Trashing New Zealand:

A Critical Evaluation of Food Waste Management Discourses in

New Zealand and their Implications for Sustainable Development

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Abstract

Food waste is an issue that transcends state borders and governments increasingly recognise as imperative to address. However, in New Zealand, this concern has not necessarily translated into adequate political commitments on the part of both central and local government to reduce the generation of food waste production. In fact, New Zealand has one of the highest levels of municipal waste production per capita amongst the Organisation for Economic Co-operation and Development (OECD) countries (OECD, 2018). It is estimated that the annual value of food waste produced in New Zealand is approximately NZD $1.8 billion. More fundamentally, the issue of food waste with its implications for environmental, social and economic sustainability, poses a significant challenge to New Zealand's commitment to the United Nations sustainable development goals.

This thesis examines dominant food waste discourses by researching food waste policy and practices in New Zealand. It draws on an analysis of documents and in-depth semistructured interviews to study policies at the national level and undertake a case study of a local food waste programme. The research focuses specifically on the discourses that inform food waste action in New Zealand and how the way in which food waste is positioned affects food waste reduction efforts.

This study uses a discourse analysis approach to analyse the principal waste document of New Zealand, the Waste Minimisation Act. This approach, grounded in the work of Fairclough, allows for a critical study of both written and spoken text. Applying this method reveals the way in which food waste is conceptualised in New Zealand by exposing the framing and dominate discourses that privilege certain waste disposal and responsibilities over others.

A case study methodology was used to underpin this research. This method allowed for comparisons between central government representations and awareness of food waste and those that existed within a very waste-

conscious community where food waste reduction is a priority. Alongside the discourse analysis and case study, a sustainable development framework of analysis was developed to evaluate the dominant food waste discourses that were identified by the analysis.

This study contributes to scholarship on food waste minimisation and management in New Zealand by identifying how dominant food waste discourse influences political efforts aimed at food waste reduction. The findings show how little food waste features on the political agenda of central government, which, in turn, hinders what can be achieved at the local level. This study underscores the need for a central government-led, long-term vision for a comprehensive food waste policy that targets all actors involved in the food chain, in order to reduce the amount of food disposal sent to landfill.

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Chapter 1: Introduction

Food waste has recently been given increased political attention in New Zealand, as, at the end of 2018, the government's Environmental Select Committee began an investigation into food waste. This move represents a potential commitment from government to elevate the importance of the food waste problem on the political agenda and to give focused attention to finding solutions to the issue moving forward into the future. The increased political attention signals an auspicious moment at which to conduct a comprehensive study into food waste in New Zealand, in order to understand how the problem is framed politically and locally and how these representations of food waste influence the management of the issue. In this way, my research seeks to draw out the often taken-for-granted discourses surrounding waste minimisation and to look at the implications and effects of these discourses on people and policies.

This chapter begins with sketching the background and context to the issue of food waste, with specific attention to some key statistical evidence of the problem in New Zealand. I then illustrate how sustainable development has emerged as a discourse which the United Nations has employed as a framework in the creation of its Sustainable Development Goals (SDGs). Against this context, I introduce the three main research questions, discuss the significance of the study, and end with an overview of the rest of the thesis.

Background

One third of all food produced for human consumption ends up in landfill and generates around 1 billion tonnes of wasted food per year (Siren, 2013; Food and Agriculture Organization of the United Nations, n.d.). As of 2013, 122,547 tonnes of food were purchased in New Zealand but not consumed and ended up in national landfills (Reynolds, Mirosa, & Clothier, 2016). The New Zealand Ministry for the Environment estimates that household food and plant matter make up 1

million tonnes of the overall waste sent to landfills per year[1] (Ministry for the Environment, n.d.). A further study conducted by the Ministry for the Environment highlights that organic waste (of which food is a large component) has been increasing since 2002; in 2011, 61% of food waste generated in New Zealand was at the household level. Thus, while waste generation differs greatly between regions, the production of organic waste, of which food constitutes a large part, remains one of the highest categories. It is organic waste in particular which has the biggest potential to be disposed of through alternative methods such as being used as animal feed and compost or used in biofuel production (Siren, 2013).

Food waste is a topic of interest in the media. Online articles published by some of the most well-known news media sources including *The New York Times*, *The Guardian* and *The Telegraph* (Sengupta, 2017; Ratcliffe, 2018; Knapton, 2019) have highlighted and continue to highlight the problem of global food waste. In 2017, *The New Zealand Herald* published a report entitled "Kiwis waste $1.8 billion of food a year". By highlighting only one particular individual component of waste production, i.e., purchasing and consuming behaviour, as the reason why food ends up in landfill (Shaw, 2017), the implicit narrative of this article identifies consumers as the main cause of the problem, while other contributors such as factors which occur during the food production and distribution chain are not highlighted. Similarly in the United Kingdom, food waste research conducted by the Waste & Resources Action Programme (WRAP)—an agency set up by the United Kingdom government to help advise on diverting waste from landfill— between the years 2007 to 2009, not only placed the United Kingdom as the leaders of extensive food waste research, but also produced a flurry of media coverage informing the United Kingdom public that it is was responsible for throwing away 5.3 million tonnes of edible food a year (Exodus Market Research, n.d.).

