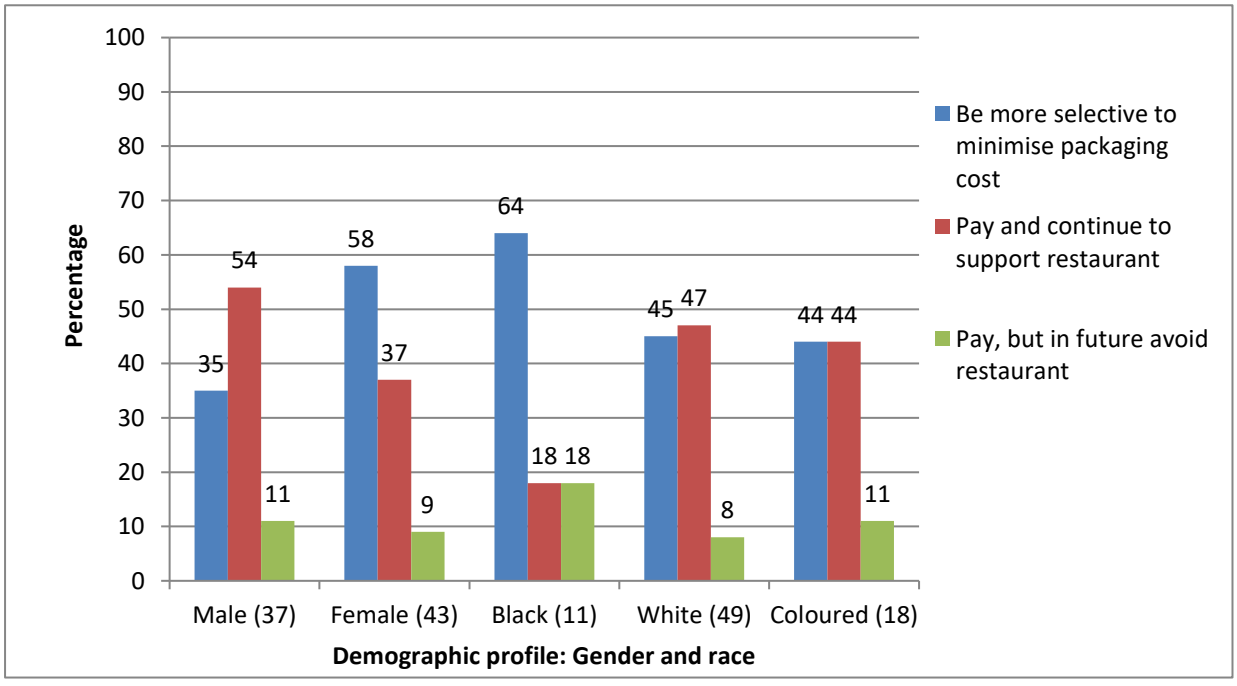

Figure 14: Respondents (by race and gender) on charging more for packaging

<u>Influence of drinking straws, beverage lids and individual sweet wrappers</u>

Drinking straws

About three-quarters of respondents claimed to ever have drunk, or that their children had ever drunk, a cooldrink without a straw. When asked whether they had an issue with not using drinking straws:

- 46 (58%) of the respondents said they had no issue.

- 18 (23%) had hygiene concerns about drinking from cans and bottles without a straw.
- 11 (14%) had a preference for the ease of use of drinking their beverages with a straw.
- 4 (5%) had safety concerns.

It is very encouraging to note that most respondents would continue to go to restaurants that did not offer straws.

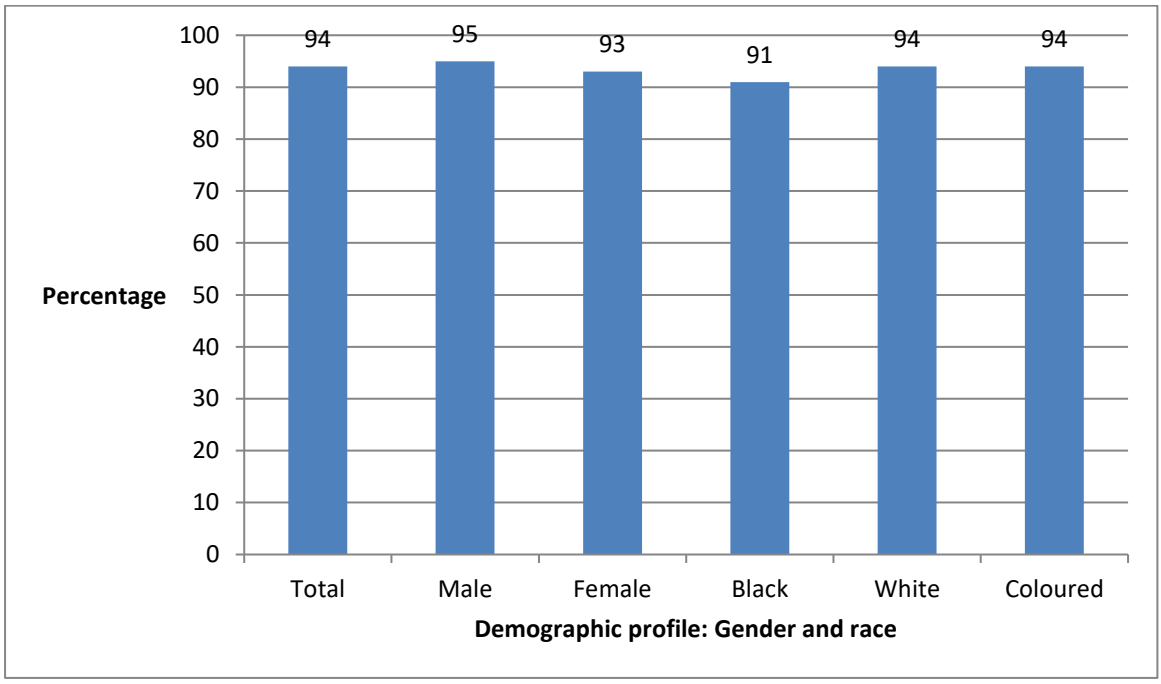

Figure 15: Respondents on support for restaurants that do not have straws

If they had to pay for a straw, the average price the respondents would be willing to pay was R0.85 compared to the existing price retailers pay of R0.07–R0.09 a straw, that is about 12 times more expensive than the current price.

Beverage lids

- More than one in six might choose not to take the lid of a takeaway coffee cup if they were charged for it.
- The average acceptable cost for the lid would be about R1.30, with female respondents being willing to pay R1.70, and men R0.89 compared to the current price of a lid at R0.50 for a 250ml or R0.53 for a 350ml cup. The difference between the average acceptable cost and the average current cost for a non-biodegradable lid is about 2.5 times the current price.
- For an environmentally friendly takeaway meal container, respondents would be willing to pay an average price of R3.50, with females being willing to pay more (R4.10) than males (R2.90). The current cost of a takeaway container is R2.21.

Individual sweet wrappers

Almost all of respondents would not let the lack of after-meal sweets put them off from going to their favourite restaurant.

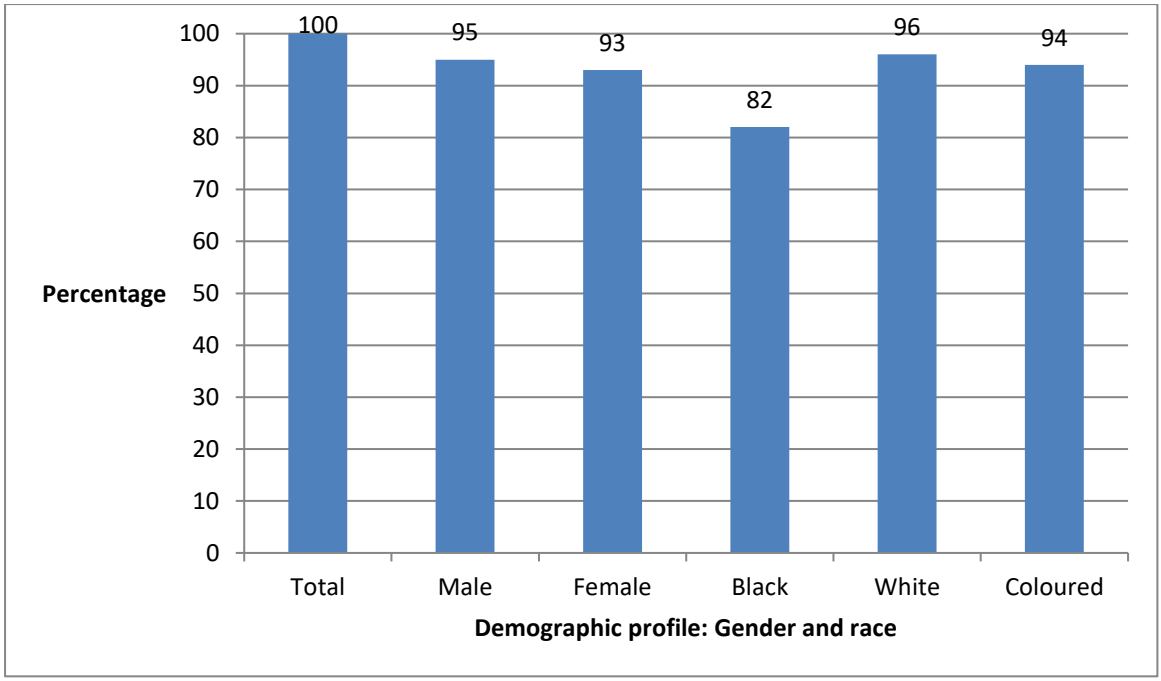

Figure 16: Respondents on scrapping sweets after a meal

Bring-it-back deposit system

About half of the respondents claimed to be open to paying a deposit that is reimbursed on return of the restaurant's containers.

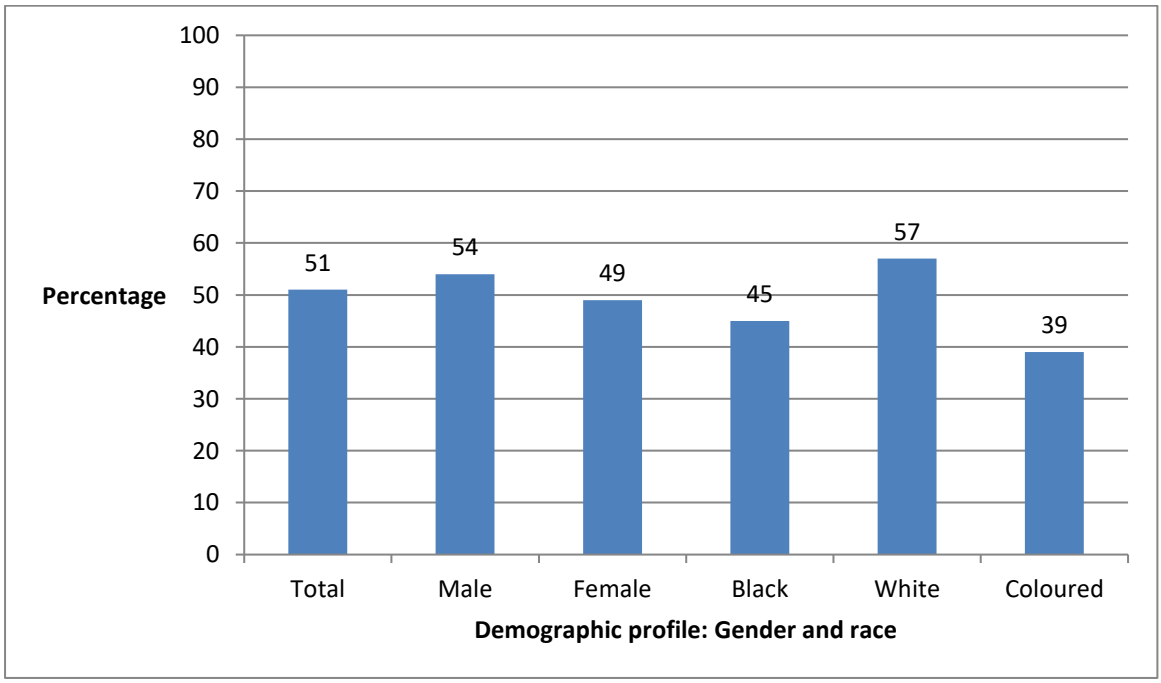

Figure 17: Respondents on the bring-it-back system

- Some had concerns about how such a system would work: 44 (55%) were concerned about the 'admin' burden, feeling it would be too time-consuming, and 7 (8%) had hygiene concerns.
- 80% of respondents were in favour of bringing their own takeaway container (e.g. mug) and getting a discount/loyalty points.

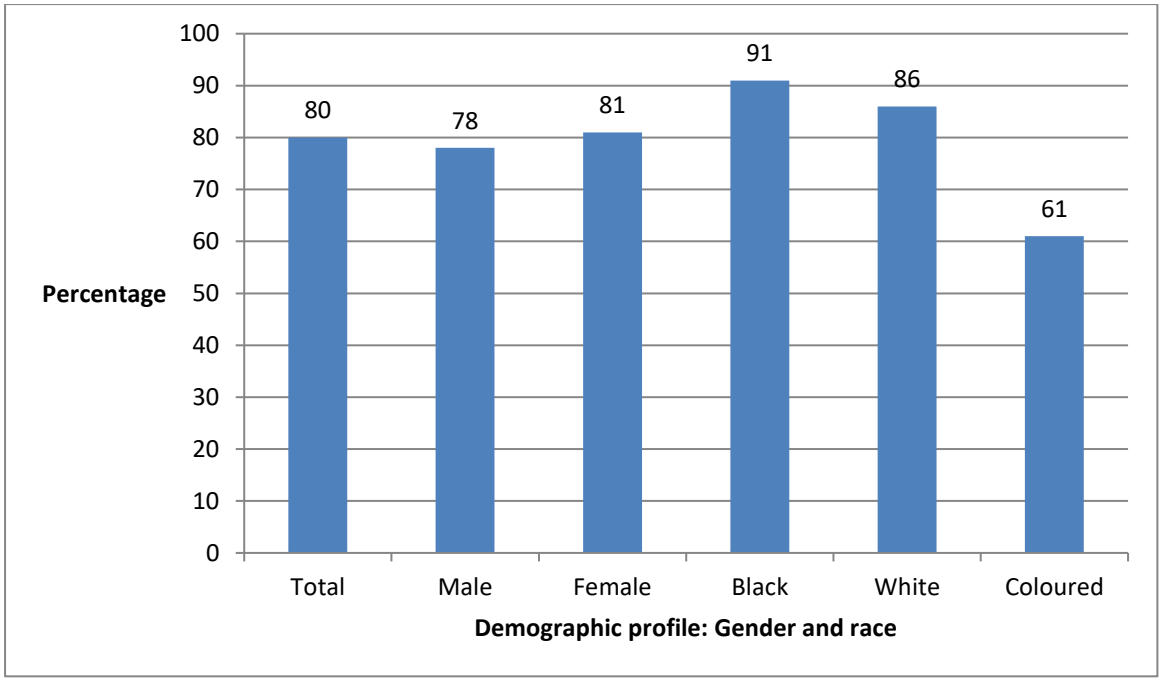

Figure 18: Respondents on bringing their own containers to a restaurant

Additional cost

Respondents were asked whether the additional cost for environmentally friendly packaging should be itemised on their receipt or kept unseen and built into the cost.

- About half would prefer the cost to be shown explicitly on their bills. Their reasons included encouraging accountability, transparency and awareness.
- Thirty-three respondents (41%) felt it would be better to hide the cost. They felt it best to keep things simple, and that the high cost of being environmentally friendly, if continually brought to their attention, might deter them.

Conclusions

For almost all respondents, recycling is familiar to them and they do it at home. This is encouraging, but this study seeks to learn more about their behaviour when they eat out, especially with respect to single-use plastic items and or items that cannot be recycled in South Africa.