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[1] This was closely followed by 600,000 tonnes of paper and cardboard and 220,000 tonnes of plastic

As shown below, although this study was conducted in the United Kingdom, its results went on to inform the New Zealand government (Love Food Hate Waste, n.d.). Key findings from this study highlighted that the most significant reason for disposing of food was when it had passed its 'best before' or 'use-by' date. Preparing and cooking too much food was also identified as a significant culprit in generating waste; however, the majority of households were reportedly in denial about the amount of waste being disposed of. Such a finding demonstrates a major difficulty in preventing the production of food waste by consumers. Many of the study's participants, for example, did not consider inedible parts of food such as cores and fruit and vegetable peelings as waste (Exodus Market Research, n.d.). This research shows not only that there is low consumer awareness of the quantity of food ending up in landfill and that this lack of awareness perpetuates the problem of food waste, but also that there is a disconnect between consumer actions and consequences. The results of this study led to the Love Food Hate Waste campaign in the United Kingdom, which was also replicated in New Zealand and officially launched on the 1st of June 2016 (Love Food Hate Waste, n.d.). The campaign's primary aim is to improve consumer awareness around food waste management strategies.

The New Zealand government's Environmental Select Committee, as stated earlier, is investigating the issue to generate possible recommendations for future actions (New Zealand Parliament, 2018). The committee plans to discuss the issue with relevant stakeholders including business and individuals, in the hope of "find[ing] workable ways of preventing, or at least reducing, food loss and waste". So far, the committee has contacted 30 organisations and individuals who are involved in the food sector or who have links to food waste in some way. The submissions made by some of these stakeholders have already been published and are available online. It is thus an opportune moment to carry out an in-depth analysis of the issue. This study has the potential to inform the Select Committee and, therefore, central government on the implications of food waste discourse for the overarching goal of sustainable development, as well as

highlighting the potential of alternative food waste disposal methods such as those detailed in the case study component of the thesis.

A reduction of food waste is endorsed by the United Nations. Most notably, the United Nations developed 17 SDGs in 2016 to help ensure that over the next 15 years governments around the world made decisions that met both the needs of people and the planet (United Nations, 2016). The United Nations identified the three overlapping aspects that make up a prosperous society: economic growth, addressing social needs including health care and education, and environmental protection. These elements need to work in harmony to create a sustainable future. Goal 12 "Responsible Consumption and Production" is significant in terms of addressing food waste (United Nations, 2016). According to this goal:

> Sustainable consumption and production are about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty (United Nations, n.d.).

The third objective of goal 12 directly focuses on food waste; the target is "by 2030, [to] halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" (United Nations, n.d.). The United Nations emphasises that, in order to successfully achieve this objective, the process must involve and consider all stakeholders including consumers, policy makers, businesses, and many others. Sustainable development as a discourse acts as a reference point and provides a fundamental rationale against which the discourses are evaluated. The discourse itself is, in some ways, a contradictory discourse which is why I will be drawing upon ideas of both 'strong' and 'weak' sustainable development to capture the range of meanings and actions that are possible within the concept of sustainable development. Consequently, current perspectives and actions targeting food waste in the New Zealand context can be

assessed against a discourse which frames the United Nations' SDGs and which can offer significant insights into effective ways of addressing issues which overlaps across the economic, social, cultural, and environmental aspects of human society.

Defining Food Waste

The definition of 'food waste' used in this research is taken from the Food and Agriculture Organization of the United Nations (FAO). It is important to distinguish between the terms food waste and 'food loss' and so, for the purpose of this research, both food waste and food loss are considered. The FAO defines food waste as any food intended for human consumption that is "wasted throughout the supply chain, from initial agricultural production down to final household consumption" (FAO, n.d.). Food waste, therefore, includes food scraps that originally formed a part of edible food, but that are usually removed, such as potato peelings. Food that is fit for human consumption, but does not end up being consumed because it is purposefully discarded or left to spoil is also considered to be waste. Thus, the decision to waste food is more of a voluntary and behavioural one, for instance, disposing of fruit if it is considered 'imperfect' in appearance (FAO, n.d.). While food waste is part of food loss, the distinction between the two is important. Food loss refers to all food that is intended for human consumption but is not eaten; both voluntary and involuntary actions lead to this loss. For example, food loss includes food that is spilt or spoilt before it becomes part of a final product or before it reaches the retail stage. Such food losses are usually an unintended result of an agricultural process or technical limitation in storage, infrastructure, packaging, and/or marketing (Lipinski et al., 2013). For example, in the production phase and the first step of the supply food chain food is subject to circumstances which are beyond the farmers' control. These include weather conditions which are nondeliberate in nature (Franke, Hartikaninen, Mogensen, & Svanes., 2016). Thus, food loss typically occurs at the production, storage, processing, and distribution stages in the food supply chain and food waste typically takes place at the retail and consumption level (Lipinski

et al., 2013). In this study, both definitions will be considered together as an overarching definition of food waste, as it is clear that all steps in the food supply chain contribute to the loss of edible food right through from the phases of primary production to what occurs after the point of sale.

Aim of the Study

This thesis examines the initiatives to address food waste within contemporary waste minimisation and management policies in New Zealand and particularly those in the Waikato District. The goal is not only to understand the nature of food waste policy and the discourses that shape action at a national and local level, but also to evaluate whether these food waste discourses are consistent with a sustainable development discourse.

Despite the significance of this topic, little research has been conducted in New Zealand on this issue from a critical perspective. My research attempts to address this gap by critically examining food waste management practices in New Zealand using discourse analysis. I examine the way food waste has been constructed in dominant discourses and, in doing so hope to expose the inconsistencies between different sectors and the power of politics. A discourse analysis was key in identifying both the discourses present within central government and those at the local level. The discourses that were analysed came from two major sources: 1) the national policy on waste minimisation and 2) interviews with participants in the case study. These included members of the Waikato District Council, Xtreme Zero Waste in Raglan, and the Go Eco environment centre in Hamilton.

Research Significance

There is a lack of political action in the area of food waste in New Zealand. However, with the SDGs' target date of 2030 just over a decade away, action at the political level is key to ensuring that consumers, as well as business and industry, are playing their part to ensure a more sustainable environment and are working towards the goal of halving global food waste by 2030.

While there has been research into waste minimisation in general, including that of food waste, there is little scholarship on food waste from a critical perspective. This research will add to the growing scholarship in New Zealand by delving deeper into what is driving the phenomenon of increasing food waste production. My preliminary review of the scholarship (see e.g., Priefer, Jorissen, and Brautigam, 2016; and Riccu-Jürgensen, 2014) revealed that there has been increased political effort within the food waste space in the United Kingdom and in West European and Scandinavian countries. I believe that New Zealand also has the opportunity to be at the forefront of developing political initiatives which address and develop successful food waste minimisation policy.

Thesis Overview

This introductory chapter has provided a brief overview of what food waste is and documented some information on its existence in New Zealand. I have briefly introduced the role that the sustainable development discourse will play in the study and indicated that it will later be used to establish the theoretical framework that guides the discourse analysis approach employed in the study.

Chapter two provides a background on current scholarship around food waste and, in particular, the current actions available to address the issue and how it has been shaped as both an individual and systemic problem. I also introduce in further detail the United Nations SDGs. I first present a brief history of their creation and then, focusing on food waste, look at the current evaluation of the progression towards goal 12 and its food waste reduction target.

Chapter three presents a detailed framework for the study. This chapter outlines the key concepts inherent within a weak sustainable development discourse and a strong sustainable development discourse.

I explain my use of qualitative methodology in chapter four and then discuss how I have approached my research using discourse analysis to examine the in-depth semistructured interviews and relevant documents that underpin

my case study. In this chapter, I explain the rationale for using these methods and reflect upon and offer a considered critique of these techniques.

Chapters five and six present the findings of the study. The first of these substantive chapters—chapter five—outlines the institutional context within which food waste minimisation initiatives occur and examines the discourses present within central government policies. Chapter six then moves on to describe the Raglan case study in detail and to examine the perspectives of food waste in the interview data. Both these chapters include an evaluation of these findings against the weak and strong versions of sustainable development set out in chapter three.

The concluding chapter—chapter seven—provides a summary of the research project as a whole. The chapter also provides a brief discussion on the implications of the research for future policy prospects and sets out possible avenues of further research which would help to further strengthen the arguments made in this thesis.

Chapter 2: Food Waste and Sustainability: A Review of the Literature

Chapter Overview

This chapter presents a thematic review of literature relating to the issues of food waste. The literature review begins by considering the United Nations Sustainable Development Goals, with a focus on the implications and importance of goal 12 in terms of addressing food waste. It then examines the current food waste policies and initiatives in New Zealand, while also highlighting some of the more effective global initiatives. Thereafter, I turn my attention to food waste accountability and examine debates regarding the systemic and individual dimensions of food waste production. Drawing on Maniates (2002), I discuss the term 'individualisation of responsibility' and how this concept leads to a depoliticisation of environmental problems, which places significant responsibility on the consumer without challenging or questioning the larger political and societal structures in place. Next, the chapter examines the local context of Māori perspectives on sustainability. In doing so, the differences between Māori and Western ways of thinking about the environment are highlighted. By bringing in literature on indigenous knowledge, my research is grounded in the New Zealand context in that it stresses how different and potentially more sustainable management methods informed by Māori ways of thinking exist. Finally, I introduce the concept of sustainable development as a framework to help guide my analysis. The idea of sustainable development is developed further in the following chapter to provide a theoretical framework. The chapter ends with a short summary of the literature, discusses the importance of the SDGs, and introduces the research questions that guide this study on food waste discourse in New Zealand.

Sustainable Development Goals

In 2015, the United Nations launched 17 sustainable development goals (SDGs) as part of the 2030 Agenda for Sustainable Development (United Nations, n.d). These goals represent a call for global action between nations and a commitment on the part of all stakeholders including government, civil society, and the private sector to partner together to learn about , share, and implement sustainable change (United Nations, n.d.).

These goals provide a fundamental framework for governments, business, industry, and civil society around the world through which to create more sustainable and holistic policies and practices for a safer and healthier environment and global society. The 17 goals are closely linked in that decisions made in one area will affect those in others. For example, improvements in health and education, the reduction of inequality, and the growth of the economy do not exist in isolation from one another. My research, with its focus on food waste, will consider the implications of wasted food on the goal of sustainable development and will critically examine dominant discourses on this issue in New Zealand at two distinct levels in order to uncover the way food waste in positioned in New Zealand. I also consider whether actions aimed at reducing this form of waste are in line with the aims set out by goal 12 of the United Nations SDGs, which has a specific food waste target.