The following recommendations are drawn from the findings above:

- A campaign that engages with consumers should emphasise **refusal** (e.g. declining the offer of straws or lids) as a way to reduce environmental impact. This is evident from the outcomes of this consumer research as most of the 80 respondents (94%) would continue to support restaurants that discontinued the use of straws.
- Furthermore, it should **redefine the meaning of the term recycling** because, despite marketing campaigns emphasising 'reduce, reuse & recycle', many respondents confuse the term recycling with reusing.
- Campaigns on this topic should **encourage a sense of ownership** because:

- Respondents feel that they can influence the product choices that restaurants make and that they would support restaurants that make environmentally friendly decisions, even at their own cost.
- In particular, it appears that restaurants can safely stop giving sweets to patrons with their bill; almost no respondents said this would affect their choice of restaurant. This may significantly reduce packaging volumes and costs.
- They are divided though on, and possibly not really aware of, what the extra cost might be, and on whether the cost should be shown explicitly when making purchases.
- There may be scope to reduce said costs if restaurants offered cash discounts to customers who bring their own containers.

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In conclusion, this project research may assist with conservation efforts, motivate the business case for educational campaigns and support policy analysis to develop specific instruments related to single-use plastics in South Africa.

APPENDIX 2: RESTAURANT APPROACHES TO TACKLING MARINE POLLUTION IN CAPE TOWN, SOUTH AFRICA

May 2017

The report is written under the umbrella of and funded by Green Trust (GT) project 5548, Beyond the Horizon: Consumer and restaurant approaches to tackling marine pollution. The contracted consultant is Aaniyah Omardien, people and conservation consultant. John Duncan, Senior Manager of WWF SA Marine Programme, oversees GT 5548 project execution. Wendy Engel, researcher from WWF SA's Sustainable Agriculture Programme, led on the restaurant research.

Acknowledgements
Altaaf Khan assisted with the desktop literature review. Camila Budden and Karoline Hanks conducted restaurant interviews. Aaniyah Omardien reviewed the draft questionnaire and draft report. Camila Budden reviewed the final report. Wendy Engel is the lead author.

Disclaimer
The report has been produced by a team that takes full responsibility for the report's contents and conclusions.

Citation
Engel, W. 2017. Restaurant approaches to tackling marine pollution in Cape Town, South Africa. Unpublished report.

Background

Plastic debris is a global marine pollutant that imposes both an environmental and financial cost on society. The environmental cost is that associated with the environmental impact on marine ecosystems and the financial cost is that associated with a loss of the aesthetic appeal of unpolluted marine ecosystems for associated sectors, such as beach tourism and hospitality.

Ryan conducted a comprehensive review of anthropogenic marine debris off the coast of southern Africa in 2009. The study estimates that beaches contribute R2 billion to southern Africa's tourism sector with more than R10 million spent on cleaning beach litter in South Africa alone (Ryan 2009). A grave concern is the adverse effects of marine debris on animal mortality, specifically the dangers posed by entanglement and ingestion. Additional effects that are yet to be determined empirically are the quantum of substratum available on which sessile organisms may settle and the rate of propagule dispersal to islands. The evidence linking marine pollution from plastic debris to marine biodiversity threats is largely anecdotal highlighting the need for more research, particularly long-term monitoring (Ryan 2009). This research may support conservation efforts, motivate a business case for educational campaigns and support policy analysis to develop specific instruments in this regard.

The literature review confirms there are several gaps in the international understanding of the levels of plastic debris in the marine environment and the resultant impacts (Bergman et al. 2015). There is a lack of information about microplastics and a need to establish methods for locating, identifying and quantifying plastic debris in the marine environment. In the absence of government-driven programmes, beach surveys led by scientists and citizen action groups have been valuable in identifying plastic debris sources, types and volumes. For specific economic incentives to be developed more information is required to describe the links between plastic debris sources, types and quantities and the unique impacts of these variations. In addition, not much data exists regarding the quantitative link between beach litter levels and socioeconomic impacts, such as that on tourism.

Plastic debris may be categorised according to size, location and source. Plastic debris is classified as small when less than 10 millimetres in diameter and large when more than 100 millimetres in diameter. A distinction is made between debris that floats and that located on the seabed. There are two main sources of marine plastic debris: waste from ships, which is off-loaded in the oceans, and waste from land, which enters the oceans through rivers, wastewater systems, beaches and winds. For the purposes of this research, harmful and non-essential plastics are considered plastics that have disproportionately large environmental pollution impacts and/or plastics that may be removed or replaced by low-cost alternatives. This includes single-use plastics, polystyrene packaging applications and shopping bags, plastic microbeads and plastic microfibres.

The plastics market in South Africa contributed 1.6% to GDP in 2013 and was estimated to have a value of R50.4 billion employing 60 000 people in 1 800 companies across the supply chain (Steyn 2016). The packaging sector is the largest plastic consumer by end user (53%), followed by the construction (11%) and automotive industry (7%) sectors (Fibre Processing and Manufacturing SETA 2014). Plastics used in the packaging sector are characterised as low value, high volume and price sensitive with 5% growth forecast between 2013 and 2018 (Fibre Processing and Manufacturing SETA 2014).

Plastics contributes highest by value (41.8%) to the packaging sector and is considered the most popular and economical choice (Fibre Processing and Manufacturing SETA 2014). Food packaging has been identified as a key future growth area.

Despite significant efforts to recycle plastics, a 2015 *Science* publication estimated that South Africa was the 11th worst offender in the world when it comes to releasing plastic debris into the sea (Jambeck et al. 2015). South Africa scored higher than heavyweight polluter India because it has a high per capita production of waste (estimated at 2 kg a person a day) and a high proportion of 'mismanaged' wastes that do not enter a formal disposal scheme.

The diversity in size and composition of sources of marine debris makes the control thereof and assessment of culpability problematic (Ryan 2009). Most plastic debris in the marine environment is derived from local land-based sources (Lamprecht 2013). A practical and easy way to identify marine debris sources is through a beach survey as the ones conducted in Muizenberg by The Beach Co-operative.[2]

Different sectors, as consumers of plastic packaging, have a responsibility to reduce the level of plastic debris finding its way into the ocean. Cape Town Tourism represents about 20% of the national restaurant industry, which had an estimated value of R1.2 billion in 2010 (Welter 2012) and is assumed to be significant end-user of food packaging. The restaurant sector, including food service outlets, close to the beach area in Cape Town's southern suburbs potentially has a critical role to play. This location was selected as the focus of this study as the pilot initiative could potentially significantly reduce the levels of plastic debris found on nearby beaches, and benefit these businesses because an unpolluted beach and ocean contributes to a positive eating and recreational experience for patrons.

Research design, objectives and methodology

The rationale behind the focus of the study is that restaurant and food service outlets close to the beach and coastline are more likely to participate in best practice to reduce plastic use and thus decrease the volume of plastic debris that ends up in the ocean.

The study aims to:

- Assess the factors responsible for success and barriers for implementation of retailer reduction initiatives regarding harmful and non-essential plastic pollutants.
- Review the available best practice to support identification and implementation of a pilot in two restaurants and/or food service outlets.

Research methodology

A mixed methods approach was employed including a desktop literature review and semi-structured interviews using quota sampling to gather data representative of restaurants along the coastline of Cape Town with a primary focus on the southern peninsula.

[2] The Beach Co-operative is a citizen action monthly campaign led by Aaniyah Omardien wherein beachgoers and residents are encouraged to participate in a beach clean-up that also serves as a beach survey opportunity.

The literature review relies on peer-reviewed publications in science publications and grey literature sourced from popular media, including company integrated annual reports and popular media articles and reports. All collated secondary data was supplemented with primary data sourced from the semi-structured interviews.

Statistics South Africa publishes a detailed monthly national food and beverage report that enables an understanding of the national sector and an indicative size of the restaurant sector in Cape Town, the focus of this study. Statistics South Africa (2016) categorises the food and beverage sector in three types of enterprises: restaurants and coffee shops, takeaway and fast-food outlets, and catering services. The surveyed respondents included representatives of these three categories.

The literature review informed the questionnaire design, which was designed by Wendy Engel. The questionnaire was tested with Fresch Foods and key learnings were incorporated into the final version. The questionnaire was designed in three components – sustainability, waste management, and packaging, plastics specifically, focusing on the willingness to pay for alternatives to plastic food packaging. Eighteen face-to-face interviews were conducted with restaurants.

Research hypotheses

The three key research hypotheses were:

- Restaurant owners, managers and patrons that operate close to the coast and ocean are more likely to participate in efforts to reduce plastic pollution in the ocean.
- Restaurants that have introduced sustainability practices and allocated resources towards implementing waste management practices are more likely to participate in a marine plastic debris reduction project.
- Larger restaurant groups with well-established packaging procurement systems and rules have more constraints to participate in and implement a plastic pollution pilot than smaller companies, with more evidence needed for the former to implement best practice.

Characteristics of respondents are 35% female and 65% male. Table 5 shows the roles that respondents held: 33% were general managers, 33% were owners, 18% were managers, 8% were environmental managers and 8% were operations managers. Most respondents (64%) have been in their roles for less than 5 years, 27% for more than 10 years and 9% between 5–10 years.

Table 5: Characteristics of restaurant respondents

Characteristics	Gender	% of respondents
Gender	Female	35
	Male	65
Years of experience in role	Less than 5	64
	5–10	9
	More than 10	27
Role	General manager	33
	Environmental manager	8
	Operations manager	8
	Manager	18
	Owner	33

The restaurants surveyed are listed below.

Table 6: List of restaurants that participated in the survey (2017)

List of surveyed restaurants	
Harbour House, V&A Waterfront	Kauai, central business district
Vineyard Hotel, Claremont	Loading Bay, central business district
Tiger's Milk, central business district	Blue Water Café, Kommetjie
Café Caprice, central business district	Hang Ten, Muizenberg
Tiger's Milk, Muizenberg	vida e caffé, Muizenberg
Harbour House, Kalk Bay	Galley, Fish Hoek
Café Roux, Noordhoek	Fresch Foods, Muizenberg
Monkey Valley, Noordhoek	Red Herring, Noordhoek
Foragers, Scarborough	Yoffi Falaffel, Muizenberg
Olympia, Kalk Bay	Mariner's Wharf, Waterfront

Review of international and local best practice

Many studies exist on best practice for packaging reduction, less are focused on plastics. Duke University's case study of five American restaurants and hotels provide insights on waste and packaging reduction strategies, key challenges and recommendations (Su et al. 2015). Key challenges include the high costs of alternatives to plastic packaging materials, inconsistent regulations and difficulty in developing a tracking system on monitoring alternative materials.

Recommendations to reduce plastic usage are (Su et al. 2015):

- Change consumer behaviour to reduce plastic use, improve recycling and reuse of plastic with financial incentives or by providing reusable plastic containers at a lower cost.
- Encourage suppliers to select products with less or no packaging or more sustainably produced packaging and to introduce selection criteria for plastic use.
- Implement staff education and training as well as create positions within the company to coordinate sustainability initiatives or manage the project.

Case studies produced by the United States Environmental Protection Agency (EPA) revealed that there are five key strategies to reduce packaging. These are purchasing in bulk, replacing single-use with reusable packaging, switching to environmentally friendly disposables and implementing initiatives, such as 'bring-your-own' container programmes (United States EPA 2015).

Best practices in the restaurant and hospitality industry include recycling, returnable packaging, reusable bag and container programmes and the introduction of biodegradable takeaway containers and paper bags. In the review of five American restaurants and hotels' plastic reduction initiatives, the biggest challenge cited regarding implementation was how to incorporate the higher cost of reusable alternatives into the business model (Su et al. 2015).

No studies have been done on best practice regarding packaging reduction in South Africa.

Retailer approaches towards sustainability, waste management and packaging

Sustainability

The literature review identified the drivers of introducing a sustainability code of practice as mandatory or legal requirements, cost reduction opportunities, gaining a market advantage as a service or customer niche and resonation with corporate value and ethos.

Sustainability practice code

Most respondents (68%) did not have a sustainability practice code in place. Restaurants with a sustainability code of practice in place cited the motivating factor being value or ethos of restaurant (86%) with the rest citing market advantage. In one case, it was driven by the directors as sustainability is a key ethos, another cited "we do it as it's the right thing to do". Another owner mentioned it as a combination of his personal ethos reflected in his brand as well as demand from customers.

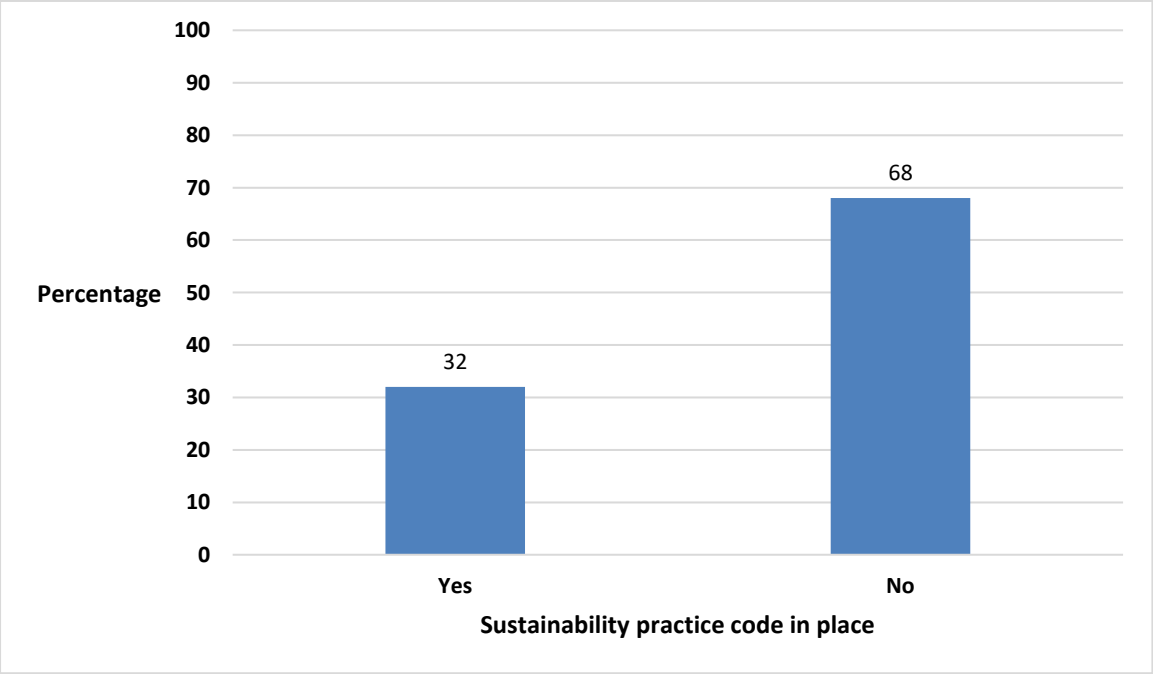

Figure 19: Sustainability practice code

Capacity and resources to implement sustainability practices
Less than half of respondents (45%) have allocated specific resources to implement sustainability practices. The resource allocation is within the current job description of managers, general managers and kitchen scullery leaders. There was only one case where a full-time environmental manager had been appointed to focus on sustainability.

Communication of sustainability practices
Communication of sustainability practices may potentially assist restaurants to connect with existing and potential customers. The literature review identified four commonly used practices: an annual integrated report, largely for listed companies; newsletter or information brochure; online report on internet; or other forms of social media.

The Famous Brands Group, one of South Africa's largest fast-moving consumer goods companies, reports annually on waste recycled at their Gauteng manufacturing facility with 2015 financial year estimates of a total of 165 559 tons including cardboard (89%), plastic (5%) and general waste (6%) (Famous Brands 2015). Given the existing effort by the Famous Brands Group to measure waste, to introduce recycling and report on it, it may be a good partner with which to conduct restaurant surveys with key brands. As part of skills development, their registered skills development facilitator submits plans and reports on their workplace skills plan and organises regular franchisee workshops and training on brand products and the fundamentals of restaurant management.

Survey respondents that affirmed sustainability practices were implemented in their businesses were asked to describe how practices are communicated internally among staff and externally with customers and the wider public, as well as the type and frequency of communication. Few respondents (35%) communicate sustainability practices. Of these, 50% communicate to staff, 40% to patrons, 20% to wider public and 10% to a range of other stakeholders. Only one survey respondent communicated sustainability practices in their annual report and only one via an online medium. Larger and more established brands are cautious on what is communicated to the public as statements or actions may have unintended consequences.