The SDGs are wide-reaching in scope and deal with very serious issues. Challenges such as ending poverty, the first of the 17 SDGs, will require, among many other changes, a change in consumption practices—especially in the developed world. More sustainable production will also be needed to preserve natural resources and a universal sharing of resources in order to allow nations to implement such actions. As scholars have pointed out, "unless such changes occur, the ongoing population and economic growth will only increase the planetary pressure and escalate social exclusion and inequality" (Caiado, Filho, Quelhas, Nascimento, & Avila, 2018, p. 1284).

The execution of these 17 goals relies on strong communication, powerful advocates in both the public and private sector, and a strong framework to help those with decision-making power to develop initiatives and policies that better deal with sustainability challenges (Caiado et al., 2018, p. 1284).

The interdependency between what are commonly referred to as the three pillars of sustainable development- the economy, the environment, and the social dimensions of human life-are a significant aspect of all 17 SDGs. The economy has been and continues to be the dominant focus of political systems, which are often dominated themselves by large companies which can influence decision making. Thus, the way in which society operates must undergo serious changes in order for the SDGs to be fulfilled, as all 17 goals require equal acknowledgment of and emphasis on the economy, the environment, and society (Caiado et al., 2018).

The extensive number of issues ranging across the environmental, economic, and social aspects of the SDGs are significant in that focus in one area will influence others. Given that there are 17 goals and 169 targets, all of which are targeting the most complex challenges humankind faces today, the differing nature of the SDGs will create conflicting results when achieving or attempting to achieve them simultaneously (Pradhan, Costa, Rybski, Lucht, & Kropp, 2017). These conflicts have been described as 'trade-off' and 'synergies'. The former indicates where progress in one goal hinders progress in another, whereas the latter represents a situation where progress in one goal favours progress in another (Pradhan et al., 2017, pp. 1169-1170). With regard to SDG 12 (responsible consumption and production), the most significant goal for this study into food waste, Pradhan et al. (2017) discovered that SDG 12 ""is largely linked with [the] most problematic trade-offs among others" (p.1177). Thus, the implementation of actions that encourage responsible consumption and production are in direct conflict with most other SDGs. This is significant in that the repercussions of acting on the targets of one goal may, in fact, impede on another goal. One explanation for this conflict may lie in the traditional nonsustainability development paradigm that exists within developed countries.

Their focus on economic growth and the higher levels of material consumption also create larger environmental and material footprints and simultaneously result in increasing greenhouse gas emissions and food waste (Pradhan et al., 2017, p. 1174). Batalhone and Delphine (2018) argue that "as economic growth accelerates, unsustainable consumption and production patterns exacerbate inequality and natural resource depletion" (p. 14) and, therefore, that only the economic pillar of sustainable development is being met. Thus, for SDG 12 to be achieved, policies need to focus on a transformation that includes substantive changes to our modern day lifestyles, in order to attain coherence between policies that tackle other challenges presented by the SDGs (Tosun & Leininger, 2017, p. 3).

Goal 13, which urges the taking of "urgent action to combat climate change and its impacts", may be considered to be the most vast and significant of the SDGs, because the state of the environment impacts on all aspects of life, and, therefore, the remaining 17 goals. The effect of food systems on climate needs to be addressed, with goal 12 providing a separate set of targets that, when addressed in policy, will have positive impacts in the area of climate change. For example, target 12.3's aim to "by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" (United Nations, n.d.) is significant in that food waste contributes to greenhouse gas emissions and accounts for around 8% of emissions caused by humans (World Wildlife Fund, n.d.), and therefore has direct implications for climate change (Ministry for the Environment, 2019). Food disposed of in landfill emits carbon dioxide and methane, both of which are significant greenhouse gases. Allan, Hewitt, Moult, and Berners-Lee (2018) argue that, when considering the dangerous effects of greenhouse gas emissions, disposing of food into landfill should not be an option. They state that "disposal to landfill is the worst available option for all foods" (Allan et al., 2018, p. 56) and call for increased participation in alternative food waste methods such as food banks and redistribution charities for edible food waste. Moreover, as Xu, Li, Ge, Yang, & Li (2018) note, there is also the potential

for inedible food to be converted to animal feed or broken down in an anaerobic digestion system (Xu et al., 2018).

In terms of SDG 12, the ability to change the status quo of consumption and production patterns requires a concerted effort not only among governments and international bodies with policy power, but also on the part of business as a consumer of products and resources and as a creator of rules and practices in the market. Any action toward achieving goal 12 needs to consider the way in which natural resources are used to produce consumer goods and food, with an emphasis on reducing carbon emissions, waste, and other forms of pollution in the process of production. Academics such as Batalhone and Delphine (2018) and Girod, Vuuren, and Hertwich (2014) acknowledge that transformative change is needed. Such a shift will require policy decision makers to employ technological, scientific, ecological, economic, and social changes. At present, there seems to be a dearth of long-term goal solutions. Furthermore, short-term policies producing marginal improvements are not adequate enough, if the SDGs are to be fulfilled by 2030 (Girod et al., 2014).

Scientific knowledge needs to be both easily transmitted and comprehensible for policy decision makers in government. In addition, this sort of knowledge needs to be freely accessible internationally, in order to inform better decision making on sustainable development policies by states, which can lead to reaching the SDGs (Girod et al., 2014).