<u>Waste management</u>
Respondents were asked to explain whether generated waste is sorted internally by staff or by patrons and whether training is provided to staff responsible for this function, the type of waste that is sorted, the name of current suppliers responsible for sorting when outsourced and the barriers to sorting waste. The availability of space is a constraining factor for many restaurants as regards waste sorting and recycling, as well as determining for some the frequency of procurement practices of packaging.

Staff training and continued support for introduced practices is vital for the success of sustainability practices in general and waste specifically. There is a correlation between the allocation of specific resources or roles for implementing sustainability practices and the motivation for introducing sustainability practices. Many restaurants cite the unreliability and lack of professionalism of existing recycling businesses as well as the inconsistency of stock available and higher pricing (relative to plastic) of alternative packaging as a constraint to implementing recycling practices and purchasing alternative packaging materials.

Food waste appears to be the easiest to sort for owners, managers and staff. A surprising insight is the number of restaurants that supply food waste to farmers, mostly pig farmers.

Waste sorting

Waste that is sorted is paper, plastic, glass, food scraps or other organic material and batteries. Stores and restaurants that rent space in larger shopping centres rely on waste management facilities provided by shopping centres. Only 42% of respondents sort waste with 91% delegating this task internally to staff and 9% outsourcing to external service providers. By waste type, most respondents (37%) recycle plastic and glass followed by paper (19%); 11% recycle organic waste and batteries.

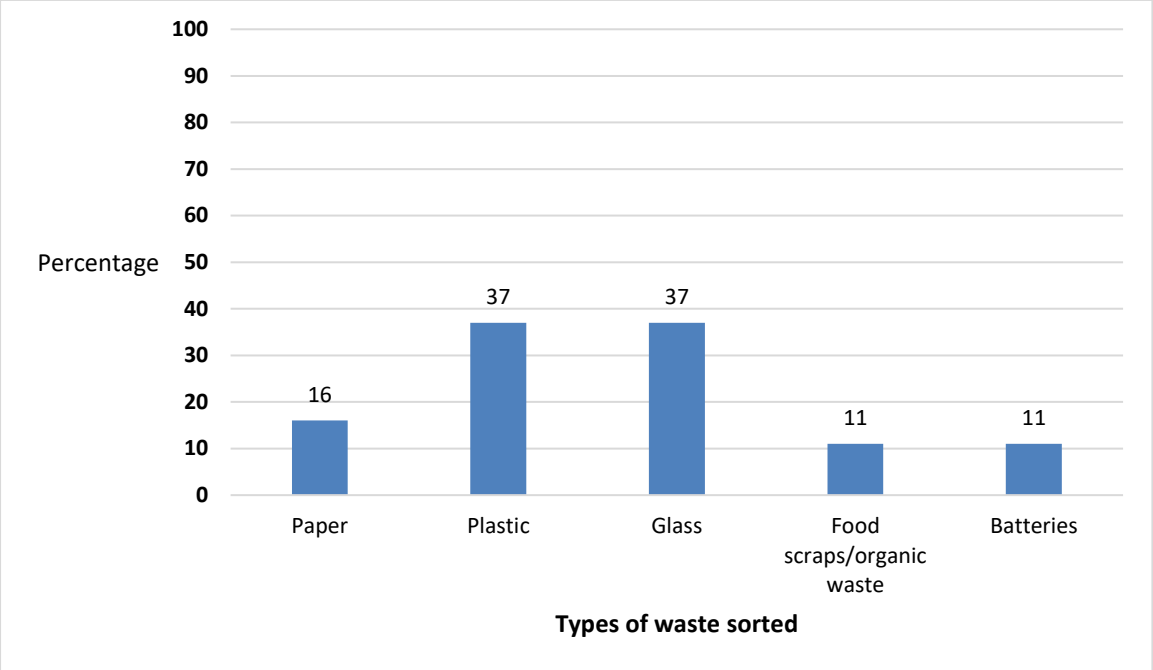

Figure 20: Sorting of waste by type

A few respondents offer water in glass bottles, a service offered by a supplier called Vivreau, to reduce the use of plastic water bottles.

List of suppliers

For the 9% of respondents that outsource waste management to external service providers the main suppliers are Wasteplan, Wasteman, Kool Waste, independent companies and municipality.

The loss of metal cutlery because it falls into or is mixed in with trash is a huge concern (25% of respondents).

Packaging

Packaging cost

Only 16% of respondents answered the question on the contribution of packaging cost to total cost. The packaging cost ranges between1–2% and 5–8%.

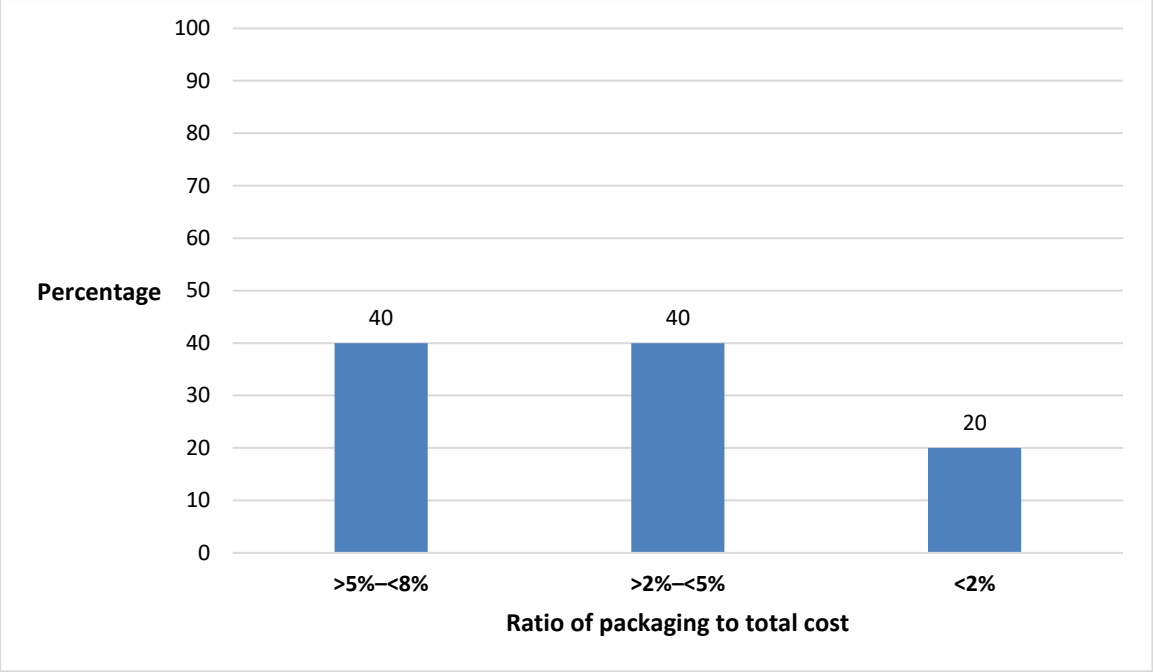

Figure 21: Ratio of packaging to total cost

An understanding of the contribution of packaging cost to total cost will assist with an analysis of the willingness to pay for alternative packaging and development of the business case. The identification of a passionate champion to lead a campaign or a pilot is found to be essential for the successful implementation of plastic reduction initiatives. Often the role for implementing sustainability practices is allocated to someone other than the procurement manager, owner or manager. The categorisation of packaging assists with understanding the purposes for which plastic is used in food and beverage packaging.

Procurement of packaging materials

The decision on type, volume and frequency of procurement of packaging material rests with a range of individuals within the business. Almost half of respondents (47%) indicated who the main decision maker was for procurement of packaging materials. Figure 22 shows that in 50% of the businesses surveyed the decision is made by the procurement manager, followed by owners (40%) and the general manager (10%). This may confirm that any plastic reduction initiative needs buy in from the procurement manager and owners.

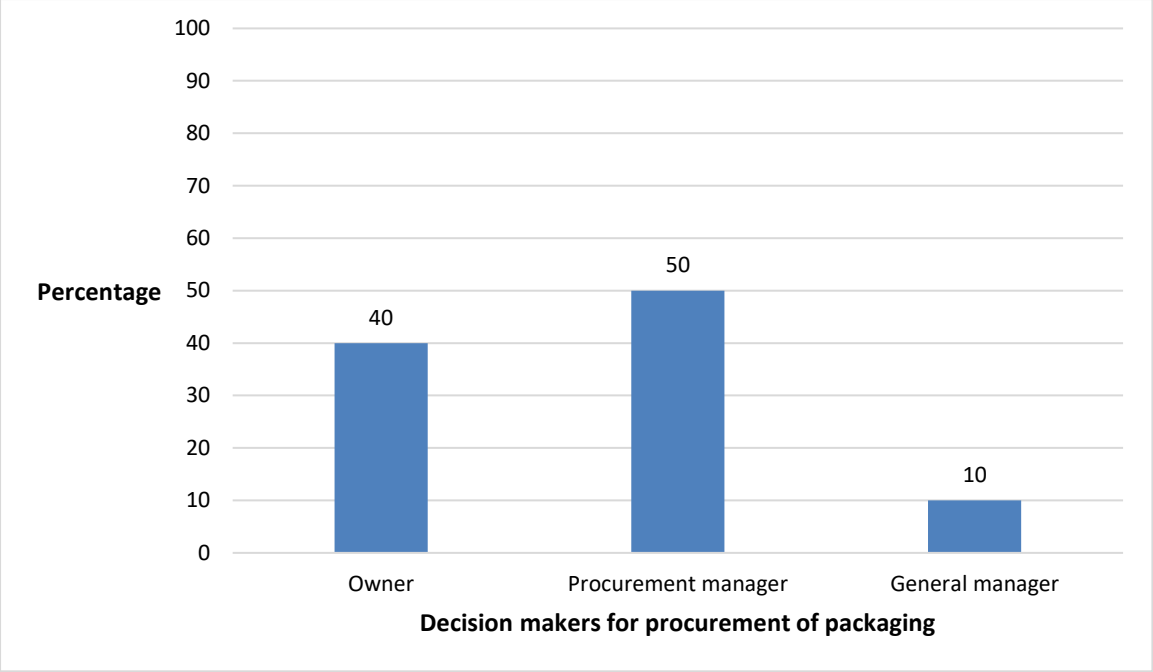

Figure 22: Decision maker for procurement of packaging material

Suppliers of alternatives to traditional packaging materials and plastic

The availability of suppliers that offer a wide range of products at affordable prices is essential for the introduction of new products. As the products and often the suppliers do not have long track records, credibility is often an issue. Using word-of-mouth recommendations is often the best way to confirm reliability of suppliers. The main suppliers of alternative packaging material are GreenHome, Hanco, Vivreau for recycled glass bottles, Eco Pack, Cape Cup, Just Island and Sprint packaging. Most of the products sold by these suppliers are produced in China with little or no products produced in South Africa. This is potentially an area for future investigation for restaurant owners and food service outlets that source locally. It may also be an area for future enterprise development. Single-use plastics include honey, salt and pepper sachets as well as other condiments in the hotels and a few of the restaurants interviewed.

Plastics

South African legislation does to some extent incentivise consumer behavioural change to reduce, reuse or recycle plastic bags with the introduction of the plastic bag levy in 2004.

The following figure shows that a relatively large percentage of respondents (58%) use plastic bags, takeaway cups and lids, takeaway containers, plastic cling wrap and water bottles, with 63% using straws.

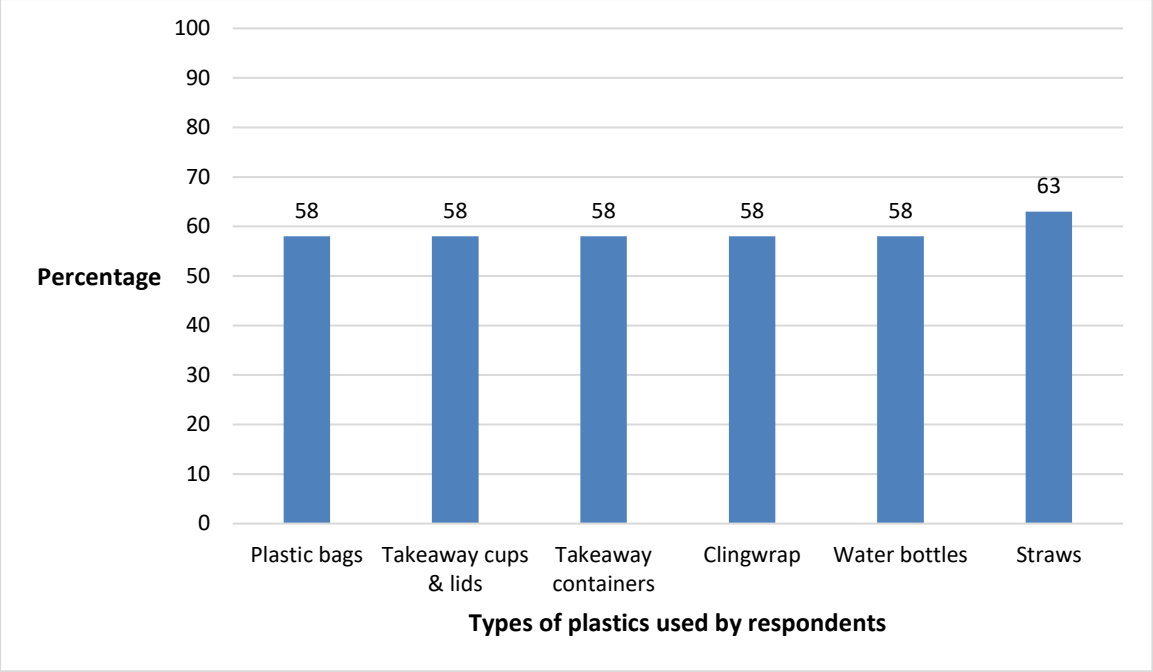

Figure 23: Types of plastic used by respondents

Willingness to pay for alternatives to plastic packaging

Respondents were introduced to the question on willingness to pay by explaining WWF SA's interest in plastic use, reuse and recycling to reduce plastic debris in marine environment and their interest in working with companies that would support this vision.

Understanding the willingness to pay factor provides information on the value attached to the environmental attribute of plastic packaging material. Straws and lids for takeaway coffee cups were selected, as the former is the focus of the pilot and the latter is the product most often used in restaurants that offer patrons a takeaway option. Respondents were provided with price ranges namely 0–5%, 5–10%, 10–15% and more than 15%. This is not, however, a true reflection because, as mentioned by several participants, the shift from a coffee lid that costs R0.50 to a compostable lid that costs R0.80 seems perceivably more viable for them than to shift from a takeaway container that costs R0.71 to one that costs R1.70. Therefore, the higher the price of the non-biodegradable product the less the willingness to pay for the alternative. Interestingly Cape Cup, Ecopack and Greenhome do not offer biodegradable straw alternatives on their pricelists. The current cost for biodegradable straws is about 8% higher than the traditional product.

Table 7: Common restaurant single-use packaging alternatives priced per unit

Common restaurant packaging alternative	Supplier	Price p/unit
Straw	Cape Cup	R0.44
Coffee cup	Cape Cup	Single wall: R0.80 (250ml), R1.50 (350ml) Double wall: R1.25 (250ml), R1.70 (350ml)
	Green Home	Single wall: R0.81 (250ml), R1.11 (350ml) Double wall: R1.30 (250ml), R1.72 (350ml)
	Ecopack	Single wall: R1.03 (250ml), R1.28 (350ml) Double wall: R1.40 (250ml), R1.74 (350ml)
Coffee lid	Cape Cup	R0.53 (250ml), R0.61 (350ml)
	Green Home	R0.82 (250ml), R0.88 (350ml)
	Ecopack	R0.80 (250ml), R0.85 (350ml)
Hamburger box	Cape Cup	Tub R1.20, lid R1.25 (350ml)
	Green Home	R3.53
	Ecopack	R1.97
Double compartment takeaway box	Cape Cup	Tub R1.40, lid R1.25 (500ml)
	Green Home	R2.93
	Ecopack	R2.98
Knife	Cape Cup	R0.70
	Green Home	R0.91
	Ecopack	R0.83
Fork	Cape Cup	R0.76
	Green Home	R0.91
	Ecopack	R0.83
Spoon	Cape Cup	R0.79
	Green Home	R0.91
	Ecopack	R0.83
Smoothie cup	Cape Cup	R1.40 (250ml), R1.70 (350ml), R1.90 (500ml)
	Green Home	R1.58 (265ml), R2.16 (350ml), R2.91 (500ml)
	Ecopack	R0.67 (200ml), R1.42 (360ml), R1.69 (500ml)
Smoothie lid	Cape Cup	R0.77
	Green Home	Flat lid R0.52 (265ml), Dome lid R0.78 (350ml), Dome lid R0.85 (500ml)
	Ecopack	R0.59 (200ml), R0.69 (360ml), R0.69 (500ml)

Most respondents (58%) answered both willingness to pay questions. Reasons for non-response included that respondents were unwilling to disclose that kind of information. A limitation of this question is that it did not allow the respondent to first respond yes or no to their willingness to pay before proceeding to indicate the range. Notes from interviews were used to confirm which respondents answered no to this question.

Figure 24 shows the willingness to pay for straws produced from alternative material: 91% of respondents indicating they were willing to pay 0–5% more and 9% were willing to pay more than 15%; for takeaway cups, 99% were willing to pay 0–5% more and 1% were willing to pay 10–15% more. The results confirm that respondents are price sensitive to packaging cost despite it only contributing a small percentage to total cost as shown in figure 21.

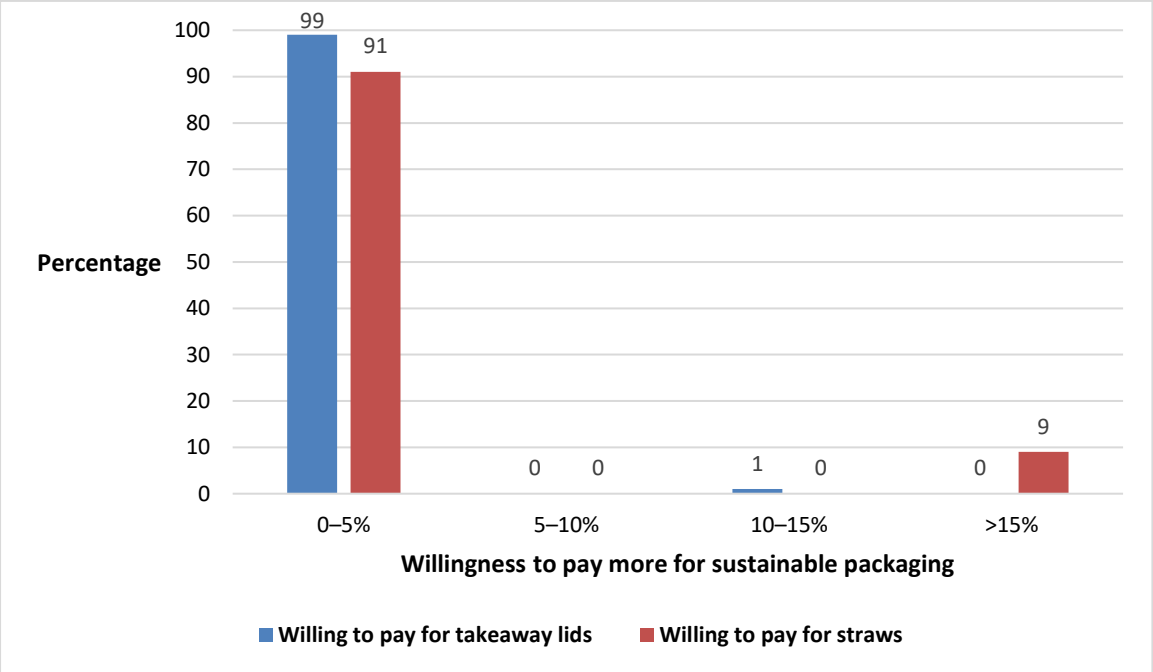

Figure 24: Willingness to pay for alternative packaging

The respondents (5%) that answered that they were not willing to pay any additional cost for alternatives to plastic packaging were also critical of packaging products that claim to be more sustainable in the absence of third party auditing and certification schemes. This criticism is important to note in communication to patrons to simplify and clarify any claims of newly introduced alternative materials that will be tested in the pilot. It is particularly critical given that an online survey in the United Kingdom with 2 046 adults (older than 18 years) confirmed that 63% of consumers interviewed said plastic is the material they are most uncertain about (RECOUP 2016).

An area of further research is to determine the scope and nature of any locally produced biodegradable packaging materials as well as any planned government support for enterprise development.

A plastic bag levy implemented in South Africa in 2004 was successful in reducing short-term plastic consumer demand. Despite the availability of substitute products and the increase in the price of the plastic bag associated with legislation, consumption rose in the long term as the size of the levy was too small relative to consumers' disposable income (Dikgang 2010). The increase in consumption of plastics, after the levy, occurred after an initial decrease in consumption of 90%. This indicates that initial results do not always give an accurate reflection of sustainable long-term results. A more detailed review of legislation particularly relevant for the African context may be valuable to better understand and support design of policy instruments.

Conclusions

Consumer behavioural change is needed to reduce plastic debris that finds its way to the ocean. Restaurant owners and managers have the potential in their service and product offering to support this behaviour change by offering alternatives and recycling, reducing, reusing and discontinuing use of single-use plastics.
The key insights gained during this research project are outlined below.

Barriers to behavioural change

- Communication alone, whether through in-store displays or online media, is insufficient to result in behavioural change. Respondents echoed sentiments that 'consumers do not like to read' and that many customers ask questions despite answers being displayed on in-store signage. Significant consumer awareness is needed and this perhaps best done through 'nudging' activities; for example, showing consumers how it is possible to drink a smoothie without straw, using video clips and having a campaign.
- The time and cost to collate information on alternative options is a barrier to efficient implementation of waste management and the introduction of alternative plastic packaging materials. A recommendation was made to approach the City of Cape Town to provide an advisory service on implementation of efficient waste management practices and ways to reduce packaging and its costs.
- The consumer will need to pay for the additional cost of packaging material that is less harmful on environment as currently it costs more to use these materials than conventional materials. Businesses will not use the material if consumer is not willing to pay for it. When the demand increases, the supply will increase and potentially decrease prices as it moves away from being a niche product.
- Some of the recycling companies currently offering services are unreliable.

Type of support needed

- More research is needed to build an evidence base linking the threat of plastic debris to marine species to assist conservation efforts, motivate for a business case for educational campaigns and to support policy analysis to develop specific instruments.
- Larger companies with more complex supply chains wherein the procurement manager is responsible for packaging and plastic packaging materials need support to make the business case, which may involve following up with leading packaging companies to better understand their challenges and successes to offer alternatives.

The following recommendations are drawn from the findings above:

- Given the lack of studies and data empirically linking beach litter levels to socioeconomic impacts, such as on the tourism sector, it is proposed that a similar study be conducted with the hospitality and tourism sector.
- Explore collaboration with the restaurant industry and/or associated stakeholders to co-host a platform or find innovative ways to distribute learnings on alternative local packaging materials, including on the cost and functionality. Respondents cited a lack

of information on alternatives as a barrier to implementation of plastic reduction initiatives.

- Follow-up research is needed on the business models of existing suppliers that offer alternative packaging materials and how best to support them to offer locally produced materials where possible.
- Given the lack of professionalism and consistency of service offering of recycling companies and the suppliers of alternative packaging materials, it is recommended that this insight be confirmed with the Green Cape Waste sector desk and that they include it in their service offering of market intelligence.
- The identification of the pilot should be based on criteria that include willingness or eagerness of owners or general managers to participate, current level of awareness of waste management in general and packaging specifically, as well as the scale of impact in terms of customer profile and ability to rollout the pilot in several stores.
- Based on the survey and suggested criteria, it is recommended that the pilot takes place at vida e caffé and one of the Harbour House Group restaurants. Restaurants and food service outlets have an opportunity to build upon the work of The Beach Co-operative and be active participants in citizen action campaigns along Cape Town's coastline to build the business case for national campaign in the restaurant and hospitality sector to reduce plastic debris that ends up in our oceans.

This study provides useful information on how informed restaurants are using packaging in general and plastics specifically, and the awareness of, knowledge and willingness to pay for alternatives. These insights may assist policymakers in designing policy instruments and conservation organisations in building business cases and designing pilot initiatives. The next phase of the project will use the findings and insights of this restaurant research together with consumer research to identify and implement the pilot.

APPENDIX 3: PILOTING ALTERNATIVES TO SINGLE-USE PLASTICS AT TWO RESTAURANTS IN CAPE TOWN, SOUTH AFRICA

August 2017

The report is written under the umbrella of and funded by Green Trust (GT) project 5548, Beyond the Horizon: Consumer and restaurant approaches to tackling marine pollution. The contracted consultant is Aaniyah Omardien, people and conservation consultant. John Duncan, Senior Manager of WWF SA Marine Programme oversees GT 5548 project execution. The core consulting project team contracted for this component of the project comprises Aaniyah Omardien, people and conservation consultant, and Ceinwen Smith, researcher. Ceinwen Smith was the lead author. John Duncan, Senior Manager of WWF SA Marine Programme, oversees GT 5548 project execution.

Acknowledgements
We would like to thank vida e caffé and Foragers for volunteering to participate in this research. Furthermore, we would like to thank the waiters and baristas of these establishments for assisting us by engaging with the customers to receive their responses to our surveys. We would also like to thank the customers that took the time to complete the surveys and contribute to this research. Additionally, we would like to thank Wendy Engel for reviewing the report and both Wendy and Camila Budden for their input to the survey design.

Disclaimer
The project team takes full responsibility for the report's contents and conclusions produced in the report.

Citation
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Background

There has been a 650% increase in plastic production over the past 40 years, with 270 million tons produced globally in 2010 (Jambeck et al. 2015). There are many positive aspects to plastic, which explain its popularity. It is cheap, versatile, light-weight and long lasting. Each of these aspects, however, has a corresponding negative. Plastic is often single-use, it contains toxins, disperses extensively into the environment and does not biodegrade.

An estimated 8 million tons of plastic enters the world's oceans each year and South Africa is the world's 11th worst marine polluter (Jambeck et al. 2015). A 2015 survey of beach litter around South Africa's coastline indicated that 94% of beach litter is plastic and 77% of that is packaging (Ryan & Moloney 2016). If not disposed of properly, this plastic ends up in the ocean where it contributes to the plastic ingested by 90% of seabirds.

Cape Town, with its diverse floral kingdom, distinct coastal features and variable climate, is a biodiversity and tourism hotspot. More than 10 million tourists visited the city in 2016, with 1 million visitors in January alone (Brophy 2016; 2017). Tourists come to experience the beautiful beaches, mountains, wine and, of course, the fine cuisine served at a wide range of restaurants. Many Cape Town restaurants are in prime locations along the picturesque coastline, and thus should be held responsible and accountable for ensuring that the way in which they function does not impact negatively on the ocean, either directly or indirectly. As a significant consumer of plastics for packaging purposes, restaurants could play a critical role in reducing the amount of single-use plastics entering the oceans. Furthermore, they have the potential to play a leading role in raising awareness and changing consumer behaviour around the use of single-use plastics. As consumers, we have the capacity and the responsibility to make choices that support the transition to the use of alternative products with lower environmental impacts.

Changing our behaviour requires what Jambeck calls, a "shift in thinking from 'waste' management to 'materials' management" with a focus on "creating livelihoods based on 'waste' management, in which waste is viewed as an exploitable resource" (Jambeck 2017). Furthermore, it is critical that all players in the value chain are engaged to educate, raise awareness and build capacity to curb our plastic addiction before it suffocates us. As key players in this value chain, we, the consumers (those who can afford to eat at restaurants), have the power and the luxury (of both choice and availability of alternatives) to drive change – by refusing plastic products and thus reducing the demand we can effectively "turn off the tap" (Jambeck 2017).

Most single-use plastic items distributed by restaurants (e.g. plastic straws, coffee cup lids and sweet wrappers) are not recycled (and many are not recyclable). They are among the most common items found on beaches (Ryan & Moloney 2016). Globally an estimated 500 billion takeaway coffee cups are sent to landfill every year (Potter 2017).

While a paper cup may take six weeks to break down in the ocean, the plastic lid (and the cup's plastic lining) may take up to 450 years to break down, and then only into tiny pieces that collect in the ocean as microplastics (NOAA 2011). The ubiquitous plastic straw may seem insignificant in size, but its abundance, availability and short consumer lifespan make it extremely harmful (McGeever 2017).

Straws are ranked as the seventh most picked-up item on beaches. Beach clean-ups in East Beach, East London, for example, find on average 44 straws per meter of beach, despite daily cleaning (Ryan & Moloney 2016).

South Africa has an opportunity and a responsibility to lead the way in exploring solutions to the problem of marine litter.

Research design, objectives and methodology

The aim of this study was to work with local restaurants located close to False Bay in Cape Town to test the potential for reduction, and ultimately elimination, of single-use plastic items. The three focal items of this study are:

- Plastic straws.
- Individually wrapped sweets.
- Plastic takeaway coffee cup lids.

Other items, however, such as plastic takeaway ice-cream spoons, were included if one or more of the above were not offered at a restaurant.

Research objectives

The objectives of this study were to:

- Illuminate the challenges of and opportunities for eliminating the use of and finding alternatives for single-use plastic items.
- Explore the roles that both restaurants and their customers play in making the transition to eliminate the use of single-use plastics.

Research questions

The research was designed to understand the following specific questions:

- What challenges do restaurants face that restrict them from committing to reducing and eliminating single-use plastic items, or even testing out the transition and alternatives?
- How satisfied are customers with currently available single-use plastic alternatives?
- Are customers willing to pay for alternatives to single-use plastic packaging? If so, how much are they willing to pay?
- Are restaurants and their customers willing to avoid single-use items by using reusable options and what are the incentives needed to enable behavioural change regarding the use of single-use plastics?

Research methodology

The survey designed for this study was based on some of the key findings and recommendations reported by Omardien and Knipsheer (2017). In their consumer survey, 86% of respondents felt that restaurants could make a difference in reducing the levels of ocean pollution. Furthermore, respondents felt a level of responsibility for influencing the product choices that restaurants make, and thus would be willing to support restaurants that make environmentally friendly decisions, even at their own cost.

There was, however, no clear consensus on what they would be willing to pay and whether this information should be shown explicitly when making purchases. Recommendations included campaigns that engage consumers to emphasise refusal of single-use plastics to reduce environmental impact and offering discounts to consumers who bring their own containers (Omardien & Knipsheer 2017).

Muizenberg beachfront, with its many businesses centred on food, surfing and tourism, is a prime example of a location where restaurants are important players in driving change and mitigating marine plastic pollution. This study focused on the source of single-use plastics that end up as beach litter, by working with and educating restaurants and consumers on plastic alternatives, gaining an understanding of what is required for a transition and of the challenges to changing consumer behaviour.

The pilot study research was carried out at two restaurants within a four-week period on 7–8 July and 28 July–4 August 2017 respectively. Ceinwen Smith and Aaniyah Omardien conducted staff training at the pilot sites to:

- Provide them with background for the project.
- Briefly explain the impacts of single-use plastic items.
- Provide suggestions on engaging with customers on the topic.
- Support them in encouraging customers to provide feedback by completing the survey.

Two restaurants were selected to implement the pilot study based on their willingness to participate, familiarity with the issue and passion for environmental issues, as well as the owner or manager's dedication to making a difference.

The first pilot site vida e caffé (vida e) in Muizenberg is part of a chain of trendy coffee shops, with 42 stores in Cape Town and more than 70 across South Africa. The Muizenberg vida e is in the Roxy Surf Emporium shop on the beachfront, caters to surfers and other beachgoers and, thus, sees most of its customers over weekends. vida e is known for its friendly and energetic staff and the stores are designed for "comfort, convenience, and consistency".