Although this sharing of knowledge between fields is key in developing effective policy, Giddings, Hopwood, and O'Brien (2002) highlight the importance of uncovering the wider political issues that impede progress towards sustainable development. Thus, technical solutions such as pollution control and taxation, which can often be implemented quickly and, therefore, produce an image of a progressive government, cannot replace the need to tackle the deeper issues of society, such as inequality, poverty and climate change, which will require potentially harder solutions and will take longer to actualise (Giddings et al., 2002).

As already noted, the third target of goal 12 is to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030. This target links directly to my research. However, although the significance of the issue of food waste is large for both developed and developing countries, the amount of academic literature which focuses specifically on goal 12 is, as yet, relatively small. Nevertheless, as Batalhone and Delphine (2014) point out, goal 12 attempts to minimise environmental degradation through modifying the way in which we use resources, produce goods, and reduce waste generation, and in doing so, has the ability to increase long-term economic growth and human development, both of which are undermined through environmental degradation. They argue that SDG 12 "occupies a pivotal position within the SDG landscape" (p.15). SDG 12 is a goal which relies not only on partnerships between politics and business, but also on the acceptance and participation of the public. It is, therefore, necessary to implement sustainable consumer behaviours, which target 8 of goal 12 suggests can be achieved by ensuring the relevant information about sustainable development and climate change is presented to the public and by becoming part of mainstream education through national education policies and school curricula (United Nations, n.d.).

In early 2018, experts in sustainable consumption and production took part in a two-day meeting convened by the United Nations Department of Economic and Social Affairs to discuss the progress made on SDG 12. The discussion had a specific focus on climate action, ocean action, plastic pollution in the ocean, food loss and waste, and sustainable transport. The participants concluded that SDG 12 has been the least funded SDG and recommended the need to highlight the connection between food waste and other sustainability issues, in order to mobilise increased action. They suggested that the lack of attention given to the issue of food waste may be due to the fact that it is often perceived as a first-world problem and, therefore, not as important to address. The participants also highlighted the need for increased public outreach on the issue, increased measuring and monitoring through the food waste index led by

the United Nations Environment Programme (UNEP), and more global effort to divert food waste from the general waste stream. They also highlighted the importance of presenting the benefits of food waste reduction to governments, as reducing this type of waste decreases overall waste sent to landfill and, therefore, creates a reduction in overall landfill cost (Lipinski, Clowes, Goodwin, & Hanson, 2017).

SDG 12 has also brought about the creation of Champions 12.3, a coalition of various stakeholders including people from government, business, research institutions, and civil society. This group of senior executives drawn from these fields focuses specifically on target 12.3. The group's aim is to reduce global food waste and it is supported by the Government of the Netherlands and the World Resources Institute. Since 2016, Champions 12.3 has released progress reports on food waste and loss; these are freely available online. The latest 2018 report highlights the most recent progress made since 2017 in terms of targets that have been set by governments, and current measurements of global food waste that highlight patterns, and why, how much, and where food is being wasted. In addition, the Champions consider the action taken to prevent food waste around the world; however, the results of these actions are varied. At present, governments that have set specific food waste reduction targets represent 30% of the world's population. Countries that have set targets include Australia, Japan, and the United States. Other highly populous countries like China and India have yet to set targets that align with SDG target 12.3. The 2018 report highlights that the private sector has become increasingly invested in reducing food waste with "nearly two-thirds of the world's 50 largest food companies now participating in programs with a food loss and waste reduction target" (Flanagan, Clowes, Lipinski, & Goodwin, 2018, p. 28). In terms of measurement, the 2018 report suggests that there has been a lack of action with regard to measuring food waste and food loss, even though measurement has increased since 2017 "with 16 of the largest 50 food companies now measuring food loss and waste within their operations" (Flanagan et al., 2018, p. 20).

In line with the discourse of sustainable development, the report highlights the increase in collaboration and partnerships, especially between the public and private sector, to tackle the issue of national food waste. While the United Kingdom began such partnerships very early on in 2005 with the Courtauld Commitment, more recent examples include the Netherlands, which launched its "United against Food Waste" initiative and Indonesia, which now has a public-private partnership (Flanagan et al., 2018). In fact, the report recognises emerging leaders in the area of food waste reduction as the United Kingdom, the United States, Denmark, and the Netherlands. Overall, the report uncovers both global action and inaction toward food waste reduction. While positive that there has been an increase in action on this issue around the world, Champions 12.3 conclude their report by recommending that "all governments, companies, farmers, and individuals to deepen their commitment and accelerate their efforts" (Flanagan et al., 2018, p. 17). Suggestions for doing so include more public-private partnerships, increased financing for waste reduction technologies, and increased communication to ensure knowledge and sustainable practices are being disseminated throughout the food supply-chain and civil society (Flanagan et al., 2018).

In terms of New Zealand's progress, in October 2018 the Environment Select Committee's intention to carry out a food waste reduction briefing, with the purpose of investigating the current issue and providing recommendations for future action, as discussed earlier, represents cross collaboration between various sectors, organisations, and individuals. This is in line with the recommendation set out by Champions 12.3 to increase partnerships and, similarly, in line with the discourse of sustainable development, which stresses the importance of communication, the sharing of knowledge, and collective action (New Zealand Parliament, 2018).