The second site 'Foragers' at The Hub is a local restaurant, deli and coffee bar located in the small coastal village of Scarborough, near Cape Point. While strongly supported by the local community, it also sees most of its customers over weekends, particularly during the morning, as it is a favourite destination for passing cyclists. Foragers has created a warm, family-friendly space to enjoy everything from a quick coffee on the run or a lengthy Sunday brunch.

Due to the distinct differences in these two establishments, the methodology for each had to be adapted to suit the location, type of service offered and clientele.

The sample included 156 customer surveys covering three single-use plastic items.

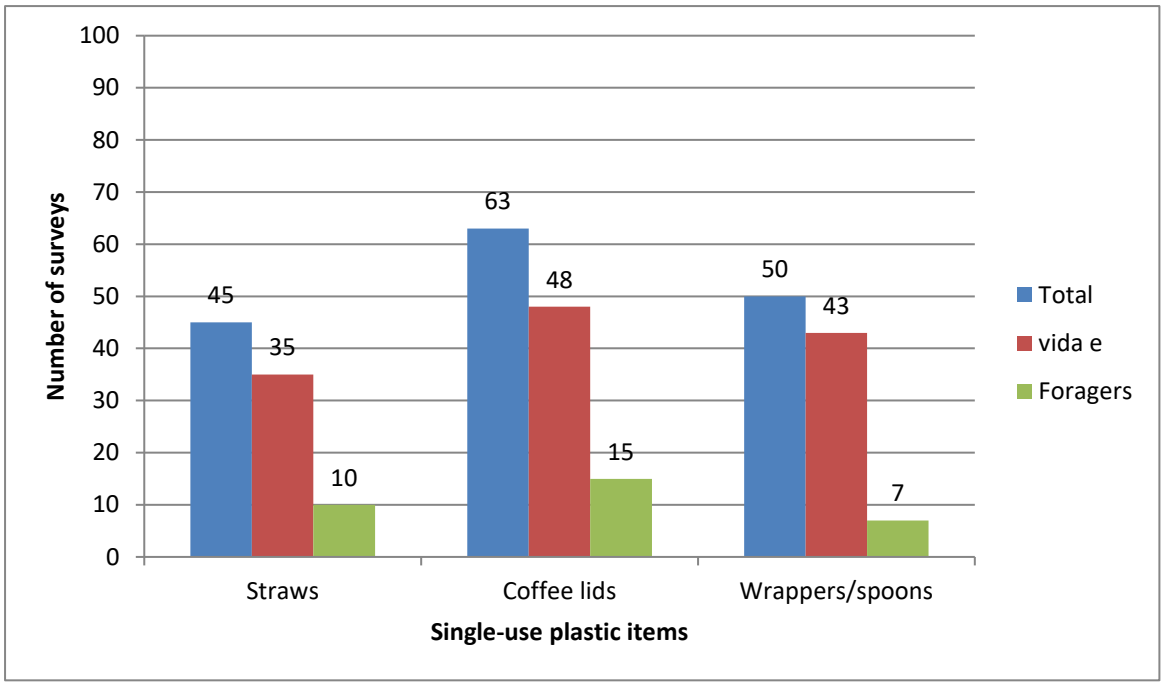

Figure 25: Sample of 156 surveys completed by customers at vida e and Foragers
Note: Foragers did not serve individually wrapped sweets so this survey was replaced by a survey designed for takeaway ice-cream spoons.

Summary of main findings

Gaining commitment from restaurants

Contact was made with three potential pilot restaurants – vida e (Muizenberg), Tigers Milk (Muizenberg) and Bootleggers (Sea Point) – on 12 June 2017. Preliminary meetings were held with the managers of vida e and Tigers Milk on 27 June to discuss the rollout of the pilot study. Vida e gained approval from its head office and committed to running the pilot from 7–8 July 2017. While Tigers Milk management was keen on the project, it proved challenging for them to gain approval from the Harbour House Group for several reasons:

- Management at the restaurant was in transition with uncertainty as to who would be running the restaurant from July.
- The Harbour House Group is a large entity and any decision that could affect the brand and public image of the Group needs approval at various levels of management and by multiple departments. It proved difficult to secure meetings with the relevant people in the brand management and procurement departments and there seemed to be general lack of enthusiasm about engaging in the pilot study. In addition, the time constraints of the study did not allow for the extra administrative processes that the Group follows, such as loading new suppliers (for single-use plastic alternative products) onto the procurement system.

A successful preliminary meeting was held with management at Bootleggers on 10 July. The restaurant had already taken several steps to implement the transition to elimination of single-use plastics. It does not offer straws, has sourced alternative products, introduced a branded reusable mug and started testing glass straws (at the Sea Point branch).

Bootleggers was not, however, able to undertake the pilot during the study period, but has committed to implementing a month-long trial period when their systems (such as a mobile app for customer surveys) and staff training programme are completed. They are keen to engage with the study in the future.

The contractual agreement with WWF was to test the ability of two pilot restaurants to reduce or eliminate single-use plastic items. Due to Tigers Milk and Bootleggers not being able to participate, the team sourced an alternative restaurant – Foragers in Scarborough – that agreed on short notice to run a one-week pilot study from 29 July to 4 August 2017.

Key learnings from this phase of the project are that successful implementation of pilot studies of this nature must consider administration and logistical issues, particularly for large chain restaurants or groups that function with high degrees of hierarchy and multiple departments and levels of management.

Implementation of the pilot study

Foragers and vida e have different operating styles tailored to their customer bases. It was easier to get customer feedback at vida e (81% of survey respondents) than at Foragers that caters mostly to sit-down traffic with low levels of takeaway sales. Additional challenges at Foragers included the following:

- The waiters were not enthusiastic about engaging with customers regarding the pilot and so did not actively drive the survey process, perhaps for fear of affecting their tips. There is a need for adequate staff training on the rationale for the transition and the steps involved. Staff are often busy with other responsibilities and/or feel apprehensive about engaging with customers on a topic they do not feel confident about.
- Management requested the researchers' active engagement with customers, which was not possible for the entire duration of the pilot. While willing to drive the survey process themselves, management also had other responsibilities that took precedence to the pilot.

The above findings suggest that both the content of the survey and the process through which it is administered need to be carefully tailored, with sufficient time given, to suit the specific layout and characteristics of the establishment and its patrons. Other issues/concerns raised during the pilot study were:

- Branding concerns. vida e, for example, is known for providing a free chocolate with hot beverages and eliminating this value-add to reduce packaging could have negative implications for the brand.
- Cost of alternative materials, which are significantly more expensive, especially if they are locally produced. Imported products, though, while cheaper, present other disadvantages such as a higher carbon footprint.
- Breakage factor of glass straws, for example.
- Theft of items such as glass straws and reusable vida e cups (the restaurant tends to offer takeaway cups unless requested otherwise).
- Hygiene; the cleaning of glass straws, for example.

- A lack of confidence in the biodegradability/lower environmental impact of alternatives. A more detailed information pack must be provided to restaurants embarking on this transition.

Results of the customer survey

Despite the above-mentioned challenges, 156 customer surveys were administered at the two pilot restaurants: 45 related to straws, 63 to takeaway coffee cup lids, 43 to chocolate wrappers and 7 to takeaway ice-cream spoons. The survey results are expanded on below.

Straws

- Requesting a straw

The 45 respondents (35 at vida e, 10 at Foragers) were asked if they requested straws. Most (38 respondents/84%) did not, but the balance (7 respondents/16%) insisted on straws even after staff explained that the restaurant was reducing its use of single-use plastics and, therefore, its impact on the environment. Most of the respondents at Foragers (90%) stated that they "did not want/need" a straw. One respondent indicated that they requested a straw to rate it against the alternative, but did not need one unless "travelling with a smoothie". Another noted that "my children request a straw but I would prefer they were not offered."

- Customer satisfaction with the alternative straw

Regarding the 29 responses to satisfaction with the alternative straw on offer (a biodegradable plastic straw at vida e and a paper straw at Foragers), 95% of vida e customers found it easy to use and 87% found it functional. Of the 17% that had requested a straw at vida e, all were satisfied with the alternative provided.

This question was modified in the second pilot study survey at Foragers to include a range for ease of use and functionality (1 = easy/functional to 6 = difficult/not functional). Only 1 respondent requested a straw (because they "wanted to rate the alternative") and gave a rating of 1 for both ease of use and functionality of the alternative (paper) straw. However, 3 additional respondents (who did not request a straw) rated their satisfaction. Out of these 3 respondents, 2 gave a rating of 1 for both ease of use and functionality and one respondent gave a rating of 3 for both.

- The number of straws used per week

This question was added to the second pilot survey at Foragers. Of the 10 respondents, 50% indicated that they use on average 1–5 straws per week and 50% claimed to use none.

Chocolate wrappers

Foragers does not provide wrapped sweets to its customers. These survey results were drawn from 43 respondents at vida e, which offered a biscuit alternative to their customary wrapped mini chocolate.

- Customer satisfaction with the chocolate alternative

Eighteen respondents (42%) indicated the importance of the chocolate that vida e offer: “I love it”, “It’s really important. I use it instead of sugar” and “It is a nice treat, drew us to vida e in the beginning”.

When staff explained why the chocolates were not being served, most (78%) of those who responded (40 respondents) were satisfied. But when asked which they preferred, 52% respondents preferred the chocolate to the biscuit. Of the remaining 3 respondents, 2 commented “Didn’t bother me” and “Have not encountered this thus far”; 1 did not respond.

- Chocolate: Part of the vida e experience or an unnecessary source of plastic?

Just more than half of respondents (51%) felt that the offering of a mini chocolate was part of the vida e experience. Others felt that “anything free is good”, “the staff made vida e not the chocolate” and that “they would rather save the planet than have chocolate”. Two respondents noted that they would be happy to enjoy unwrapped chocolates with their coffee.

Takeaway ice-cream spoons
These survey results were drawn from 7 respondents at Foragers who received a sustainably sourced wooden ice-cream spoon, which costs around R0.70.

- Willingness to pay for a takeaway spoon with less environmental impact

Most respondents (71%/5 respondents) were happy to pay extra for a sustainably sourced wooden takeaway ice-cream spoon.

- Amount customers are willing to pay for a takeaway ice-cream spoon

Of the 5 respondents who were willing to pay extra, 43% (3 respondents) were willing to pay R0.70–R1, while 1 respondent would pay R1.51–R2, and 1 would pay more than R2. The cost of a plastic takeaway ice-cream spoon is around R0.30.

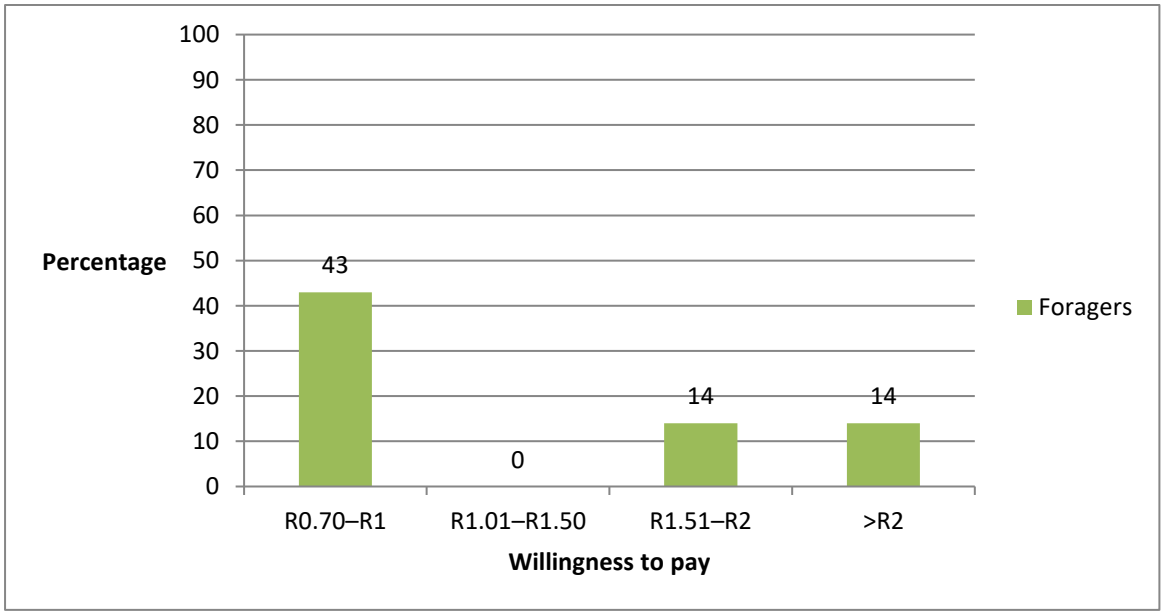

Figure 26: Respondents' willingness to pay extra for an ice-cream spoon

- Reason for not being willing to pay for a takeaway ice-cream spoon

Only 2 respondents (29%) were not willing to pay extra for an ice-cream spoon with less environmental impact because they believed it should be free. Of these, 1 respondent commented: “As a business it is your responsibility” and another, who was happy to pay for it asked, “What does a plastic spoon cost?”

- Reason for willingness to pay for a takeaway ice-cream spoon

When asked what motivated their willingness to pay extra, 5 respondents (71%) answered the question (4 respondents that had indicated they were happy to pay, and 1 that was not). Three options were given and respondents were encouraged to indicate one or more. Thus, a total of 8 responses were received from 5 respondents. Of these, 43% (3 respondents) preferred to use products with less environmental impact, 29% (2 respondents) preferred using natural products and 43% were happy to support the transition to plastic-free alternatives. Only 2 respondents indicated all three options.

Takeaway coffee cup lids

A total of 63 responses were captured regarding this aspect: 48 from vida e and 15 from Foragers.

- Willingness to pay for a takeaway coffee cup lid

More than 60% of respondents at vida e (30 respondents/63%) would be happy to pay for a compostable coffee cup lid. Foragers did not offer its customers a lid or asked them to pay R1 more for a plastic lid. Of the 15 respondents, 60% (9 respondents) asked for a lid and, and of those, 73% (6 respondents) were happy to pay extra for it.

- Reason for requesting a lid

This question was added to the second pilot survey at Foragers. Of the nine respondents that requested a lid, all claimed it was to prevent spillage while driving. One commented that it was a “safety issue, kids in the vehicle”.

- Amount customers are willing to pay for a lid

Most respondents (23 at vida e, 9 at Foragers, 73% in total) were willing to pay up to R1 for a lid. Only 3 respondents at vida e were willing to pay more than R1.50. The cost for a biodegradable coffee cup lid ranges between R0.53 (250ml), R0.61 (350ml), R0.80 (250ml) and R0.85 (350ml).

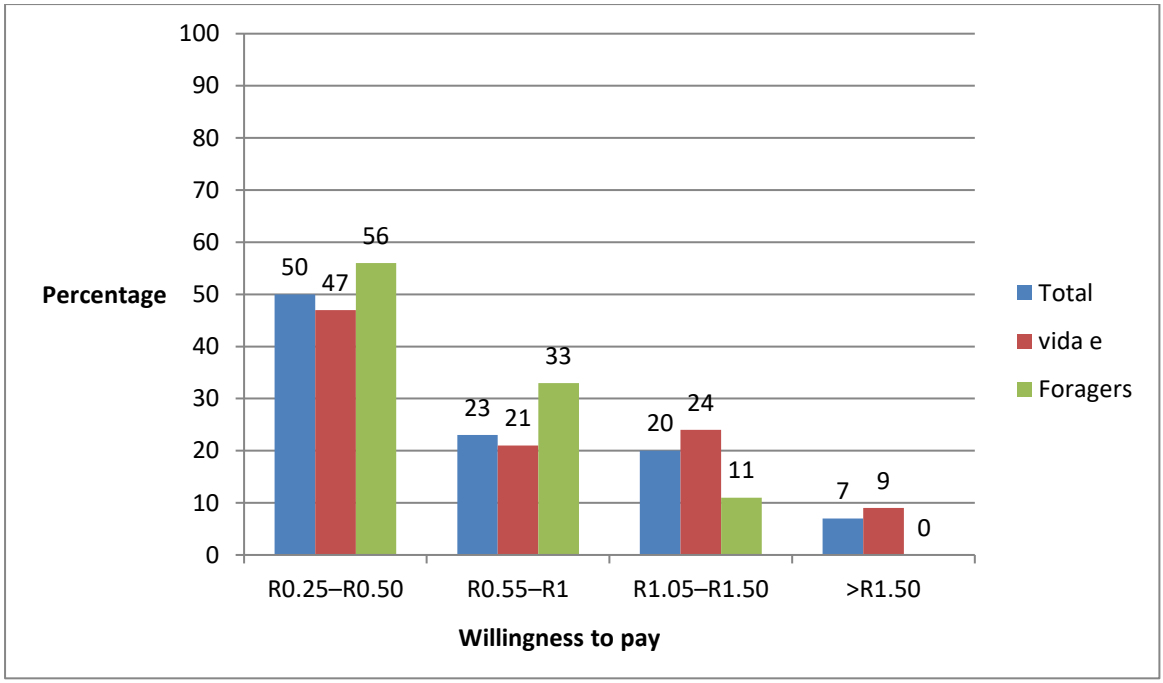

Figure 27: Respondents' willingness to pay extra for a coffee cup lid

- Incentive to bring own reusable coffee cup

Most respondents (48 at vida e, 12 at Foragers, 78% in total) considered a discounted price by R1 or R2 as an incentive to bring their own reusable cups.

- Willingness to purchase a reusable takeaway coffee cup

Out of 63 respondents to the survey about coffee cup lids, 65% (31 respondents at vida e, 10 at Foragers) indicated that they would be willing to purchase a reusable takeaway coffee cup. Of these, 63% (17 respondents at vida e, 8 at Foragers) would be willing to pay up to R100 for the cup, 28% (10 respondents at vida e, 1 at Foragers) would pay up to R150 and only one respondent at vida e would be willing to pay up to R250. The 'Keep Cups' at vida e cost between R269 and R299 each.

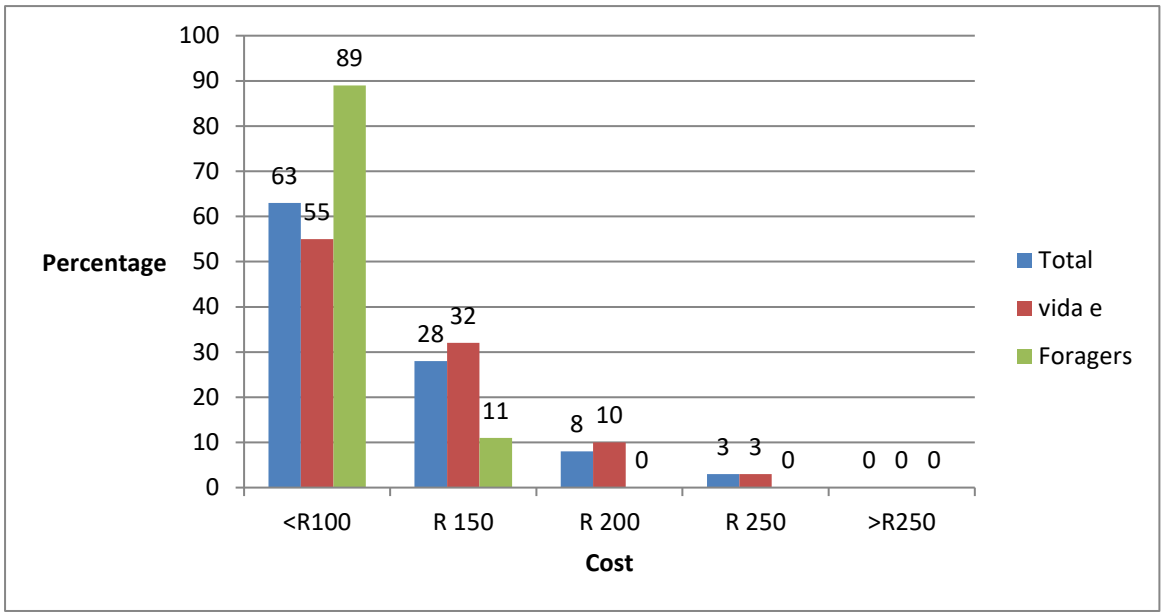

Figure 28: Respondents' willingness to purchase a reusable takeaway coffee cup

Conclusions

The following conclusions are based on the findings from the two pilot study surveys.

- Most respondents do not need, want or use straws when they order a drink and thus restaurants could safely stop serving straws, unless customers insist (e.g. for a takeaway smoothie), in which case the customer should be satisfied with an alternative (paper) straw.
- For 52% of respondents, mini vida e chocolates appear to be an important part of enjoying vida e coffee, however, some respondents were happy for the change that the biscuit provided and others admitted they would be satisfied with unwrapped chocolates. Further surveys at vida e carried out over a longer period could test whether customers are satisfied with receiving unwrapped mini chocolates or vida e's home-baked chocolate buns. Another recommendation would be to explore alternative packing (e.g. wax paper) for the chocolates.
- Regarding takeaway ice-cream spoons, while the number of responses were few (7), most respondents (71%) were happy to pay extra for a sustainably sourced wooden alternative because they preferred using products with less environmental impact and were happy to support the transition towards plastic-free alternatives.
- Takeaway coffee cup lids were generally required by respondents to prevent spillage. While most respondents who requested a lid were happy to pay extra for it, there was no clear agreement on how much, although most concur that the cost should not exceed R1. Most respondents would consider a discount of R1 to R2 an incentive to bring their own reusable coffee cup.
- More than 50% of the respondents would be willing to pay up to R100 for reusable cups, 28% would pay up to R150 and only one respondent at vida e would be willing to pay up to R250.

Recommendations for further restaurant pilot studies

- Initiate contact with pilot restaurant at least one month prior to the intended pilot study date.
- Run pilot studies over at least one week and if possible one month.
- Offer more in-depth staff training and preparation further in advance.
- Provide restaurant management and staff with an information booklet detailing important statistics, tips on engaging with customers, resources for sourcing alternatives and a guide to running their own pilot studies.
- Carry out paperless surveys using a mobile app or in-store digital interface (e.g. a tablet).
- Design the survey questions to include detailed multiple-choice questions, as well as options for individual comments.

What areas require more attention, awareness, clarity and education?

- More attention could be placed on staff and customer engagement over a longer period to encourage staff to drive the process and improve the quality and quantity of feedback from customers.
- Questions could be designed to suit a broad range of restaurants and enable consistency between surveys in pilot studies to improve analysis and allow for direct comparison.
- More detailed information and educational material could be provided to restaurants (i.e. in the information booklet) to improve awareness. This could include useful terms, important statistics and detailed analysis of a range of single-use plastic alternatives, their costs and service providers.
- While the key findings of this survey suggest that restaurants can safely eliminate single-use plastic items such as straws and sweet wrappers more research is recommended to obtain specific feedback for instances where the packaged offering (such as the vida e chocolate) is brand related.

In conclusion, the findings of the survey resonate with those of Omardien and Knipsheer's (2017) consumer report and Engels' (2017) restaurant report. This WWF-Nedbank Green Trust project research has demonstrated the need for an educational campaign targeted at consumers and restaurants, the latter requiring more detailed information with a 'menu' of alternative options to single-use items.

APPENDIX 4: WASTE MANAGEMENT BEST PRACTICE FOCUSED ON SINGLE-USE PLASTICS IN THE SOUTHERN AFRICAN HOSPITALITY SECTOR

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Background

The hospitality industry has a vested interest in maintaining a clean natural environment because of the high value its customers place on this, and, as a significant user of resources (energy, water, packaging), it has a responsibility to adhere to sustainability practices aimed at reducing resource use. The United Nations has declared 2017 to be the International Year of Sustainable Tourism for Development (World Travel and Tourism Council [WTTC] 2017).

This study sought to understand the sustainability practices undertaken in the Southern African hospitality industry, with a focus on waste management, particularly of single-use plastics. It wanted to determine whether FTT members were actively working to reduce their packaging waste because of their alignment with responsible tourism practices, and how they ranked against non-members in this regard. It also sought to provide guidance to FTTSA on how best to support its membership in overcoming the obstacles to implementing sustainability practices identified through the study. To this end it conducted a literature review, surveys and semi-structured interviews to determine best practice and obstacles to implementation in the sector. Survey respondents were drawn from FTT members and non-members and were representative of several African countries in the region.

This paper provides an overview of the context, key findings and recommendations for support and further research to support a transition to the reduction or elimination of plastics waste, particularly single-use plastics.

Overview of the industry's economic, social and environmental impact

The global travel and tourism industry contributed 10.2% to gross domestic product (GDP) in 2016 and supported 292 million jobs (WTTC 2017). The growth of the sector is faster than that of the financial and business, retail or transport sectors (WTTC 2017). In Africa, the sector, directly and indirectly, generated about $165 billion in 2016, contributing an average of 7.8% to combined GDP; it is a primary foreign exchange earner for African countries and supports an average 6.5% of formal employment opportunities (about 21 million jobs) on the continent (WTTC 2017).

This study focused on hospitality stakeholders in Botswana, Kenya, Madagascar, Mozambique, South Africa and Tanzania. The significant role that the hospitality industry plays in these countries is illustrated below (WTTC 2017):

- **Botswana:** Direct and indirect contribution to GDP was $1.6 million (10.9%) and to total employment 7.1% (68 500 jobs) in 2016.
- **Kenya:** Direct and indirect contribution to GDP was 9.8% and to total employment 9.3% (1 million jobs) in 2016.
- **South Africa:** Direct and indirect contribution to GDP was 9.3% and to total employment 9.8% (1.5 million jobs) in 2016.
- **Madagascar:** Direct and indirect contribution to GDP was 13.7% and to total employment 11.4% (641 500 jobs) in 2016.
- **Mozambique:** Direct and indirect contribution to GDP was 9.3% ($1.1 billion) and to total employment 8.3% (694 500 jobs) in 2016.
- **Tanzania:** Direct and indirect contribution to GDP was 13.3% ($5.9 billion) and to total employment 11.6% (1.3 million jobs) in 2016.

Globally, the hospitality industry, encompassing all levels of accommodation from bed and breakfasts to hotels, uses a significant amount of resources, particularly energy; efforts are growing to reduce the sector's carbon footprint, water usage and waste levels (Diener et al. 2009). Within the industry, the hotel sector has a more severe impact on the environment than any other commercial building type, except for hospitals (Ball & Taleb 2011). Waste management and energy and water use are key sustainability issues for the hospitality industry (Ball & Taleb 2011). While it is not possible to provide accurate figures for sectoral resource use in Southern Africa as a region, the following examples point to its scale of impact:

- **Energy emissions:** The growing hotel sector currently accounts for about 1% of global emissions (Tourism Partnership 2017). A 2009 World Tourism Organisation study indicated that the accommodation sector accounted for 21% of carbon dioxide emissions from this total (Rogerson & Sims 2012). The hospitality industry spends about $3.7 billion a year on energy, up to 70% of this on electricity (Bruns-Smith 2015). There is significant scope for cost savings through adoption of sustainable energy options, such as solar panels.
- **Water usage:** The average global tourism consumption of water is relatively low at about 2%, but there are significant variances between countries (Becken 2014). European countries typically have high water-use efficiencies (below 200 litres a guest a night) compared to other destinations, such as the Philippines with an average 1 802 litres a guest a night (Becken 2014). The significant variances indicate scope for water-reduction initiatives. There are also issues of water equity; in Tanzania, for example, tourists use an estimated 15 times more water than residents (Becken 2014).
- **Waste generation:** The generation and disposal of waste is the most visible effect that the industry has on the environment; the most common types of waste are plastics, glass, steel, cardboard, food and aluminium (Ball & Taleb 2011). A series of United States-focused studies indicate that catering for the average hotel guest can generate between 1 and 4 kgs of waste a day (Ball & Taleb 2011; Pirani & Arafat 2014). A 2005 study illustrated how much of this could be reduced, reused or recycled to lower levels per guest to 50 grams a day (Ball & Taleb 2011).

This paper focuses on waste generation and management, particularly plastics, in the Southern African hospitality industry.

The implications of poor waste management in the hospitality industry

Solid waste presents significant environmental and economic costs because it reduces the productivity and functionality of critical natural systems and clogs up urban infrastructure (inland waterways and wastewater outflows) (Jambeck et al. 2015).

The 2016 World Economic Forum report states that 32% of global waste, of which 40% is plastic packaging, does not reach, or escapes from, collection systems (UNEP & GRID-Arendal 2016; WEF 2016). Using South Africa as an example, an estimated 56% of waste is mismanaged, does not enter formal disposal schemes (Jambeck et al. 2015), and can end up on beaches and in the ocean, where it breaks down to form tiny particles of micro-plastics, which are ingested by marine life.

The prevailing global methods of production and consumption patterns, as well as waste management and disposal systems drive growing levels of plastic debris (Chen 2015). In South Africa, as in other African countries, there are high levels of non-compliance at many waste dumps or open and uncontrolled landfills (Jambeck et al. 2015). This results in wind and water-borne waste that can pollute land and water ecosystems. In addition, the costs in many African countries to procuring environmentally friendly products and for disposing effectively of waste, particularly plastics, is prohibitive.

There is a significant cost to the hospitality industry, particularly for beach locations, through the loss of aesthetic appeal (Ryan 2009). A 2009 study, for example, estimates that beaches contribute R2 billion a year to South Africa's tourism sector and that R10 million is spent on cleaning up litter on the beaches each year (Ryan 2009). There is no more recent data to illustrate whether the value provided by beaches and the costs to clean them have grown.

A shift to adoption of sustainable practices

There is growing awareness in the hospitality industry of the importance of sustainability to ensure that tourism resources (reserves, beaches, marine ecosystems, etc.) are not degraded or polluted to the extent that they are not available for use by future generations (Ball & Taleb 2011). A clean natural environment is a significant determinant of the attractiveness of a travel destination (Qian & Schneider 2016).

The *Green Hotelier* identifies four categories of customers under the broad groupings of corporate and independent customers (Tuppen 2015). Increasingly corporate customers, including investors, want to understand the carbon footprint of hospitality operators, including energy and water consumption and levels of waste (Tuppen 2015). Civil society organisations and activist groups are also interested in this type of information. Independent customers can be categorised as those who are interested in sustainability if it provides a benefit in terms of improved quality or experience; those who do not want to be bothered with sustainability issues when they are on holiday; and those who are environmentally minded and make their accommodation choices accordingly. The latter is a growing customer base.

Hoteliers have become more proactive since the Rio Earth Summit in 1992 with several large-scale hospitality groupings, such as the International Hotel and Restaurant Association, the International Hotel Environmental Initiative and the American Hotel & Lodging Association, developing environmental guidelines (Ball & Taleb 2011), and undertaking collaborative sector-wide sustainability initiatives. The growth in eco-certifications since the 1990s affirms the sustainability trend in the hospitality industry (Pirani & Arafat 2014).

The business case for adopting sustainability practices

There is a strong business case for adopting sustainability practices in the sector, including that guests are increasingly considering environmental aspects when choosing establishments (Ball & Taleb 2011). There are also cost savings on inputs, reusing and recycling options; reduced environmental risks; brand enhancement opportunities; and legal compliance drivers (Ball & Taleb 2011). Regarding waste, a 2002 study indicates that hotels can reduce the costs of waste disposal by 60% when implementing waste minimisation programmes (Qian & Schneider 2016). Additional benefits include improved stakeholder, including investor, relations (Pirani & Arafat 2014).

While growing consumer awareness is a key driver, guests are also accustomed to convenience and functionality when staying away from home (Ball & Taleb 2011). The adoption of sustainability practices should not compromise the quality of service offered (Rogerson & Sims 2012). Communication of sustainability initiatives plays a significant role in balancing this trade off (Ball & Taleb 2011).