Summary of the Literature on Sustainable Development Goals

The literature on the United Nations SDGs shows active awareness and implementation of objectives that align with the overarching sustainable development framework. In terms of actions implemented in the food waste space, target 12.3 is significant in that a reduction of global food waste really does represent the opportunity to reduce greenhouse gases and methane in particular and its consequences on the natural environment. The research undertaken by the Champions 12.3 coalition shows that there is movement towards lessening food waste. As the coalition's reporting makes clear, monitoring the progress of different countries is extremely important in evaluating what still needs to be done, what is currently working, and what is not. However, the fact that SDG 12 has been the least funded goal to date highlights a lack of political commitment to focus on food waste. This lack of commitment indicates that there is a need for further research into food waste to uncover how the issue is shaped and how, in turn, this shaping influences the decisions they are made. Thus, while I think it is positive that the New Zealand Parliament's Environment Select Committee is carrying out a food waste briefing, it would seem that this problem is only now being fully considered within the political realm and that it should have been addressed earlier.

Policies and Initiatives in Place: Voluntary and Legal

There is a tendency for policy makers to address short-term, visible issues rather than long-term issues. This tendency may account for the fact that the New Zealand government has not yet treated food waste as a priority. However, the increasing environmental, social, and economic concerns over food waste appear to be generating increased awareness among governments, businesses, NGOs, academics, and the general public. This concern is evident through the increased attention given of food waste in the media, the growing number of food waste initiatives and policies being developed globally, and the move toward

sustainable food waste disposal options being developed by food outlets such as supermarkets. These factors demonstrate the fact that acknowledging the urgency of the food waste issue is becoming more recognised in mainstream political discussions and, therefore, featuring on the political agenda (Schanes, Dobernig, & Burcu, 2018).

Currently, New Zealand lacks a comprehensive strategy for dealing with food waste; as a result, many communities and councils are treating the problem in very different ways. The Love Food Hate Waste campaign is the only specific national food waste prevention programme at present and the majority of other initiatives are implemented by regional and local councils. While a handful of local councils around the country have implemented a kerbside food waste collection service, in other areas, there seems to be little to no development. These services have been trialled by the Christchurch City Council, Mackenzie District Council, North Shore City Council, and Timaru District Council. However, while some of New Zealand's larger cities including Auckland and Hamilton have discussed a food waste collection service, they have not yet implemented one. Although the Auckland City Council does aim to introduce kerbside food waste collection by 2020/2021, many members of the public are not impressed with the financial cost, which has been estimated at $67 per ratepayer per year (Ministry for the Environment ,n.d.). The town of Raglan offers an exemplary case, as its council was the first in New Zealand to help fund and support a community led food collection service; between August 2017 and July 2018, the service was free of charge for residents (Xtreme Zero Waste, n.d.). All residents can access this service. Households are provided with a kitchen caddy, kerbside bin, and a pack of compostable bags free of charge. This service, which is operated by Xtreme Zero Waste takes place on the same day as the existing collection services—kerbside recycling and prepaid landfill bag collection—which further encourages households to use the food waste service, as it can be implemented alongside existing rubbish collection practices.

In terms of food waste at the retail level, many supermarkets and food retailers in New Zealand are involved with food rescue programmes (Edmunds,

2016). In 2006, Countdown supermarkets implemented their food rescue programme; edible food is donated to food banks and inedible food is given to farmers for livestock feed or composting. As part of the Foodstuff brand, food retailers including Pak'n Save and New World supermarkets have a similar programme which partners with many local initiatives that redistribute food fit for consumption to the wider public (Edmunds, 2016). However, such programmes could be considered voluntary in that they are not considered a strict policy set by national government or local councils.

Schanes, Gozet, and Dobernig (2018) highlight the lack of a coherent international food waste policy framework and emphasise the fact that a combination of policy measures, business and retailer measures, and the use of technology could be one way to reduce food waste globally. At the systemic level, the issue is often approached from an economic perspective. However, this approach may impede progress because of the focus on the associated costs involved in implementing changes (Kirwan, Maye, & Brunori, 2017). Economic instruments such as taxes and fees are a popular method of reducing household waste. Here, the idea is that if the real cost of the natural resources used is reflected in the prices, consumers will shift toward behaviour that reduces food waste in order to reduce the associated cost. Furthermore, while regulatory approaches to food waste reduction are significant in that they prevent undesirable behaviour through penalties, they also suggest that an approach targeting the preconsumer level could be helpful in avoiding household waste, which is a significant part of the waste stream (Schanes et al., 2018). The example given is to eliminate unnecessary food-safety standards. The article suggests that "well-defined regulations seem to be a more effective tool to combat household food waste generation when compared with fiscal and economic incentives" (Schanes et al., 2018, p. 986). In terms of retailer action, packaging and date-labelling are two areas which cause unnecessary food waste. First, packaging should aim to enhance the shelf-life of a product through the correct size and material used. Date-labelling often causes confusion among consumers as regards the expiry and use-by-dates, meaning that food is

discarded when it is still safe to eat. In terms of technology, Schanes et al. (2018) indicate that the use of technology through mobile applications at the consumer level can be identified as a waste reduction tool. These apps target many different avenues, for instance, providing information about what to do with leftover food and advice on how to increase the shelf-life of food. Another strategy is to focus on the redistribution of surplus food that is still fit for human consumption. The Olio app, which was launched in Britain in 2015, aims to connect people in the same neighbourhood with each other and with local shops so that food can be shared and not discarded (Olio, n.d.).