At the global level, it is larger hotels and hospitality groups that are driving sustainable management practices, mostly likely because smaller operators do not have the resources – financial and human – to undertake a transition of this nature (Ball & Taleb 2011). The integrated annual reports of several local public companies, such as the Hospitality Property Fund, Aha Hotel Group, Tsogo Sun and Wilderness Holdings, highlight their sustainability initiatives, with a focus on reducing energy and water consumption, treatment of wastewater and recycling. There is, however, little attention paid to inputs, such as plastic packaging, and innovative ways in which to reduce, reuse, recycle and dispose of them.

Waste management best practice, with a focus on plastics

A 2014 global review of waste reduction in the hospitality industry literature highlighted seven studies on hotels (71%) and restaurants (29%) that ranked waste sorting and recycling as best practice (Parani & Arafat 2014). The United States EPA guide to *Reducing Wasted Food and Packaging* (2015) also identifies key initiatives as do Su et al. (2015) in their comparative work. The scale of waste generation depends on the type of establishment, the activities and facilities on offer, the occupancy rate and the location (urban or rural) (Pirani & Arafat 2014). Its management tends to be determined by the location of the establishments, the types of waste generated and the capacity on-site or in the area to recycle (Pirani & Arafat 2014).

The most significant practices are briefly described below (Parani & Arafat 2014; EPA 2015; Su et al. 2015):

- Recycling on site: collapsing cardboard boxes, crushing glass and aluminium.
- Baling paper and cardboard.
- Reusing, where possible, and donating hotel furniture and equipment when spent.
- Donating leftover food, selling it as animal feed or using it for composting.
- Purchasing in bulk.
- Eliminating drinking straws in restaurants.
- Replacing single-use plastics with durable alternatives that also offer cost savings.
- Initiating reusable bag and container programmes.
- Using returnable packaging or procuring sustainable alternatives.

Most initiatives were found in the United States and Europe (Parani & Arafat 2014). The driving forces for waste reduction in Europe include a sense of environmental responsibility, legislation, the cost of waste handling and disposal, and the costs of carrying excess product (Styles et al. 2013).

In Southern Africa, there are several examples of best practice. Wilderness Safaris is a publicly listed hospitality group operating in eight Southern African countries. It uses its own environmental management standards across the group.

All lodges must comply with these standards, which measure carbon emissions, waste management and recycling, travel-related emissions, operational supply chain, water consumption, materials used and energy efficiency. They monitor adherence closely to ensure they stay at the forefront of the industry in this regard (Wilderness Safaris 2015). The Vineyard Hotel in Cape Town, South Africa reports that it recycles about 95% of its waste (O'Neill 2014). The hotel has an onsite recycling facility accessible by staff and the broader community; it recycles its cooking oil into biodiesel and it collects wine corks and upcycles them into flooring for underprivileged communities (O'Neill 2014).

Spier in Stellenbosch, South Africa, has installed a wastewater treatment plant that recycles 100% of water used on the property, mainly to irrigate the garden and grounds with some used in one of the restaurant toilet systems (pers. coms. Heidi Newton-King). The company planned for its hotel, conference facility, wine-tasting facility and restaurant to be 'waste-free' by 2017 through an initiative undertaken with a local service provider. They reduced the amount of waste sent to landfill to 6 tons in 2016, 2% of the total waste produced on site. Tsogo Sun has recycling initiatives in place at many of their properties although efforts differ depending on the infrastructure available to support recycling. There are plans to standardise recycling and volume across their properties (Tsogo Sun 2016).

The City Lodge group uses Green Leaf certification and tries to recycle as much waste as possible (City Lodge 2015). The Protea Hotel group has various sustainability practices in place to lower levels of water and energy consumption and reuse waste water, as well as in-house recycling initiatives. The group participates in the following recycling initiatives: Sappi, Mondi, Collect-A-Can and Enviroglass – none of which deal with plastics.

<u>Key determinants for adoption of sustainable systems</u>

- **Integrated management and operating systems**: The higher adoption rates of sustainability practices by large hospitality stakeholders would seem to indicate that adoption is more likely when sustainability is embedded in the policies and operational structures of an organisation (Rogerson & Sims 2012). A study in Ghana across 52 hotels found that higher-rated hotels were more likely to implement environmentally friendly practices (Pirani & Arafat 2014), as are chain-affiliated hotels (Rogerson & Sims 2012). Smaller stakeholders often have more informal management approaches that are not necessarily coherently linked to sustainability priorities; adoption at this level seems to be driven by the owner or manager's sense of personal ethics (Rogerson & Sims 2012).
- **Awareness and knowledge**: Raising awareness for the need to implement sustainable systems, and educating management and staff on their use and desired outcomes is crucial. A South African study of the Southern Sun hotel chain indicated that managers had differing understanding of sustainability initiatives implemented by the chain, and different ways of achieving the set outcomes (Rogerson & Sims 2012). A 2016 Zimbabwean study focused on hotel manager's understanding of 'green management' illustrated the diverse understandings of the rationale for adopting sustainability practices, indicating the need for comprehensive education around the context and terminology (Mbasera et al. 2016).

A 2012 study conducted in Gauteng regarding sustainability practices in urban hotels noted the importance of staff training regarding energy reduction, water conservation and the broader implications of adoption of alternatives (Rogerson & Sims 2012).

- **Balanced trade-offs**: A study conducted on the relationship between adopting a sustainable supply chain policy and customers' reactions indicates that hospitality stakeholders will need to balance initiatives against the expected impacts on customer reactions, particularly when guests will be expected to pay a premium (Xu & Gursoy 2015). For example, guests may not be willing to pay for the additional costs associated with switching to locally produced packaging alternatives as much as they would be willing to pay for organic, locally produced food.
- **Effective communication:** Communication plays a key role in enhancing the image of the brand, strengthening stakeholder and community relationships and providing a competitive advantage (Dodds & Holmes 2016). Recent studies indicate that hotels should promote the 'green' image of their offering, and the quality of their 'green' products and services, without falling into the trap of greenwashing (Dodds & Holmes 2016). Larger hospitality stakeholders tend to have more communication channels through which to market their sustainability initiatives, including annual reports, social media channels and newsletters. They, therefore, tend to use sustainability as an additional marketing tool, more so than smaller operators (Dodds & Holmes 2016), who cannot justify the expense of communicating sustainability initiatives when balanced against projected additional customers (Rogerson & Sims 2012). Effective internal communication can also increase employee engagement and loyalty (Dodds & Holmes 2016). These platforms are often neglected as a way of informing, educating and motivating staff to get involved in sustainability initiatives. Platforms include websites, social media, booking confirmation emails, room signs, guest information booklets, television, general media releases and guest interactions (Tuppen 2015).
- **Financial and human capital:** Implementation of sustainable systems can be costly and absorb additional labour hours. This is a deterrent to smaller operators (Pirani & Arafat 2014). In addition, it is often prohibitively expensive in African countries to source locally made sustainable alternatives, for packaging for example. Smaller operators may also need more incentives (regulations, legislation) and/or support, including awareness campaigns, to undertake a transition towards more sustainable operations.

Research approach, methodology and methods

Rationale for the study

As noted, this study is an extension of a current study: Beyond Horizon: Consumer and restaurant/hospitality industry approaches to tackling marine plastic debris, which was commissioned by WWF South Africa's Marine Programme and is funded by WWF Nedbank Green Trust. The study aimed to understand the role that consumers and the restaurant industry could play in reducing and eliminating harmful and non-essential plastic pollutants.[4] FTTSA commissioned The Beach Co-operative to extend the study to incorporate representatives of the Southern African hospitality industry.

[4] For the purposes of this research, harmful and non-essential plastics are considered plastics that have disproportionately large environmental pollution impacts and/or plastics that may be removed or replaced by low-cost alternatives. This includes single-use plastics, polystyrene packaging applications and shopping bags, plastic microbeads and plastic microfibres.

It is assumed that Southern African hotels that belong to a responsible tourism association have a clearer understanding of sustainability, the business rationale for it and are more likely to implement responsible tourism measures (Der Merwe & Wocke 2007). FTT originated in 2001 as a pilot project within the South African International Union for Conservation of Nature (Spenceley & Seif 2003). Its certified tourism products are assessed against criteria derived from the Tourism Product Certification Standard, which include business practice and human resources, community resources, cultural heritage and environmental practice (FTT 2007). The latter focuses on purchasing policies that favour locally appropriate and ecologically sustainable products including building materials, capital goods, food and beverages, where possible. There is also a focus on waste management and packaging.

Understanding its members' level of alignment with waste management best practice would assist FTTSA in supporting its members in this regard.

Research aim

The study aims to determine the current state of implementation of sustainability best practice focused on waste management, particularly of single-use plastics, in the Southern African hospitality industry. An improved understanding of current practice in this regard, as well as implementation challenges and the level of willingness to pay for alternative to plastic products would help industry associations support wider-scale adoption of best practice in this regard.

Research objectives

- To understand what efforts are being made by FTT-certified businesses in reducing and eliminating waste, with a focus on single-use plastics.
- To understand the role played by major South African hotel groups that are not FTT certified.
- To assess the extent to which waste awareness and management is part of current hospitality socio-environmental initiatives.
- To determine:
    - Whether plastics are sorted and recycled effectively.
    - The extent to which cleaning, laundry and guest toiletries are eco-friendly.
    - Whether greywater systems are being implemented and how this water is used.
    - The extent of use of plastic packaging, particularly single-use plastics.
    - Whether a concerted effort is being made to source and use alternatives to plastic packaging.

Research methods

A mixed methods approach was used encompassing a desktop literature review, 33 semi-structured Skype interviews and a survey. The literature reviewed included peer-reviewed publications in scientific journals and grey literature sourced from popular media, including company annual reports and news articles. This secondary data was collated and supplemented with the primary data gathered from the interviews. The survey used in the restaurant study (Engel 2017) was reviewed by FTTSA and amended according to their input.

A sample group was selected based on a list provided by FTTSA of 101 FTT members in South Africa (86), Madagascar (8) and Mozambique (7) and 9 non-FTTSA members, some with operations in several African countries. The response rate was 32% for FTT members (a further 30% follow identical practices) and 22% for non-FTT members. It is important to note that of the FTT members who were not surveyed, 30% were associated with FTT members who completed the survey and referred to practices that all associated members have adopted.

A total of 33 completed survey responses were collected (see table 8): 31 FTT members (25 South African, 3 Mozambican and 3 Madagascan-based operators) and 2 non-FTT members (with operations in South Africa, Mozambique, Tanzania, Botswana and Kenya). The response rate is encouraging because it is significantly higher than the 10% response rate reported in a previous South African responsible tourism study (Van der Merwe & Wocke 2006).

Table 8: List of hospitality businesses and tourism operators surveyed

Name of survey respondent	FTT	Name of survey respondent	FTT
Africa Seolo	Member	Montagu Country Hotel	Member
Aventour Mantasoa Lodge	Member	Odyssea Dive	Member
Bahia Mar	Member	Pakamisa Game Reserve	Member
Bartholemeus Klip Guestfarm	Member	Sani Lodge Backpackers	Member
Calabash Tours	Member	Shamwari Game Lodge	Member
Cape St Francis Resort	Member	Shark Watch SA	Member
Cascade Manor Guesthouse	Member	Spier	Member
Coffee Bean Routes	Member	Stormsriver Adventures	Member
Coffeeshack	Member	The Back Pack	Member
De Zeekoe Guest Farm	Member	The Peech Hotel	Member
Dunes de Dovela	Member	Three Tree Hill	Member
Grootbos	Member	!Xaus Lodge (Transfrontier Park Destinations)	Member
Hotel Verde	Member	Uthando Tours	Member
Iharana Bush Camp	Member	White Shark Project	Member
Jan Harmsgat Guesthouse	Member	AndBeyond	Non-member
Le Paradisier Hotel	Member	Wilderness Safaris	Non-member
Monkeyland	Member		

Limitations to the study

There were several limitations to the study (see table below) that may have influenced the results. These include the limited time contracted to conduct the study. More time would perhaps have supported the gathering of a higher response rate and the extrapolation of findings from the sample to the broader industry, as well as the opportunity to compare data gathered from FTT members and non-members.

Table 9: The challenges related to data capture and recommendations for future studies

Survey layout and content	
Challenges	**Recommendations**
• Survey layout was difficult to follow, even though most interviews were done on Skype or telephonically, and often resulted in sub-questions being missed. • Questions were not always understood by respondents, particularly for non-first language English speakers. For example, there was confusion with words such as patron versus guest. • Not always clear to respondents what type of answer is required: yes/no versus comments.	• Simplify formatting and reduce number of sub-questions within each question. • Use simple and succinct wording to phrase the question. • Provide clarity around the intended response through multiple choice answers with additional space for comments – this also improves the value of qualitative data as it can be categorised and thus analysed more effectively.
Interview process	
Challenges	**Recommendations**
• Conducting interviews over Skype, by telephone or in person provides a good opportunity for respondents to get clarity on each question and for more information to be gleaned by the interviewer; however, it requires more time and there is potential for misinterpretation of answers due to paraphrasing by interviewer or incomplete recording of answers. • Length of survey (45 minutes to 1 hour) meant that many potential respondents were not able to participate due to time constraints during working hours.	• Explore the potential for using an online platform or application such as Survey Monkey, which can be filled in by the interviewer during the interview process. This will also simplify the layout and make data capture more efficient. The completed survey may also be shared with the respondent to ensure answers have been correctly recorded. • Reduce length of survey by simplifying questions – remove/rephrase questions and reduce the willingness to pay section to key questions.
Data capture	
Challenges	**Recommendations**
• The data capture process was time consuming (20–40 minutes per survey depending on the number of questions answered and amount of comments) due to the process of transcribing from Word or PDF documents into an Excel datasheet. • The survey responses often required sorting, simplification, and interpretation due to respondents misunderstanding questions/including extraneous or irrelevant information, and incomplete capture of information.	• Simplify data capture process by either linking Word documents directly to Excel datasheet (requires coding) or using a survey platform such as Survey Monkey. • As mentioned above, provide multiple choice/model answers to ensure that they understand and can answer the question.

Research results and key findings

The literature review highlighted the dearth of international best practice studies on responsible use of plastics, particularly in the hospitality sector. Many studies, however, have focused on food waste and often refer to responsible packaging use, including plastics.

A noteworthy publication is that of the United States EPA's guide to *Reducing Wasted Food and Packaging*, referred to in the first section of this report. Engel's (2017) report on restaurant's waste management practices notes the biggest challenge for uptake of sustainable alternatives to plastic products is the higher cost of reusable or biodegradable options. It also identifies other challenges as inconsistency in regulations and the difficulty in sourcing reliable information on suppliers and these products (Engel 2017).

Several recommendations were made in this regard: activating consumers to reduce their plastic use, improving reuse and recycling systems using financial incentives, encouraging suppliers to select products with less or no packaging, introducing selection criteria for suppliers, and implementing staff training and education sessions, as well as creating dedicated positions to oversee these processes (Engel 2017).

The global best practice findings are not necessarily transferable to the Southern African context. Many hospitality operators are in remote areas and face challenges in sourcing suppliers and products and in the absence of recycling infrastructure and municipality support regarding the sorting of waste.

The findings drawn from the primary data are outlined below.

Regarding sustainability

Drivers of sustainability practices

The main drivers for implementing a sustainability practice code in tourism are mandatory and legal requirements, cost reduction, market advantage as offering a service or customer niche, and corporate values and ethos (Engel 2017).

The table below indicates that most respondents indicated that it was the business ethos that motivated them to adopt sustainability practices. The least influential drivers were the potential to reduce costs and mandatory requirements. In addition, respondents noted drivers such as personal values and their awareness of responsibility, the influence of shareholders, the impact on the community and inspiring positive change in staff and guests as factors shaping their adoption of sustainability practices. The reaction of guests and their participation is viewed as essential to the implementation of sustainability practices. The latter is borne out by a United States guest survey of 120 000 hotels (Bruns-Smith et al. 2015).