At present, the dominant policy option seems to be raising consumer awareness through the use of soft instruments such as those most predominately seen across Europe. These include education, and conducting round tables and discussion forums which bring together a range of stakeholders to work together in implementing societal waste reduction. One such example is the Joint Food Wastage Declaration 'Every Crumb Counts' initiative; its members include various European stakeholders including the European Commission, the European Parliament, and various environmental NGOs (Every Crumb Counts, 2018). The Declaration's target audience is extremely varied and awareness is spread across the primary sectors in which food waste occurs; these encompass the production, postharvest and processing stages and the retail and consumption stages. With regard to engagement at a political level, the group engages with policy maker to ensure that governments across Europe develop and modify policies which take food waste into account. The group encourage European governments to support developing countries and their food waste prevention measures through means such as improving infrastructure and storage facilities and safe food handling training (Every Crumb Counts, 2018). Other consumer awareness campaigns include the United Kingdom's own Love Food Hate Waste campaign, which has influenced the New Zealand version, the Danish campaign 'Stop Spild Af Mad' (Stop Wasting Food), the German 'Zu gut für die Tonne' (too good for the bin), the French 'Qui jette un oeuf, jette un boeuf' (Who throws an egg, throws an ox), the Catalan 'De menjar, no en

llencem ni mica' (of a meal do not even waste a tiny bit), and the Portuguese 'Movimento Zero Desperdício' (Zero Waste Movement). These all provide information for consumers about how to avoid food waste through shopping tips, proper handling, storage, and preparation (Priefer, Jorissen, & Brautigam, 2016, p. 160). France, the Netherlands, and the United Kingdom have also implemented food waste curricula in schools to encourage consumer education at a young age. In 2016, France was dubbed the 'leader' of retail food waste reduction, as it was the first country to ban supermarket waste; it did so by introducing an economic instrument in the form of a fine. Supermarkets that do not donate unsold food now face a fine of 3,750 euros (Bryant, 2016).

In situations where food waste is unavoidable, policies aimed at food waste further down the food hierarchy chain may encourage consumers to separate food from landfill waste. As previously mentioned, Raglan has already implemented such a policy. Raglan's policy does not specifically target practices to reduce waste, though these are encouraged through the service. Rather, Raglan's approach provides an alternative disposal option for households in the form of composting through the kerbside collection service. Similar initiatives have been implemented across Europe, with Bristol becoming the first EU city to offer kerbside food collection in 2006. Other cities which have done the same include Munich and Barcelona (Ricci-Jürgensen, 2014).

Summary of Policies and Initiatives

It is clear that the majority of the food waste initiatives in the developed world have been implemented in and across Europe. While food waste collection services have been talked about in New Zealand, as a country, transforming such discussion into actions is occurring at a slower rate when compared to the rates for the United Kingdom and countries such as France and Germany. Again, while it is a positive that New Zealand supermarkets are engaging in voluntary actions to prevent food waste, such behaviour has yet to be mandated through legislation by the New Zealand government, as has been the case in France.

Furthermore, the majority of policies and initiatives in place do seem to individualise the problem, an approach which is ineffective at engaging stakeholders throughout the supply chain to revaluate their actions. Thus, I agree with Schanes et al. (2018) in that policy intervention must go further and engage all stakeholders across the food supply chain in a combined effort to prevent waste. This form of intervention would increase opportunities to tackle the issue before it even reaches the stage of consumer engagement with wasted food. While education and mobile applications such as Olio are no doubt creating positive change, it would seem that the lack of political engagement at the level of the state is perpetuating the food waste problem. As a result, food wastage across the supply chain continues to occur and the onus is placed on consumers to harness all the available opportunities and technologies to target the problem themselves. This concept of individualisation is discussed next.

Food Waste as Individual Versus Systemic Responsibility

While the majority of food waste is produced in the household with households in developed countries estimated to produce around 52-61% of food waste, 7-9% of wasted food is, nevertheless, produced at the distribution and retail levels (Wasteminz, n.d.). The food industry's practices are a significant driver of food waste in developed countries. Some examples of industry-induced waste include: overproduction of a certain food; rejection of food that is considered faulty- with undesired variance in weight, appearance, shape or damaged packaging- and food retailers' ordering an excess amount of food is another contributor to waste (Adam, 2015). However, it has been found that food that has a moderate deviation in terms of appearance, and which has been judged as imperfect by the food industry, is accepted by consumers. An initiative to implement a change in the supply chain could, therefore, enforce behavioural change at a policy level (Schanes et al., 2018).

Graham-Rowe, Jessop, and Sparks (2014) point out that "household food waste is not a consequence of individuals' thoughtlessness but rather a result of the social and material conditions in which food is provided" (p.16). Evans (2012)

too highlights the importance of recognising the social context in which households are consuming and possibly wasting food. This context includes recognising time, tastes, conventions, family relations, material conditions, and domestic divisions of labour as factors which influence the amount of food waste being produced in a given household. Material conditions include domestic technologies, infrastructures of provision, and the materiality properties of food itself (Evans, 2012). Evans' study represents food waste, not just as a consequence of human behaviour, but rather as also an act influenced by the very environment in which we live, including the equipment available to help preserve food, the roles of family members in preparing and purchasing food, along with scheduling tactics, including preplanning meals, creating shopping lists, and using food before it becomes inedible. Thus, although behaviour does play a part in waste production, waste also arises as a consequence of households' negotiating the contingencies of everyday life. One particular example of unsustainable systemic action is the growth of prepackaged food. Studies show that food that is prepackaged in particular sizes can increase waste production, as a household may not need/use all of the food (Quested, Marsh, Parry, & Stunell, 2013). Combatting this problem is left to the individual who can do things like purchasing unpackaged food such as fruit and vegetables at a local farmers market. Nevertheless, when we take into consideration the amount of plastic packaging that currently exists, it would be difficult to achieve a significant impact even if every individual were to make small changes such as this example.