Table 10: Drivers of sustainability practices

Sustainability drivers	Rank: 1 (Highest) to 5 (Lowest)				
	1	2	3	4	5
Mandatory requirement	16%	16%	3%	19%	45%
Cost reduction	13%	23%	23%	16%	26%
Market advantage	19%	29%	32%	13%	6 %
Business ethos or values	61%	29%	3%	3%	3%
Other	45%	0%	3%	0%	3%

Capacity and resources to implement sustainability practices

A key constraint to implementing sustainability practices is the lack of internal capacity and resources. Most respondents (68% or 21 respondents), however, indicated that they have a dedicated person who works full-time or as part of their function on implementing sustainability practices. Most respondents (90% or 28 respondents) do not rely on external consultants to assist in implementation, only 7% use external consultants and 3% declined to answer the question.

We need practical assistance. How do I build the business case? What are the logistics? What are the alternatives, where do I get them, how can I get them here?
– Survey respondent

For us to really make a difference we need to know the specific usage of other hotels – water and electricity. Most hotels are aiming to be greener, but don't talk about it.
– Survey respondent

We need training and information support, and access to suppliers. We need the experiences from other hotels, including reviews on reliable products.
– Survey respondent

Communication of sustainability practices

A distinction between internal communication with staff and customers and external communication with the wider public was made. Most respondents (90%/ 28 respondents) communicate their sustainability practices, 6% provide no communication, and 4% declined to answer. Most respondents (55%/17 respondents) communicate their sustainability practices to the public using online media, newsletters and information brochures (48%/15 respondents). Only 13% (4 respondents) use annual integrated reports, which may be attributed to the small number (6%) of listed companies, which commonly use this channel, included in the survey sample.

Sustainability, greenness and the environment are the main reasons the guests want to return. We are not a hotel with green principles, we are a green hotel. But communicating on these aspects adds to costs.
– Survey respondent

Most respondents focused internally on communications with staff (87%/ 27 respondents) and patrons (77%/24 respondents), but were less effective at communicating to the wider public (55%).

Our work focuses on sustainable practice regarding local sourcing, which we have to explain to our guests. It takes a lot of energy, but is a great way to spread the word.
– Survey respondent

Table 11: Extent of internal and external communication

External sustainability communication	Response rate		
	Yes	No	Declined to answer
Annual integrated report	13%	16%	71%
Newsletter & information brochure	48%	4%	48%
Online reports	55%	10%	35%
Other	10%	3%	87%
Internal sustainability communications			
To staff	87%	3%	10%
To patrons	77%	4%	19%

Regarding waste management

Very little literature is available on waste management in the hospitality sector despite this being a key feature of environmental management and critical to developing a sustainability strategy (Pirani & Arafat 2014). Survey respondents were asked to list the composition, not volume, of waste generated.

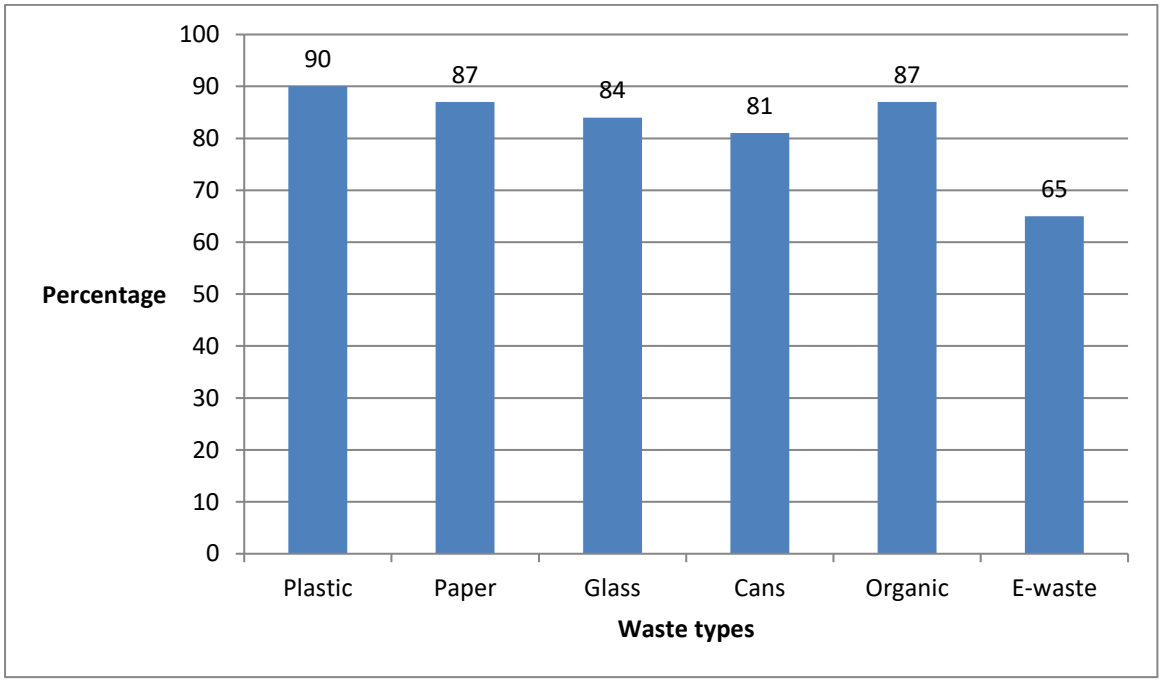

Figure 29: Waste management practices: Internal and external sorting and types of waste sorted

Many (84%) of survey respondents sort waste internally, which suggests that sufficient resources are available to do so internally; however, 55% also use an external service provider for this function, which perhaps indicates that on-site sorting practices are ineffective. More than 80% of all listed waste types are recycled by respondents.

Regarding wastewater and product choice

Wastewater can negatively affect natural water systems often resulting in marine pollution. Reuse of water is becoming an integral part of sustainability practices in responsible tourism.

The criteria used (such as cost, quality and accessibility) to select products (for cleaning, laundry and guest supplies) may significantly impact the ability of businesses to acquire effective environmentally friendly products. This, in turn, affects the ability to establish water-saving systems, such as greywater recycling. In greywater systems, the water used for showering and bathing is collected and treated through ultra-filtration membranes or microbial aeration and recirculated on the property for non-potable use, including for flushing toilets, irrigation and laundry.

- Most respondents (58%) have installed greywater systems, but are mostly recycling water for irrigation purposes only. Almost a third (29%) did not have a greywater system in place and 13% declined to answer.
- The main criteria used for choosing eco-friendly products are the quality, cost, accessibility, effectiveness and source (local versus imported).

Regarding waste awareness programmes

Respondents were asked to describe any environmental initiatives or awareness programmes that they had initiated or were involved in, whether these were targeted at specific age groups or demographics, and whether waste management and awareness education were included.

- Most respondents (82%) were involved to some extent in environmental and community development initiatives.
- Only 32% focused on specific demographics and age groups.
- Almost half (48%) implemented initiatives that raised awareness of waste and educated on waste management.

It would helpful if there was a way that the hospitality industry, led by FTTSA, could identify common themes and share how these are being dealt with.

– Survey respondent

Regarding single-use plastics and packaging items

The figure below indicates the wide variety of single-use plastics and packaging items used in the hospitality industry. Respondents ranked their most-used items: water bottles, tinfoil, plastic cling wrap, straws and condiment sachets.

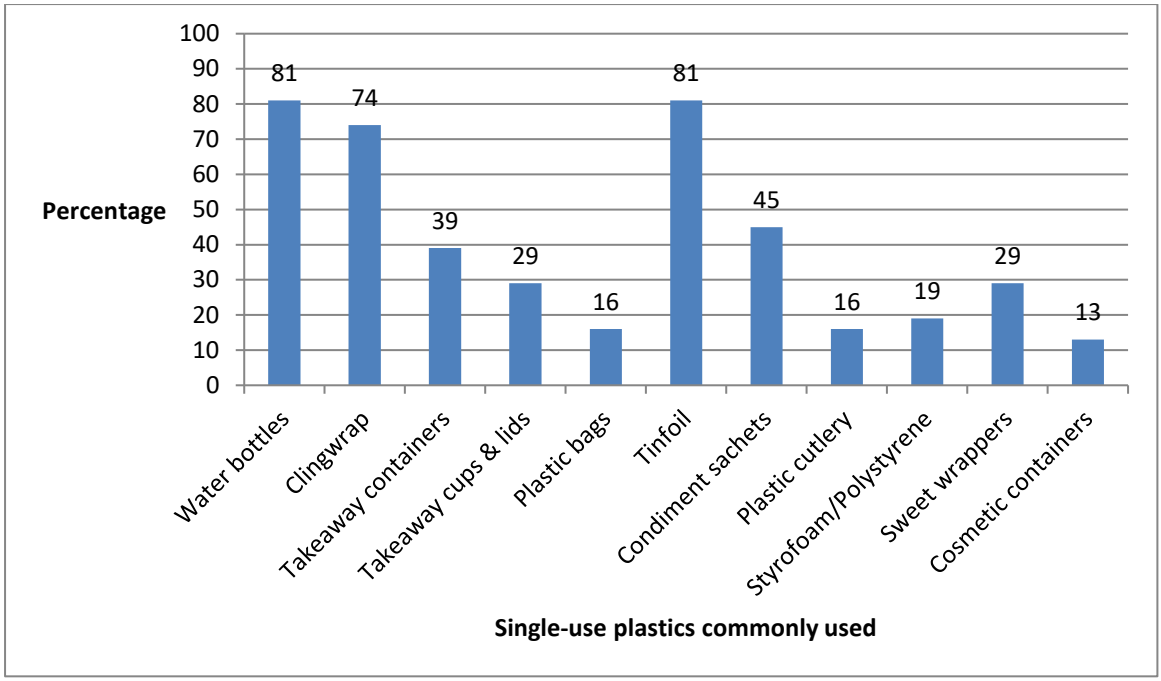

Figure 30: Use of single-use plastics in the hospitality industry

Willingness to pay for alternatives to single-use items and plastic packaging materials

Alternatives to plastic packaging and single-use items are increasingly available and there is a growing number of quality and cost-effective and -saving options (such as durable reusable containers) on offer.

Respondents indicated their willingness to pay for these alternatives by answering yes or no to a list of alternative packaging products, which included straws, coffee cup lids, takeaway containers, carry bags, reusable cosmetic containers and refillable condiment containers. Respondents were also asked to indicate their willingness to pay for water purification systems to reduce plastic water bottle usage.

The highest response was for alternatives straws (55%), water purification systems (55%), refillable condiment containers (48%), alternative bags (39%) and alternative lids (32%). These figures include respondents that have transitioned and those willing to transition to more sustainable options.

There was a high proportion of respondents who declined to answer this set of questions (an average of 55%). They possibly were unable to answer due to a lack of information on pricing, procurement and alternative options.

Table 12: Willingness to pay for alternatives to plastic packaging, single-use items and water purification systems

Willingness to pay	Response rate		
	Yes	No	Declined to answer
Alternative straw: Paper | Glass | Bamboo	55%	6%	39%
Alternative lid, no lid or BYO lid	32%	0%	68%
Alternative takeaway container	35%	0%	65%
Alternative bag	39%	3%	58%
Reusable cosmetic containers	19%	3%	74%
Refillable condiment containers in Rooms	48%	0%	52%
Water purification system	55%	16%	29%

Enabling conditions to implement alternatives to plastic packaging

Survey respondents were asked to list the key areas of support they needed to adopt and implement use of packaging materials with a lower environmental impact than single-use plastics. Their responses have been summarised into four categories.

- **Alternatives to bottled water:** Respondents found it difficult to find water (either in tins or bottles) at a reasonable price; they were unsure of what alternatives there were; and had safety concerns regarding glass bottles. For example, use of glass bottles on boats, which also do not have space for a water dispenser.
- **Information on alternatives and reliable suppliers:** Respondents noted that they needed access to and sharing of product information, alternatives and other ideas. The source should be local and there should be a choice available. They also noted the need for assistance in building the business case for use of alternatives. The reliability of suppliers is a significant determinant for adoption of alternatives to plastics, single-use plastics particularly.
- **Training material for staff:** Respondents noted the need for internal and external training programmes to raise awareness among staff and provide them with the necessary information to support a transition. Some mentioned the need for economic and logistical support in this regard.
- **Knowledge sharing platforms:** Respondents indicated that it would be useful to share information between hospitality operators, particularly recommendations for useful products.

  They noted that it would also be helpful to have an accurate benchmarking of what hospitality operators are doing – including specific usage figures. The need to identify and share common themes and learnings between all hospitality operators was also raised, as was the need to raise awareness along the supply chain.

The ratio of FTT to non-FTT members surveyed was not significant enough to provide accurate comparative data; however, this preliminary survey indicates that there is no noticeable difference in sustainability efforts between FTT members and non-members. This is possibly because both non-FTT members were listed companies and thus documented their sustainability efforts in their integrated annual reports. More in-depth research would need to be conducted to determine differences across scales of operation.

It would possibly be easier at first to work with smaller FTT members because they have less complex decision-making structures.

Conclusion

Sustainable tourism is a growing trend in the hospitality industry. This sector tends to be a significant contributor to global, regional and national GDPs; it is also a significant user of resources, particularly energy.
There is growing awareness of the impact that waste, particularly plastics, has on land and marine-based ecosystems and there is significant scope within the Southern African hospitality industry to reduce its resource intensity.

This paper sought to understand the level of alignment with best practice in waste management, with a focus on single-use plastics, and how best to motivate and support a transition to a lowered or zero single-use plastic consumption rate in the industry, particularly for FTT members. Industry associations such as FTTSA, the South African Tourism Service Association and the Federated Hospitality Association of South Africa do and can play a more significant role in improving adoption of sustainability best practice, particularly regarding waste management, in the Southern African hospitality industry.

Key findings of this study indicate that the ethos of the business and values of management are key drivers for implementation of sustainability best practice. This would seem to indicate that membership of an association such as FTTSA can play an important role in motivating and supporting the transition. Potential avenues that could be explored include establishing a sustainability focused platform that provides the necessary context and motivation for change and collates alternatives to plastic product information, lists reputable suppliers and provides a space for the exchange of knowledge.

There is keen interest and action taken to recycle waste, often on site. Some operators face challenges in this regard due to their remote locations or lack of municipal support. Providing information on alternative reducing, recycling and reusing strategies could play an important role in supporting the transition for this group. There is a clear need for research on suitable alternatives to common products used in the hospitality industry, such as plastic water bottles. While respondents indicated an understanding that there could be cost implications to transitioning, and some indicated a willingness to pay for products with lower environmental impacts, there is a need for more detailed cost benefit analyses to inform procurement practices in this regard.

The key research gaps, recommendations for best practice implementation and support measures are outlined below.

- Analysis of the costs and benefits of alternatives to plastic products, including water bottles, straw and disposable coffee lids.
- Exploring best practice in the Southern African hospitality industry across a range of sustainability themes, such as recycling, wastewater treatment and communication practices regarding sustainability, etc.
- Undertaking a cost-benefit analysis of new product development using waste products that are applicable to the hospitality industry.

- Investigating the role that social media can play in encouraging and supporting a transition to use more environmentally friendly alternatives to plastics, particularly single-use plastics.
- Producing guidelines for building a business case for sustainability best practice implementation.
- Identifying survey designs that are applicable across multiple contexts, and that use accessible language to cater for cultural and educational differences.
- Explore consumer experiences and perceptions regarding sustainable waste management in the hospitality industry.
- Developing an advisory service for developing recycling enterprises, an incentive system/grant for waste management.
- Producing a comprehensive guide on sustainability communication for the hospitality sector.
- Design a platform for sharing information and lessons learnt among FTTSA members or the broader industry related to sustainability best practice, approaches, suppliers and products.
- Draft training materials for staff and management in this regard.

The respondents, both FTT members and non-members, have contributed to a deeper understanding of the mechanisms needed to support a transition to sustainable waste management practices in the sector. This report has informed further research needs, best practice and necessary support measures. These will be taken forward by FTTSA in 2017 to enhance its role in setting the benchmark for sustainability practice in the tourism and hospitality sector in Southern Africa.

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