A significant amount of academic literature recognises food-related practices and routines as components of food waste behaviour. Planning in the form of organising what meals will be eaten during the week and making grocery lists have been identified as a behaviour which can reduce food waste, with research demonstrating that per capita, of food disposed of, 20% could have been avoided if proper planning had occurred (Jorissen, Priefer, & Brautigam, 2015).

A study conducted in Germany found that food waste decreased with increased shopping frequency, yet the opposite was recorded in Italy. Thus, while neither of these studies is conclusive, their findings do relate strongly not just to the notion of food waste's being problematised as an individual issue, but also highlight the cultural differences in waste generation (Schanes et al., 2018).

Maniates (2002) discusses the concept of individualisation and argues that there has been an overwhelming move on the part of governments and environmental NGOs to consume in a 'greener' way, without thinking about the harder task of collaboration (Maniates, 2002). He gives the example of the dilemma a customer might face when choosing a plastic or paper bag at the checkout. While knowing that "neither is right given larger institutions and social structure" (Maniates, 2002, p. 45), it is the customer who is put in the position of having to choose between these options, as they are the only options available. In this way, it is left up to the consumer to decide which option is more 'green' or sustainable. Ultimately, such an approach perpetuates consumerism and, as there are limits to what one can do at an individual level, institutions and systemic action are neither challenged nor changed. In terms of food waste, the very way in which food is produced and exported leads to the externalisation of social and environmental costs, because large food companies and food producers are not held responsible for the costs associated with their food production and transportation processes (The Schumacher Centre for Technology and Development, 2011, p. 14). Consequently, there is no incentive for the globalised food industry to reduce or avoid the long-term impacts associated with food production and, instead, it continues to operate in the same manner, which usually involves a focus on low prices and high short-term yields, demonstrating quite clearly that current social and economic structures in this field are not being challenged, and nor are they in line with a strong sustainable development discourse (The Schumacher Centre for Technology and Development, 2011, p. 14). As a result, the wider community is left to bear these costs when solutions are framed as choices that lie in the hands of the individual, rather than as robust policies which target those involved along the entire food

supply chain. In this way, food waste exists in the much larger context of societal issues which have implications not only for the environment, but also for the social and economic aspects of humanity.

Over the course of the 1990s, the conventional attribution that producers were responsible for environmental sustainability was increasingly supplemented by a focus on the role of consumers. Individual 'behaviour change' became a dominant framing in both public policy and corporate engagement around issues of environmental sustainability (Welch, Swaffield, & Evans, 2018). Yet, critical responses to this trend argue that this individualisation "tends to reduce systemic issues to de-politicised, individualised, behavioural choices in the market place and separate out consumption choices from the framework of structural constraints that is their context" (Welch et al., 2018). Furthermore, the shift towards 'sustainable consumption' underestimates the systemic constraints that consumers face. Therefore, individualisation may be described as offering a "constrained space of possibilities" (Welch et al., 2018). For Maniates (2002), the prevalent messages from environmental groups and governments can be simply encapsulated as ''act... but don't get in the way'' (Maniates, 2002, p. 57). This position represents the institutional barriers that are erected in order for consumerism to maintain the status quo. Therefore, when consumers buy or act in a more 'sustainable manner', the political and social components of these issue are not threatened (Maniates, 2002, p. 57).

Other academics have also critiqued the individualising of waste responsibility. Wilhite, Shove, Lutzenhiser and Kempton (2000, as cited in Kent, 2009, p. 145), highlight that people's actions are "being constrained by the structural components" of society and that no useful frameworks are produced through individualisation (Kent, 2009). Larger international organisations have problematised food waste in a similar way. Evans (2014) notes that the United Nations FAO "is quite explicit that affluence, consumer attitudes and a lack of awareness are to blame", while the European Commission places a "lack of shopping planning, confusion about … date labels, lack of knowledge on how to

cook with leftovers" at the top of its list of causes for household food waste (Evans, 2014, p. 23).

Clapp (2002) contributes to this argument by recognising the importance of targeting individuals through education, an approach which can help to increase environmentally responsible consumption decisions. However, she agrees that education is only one small aspect of the problem and that by simply relying on a change in purchasing practices, more powerful structures and entrenched forces are not challenged (Clapp, 2002, p. 173). She coins the term "distancing of waste" (Clapp, 2002, p. 156), which has become the norm in today's society. This term represents the popular practice found in wealthier, industrialised states of simply failing to think about the journey their waste undergoes after it reaches the rubbish bin. Waste created in more industrialised countries travels long distances so that it can to be disposed of in less industrialised countries, perpetuating the idea that waste can be disposed of, while simultaneously, taking advantage of economic inequalities. Clapp (2002) also proposes that only political action can "address the broader forces that make waste distancing a normal and accepted pattern of everyday industrial life" and only then can the inequalities created by waste distancing be confronted at a global level (Clapp, 2002, p. 156).

Summary: Individual Versus Systemic Responsibility

In the current capitalist era, individualising a problem such as food waste is another way to create profit. When blame is placed on consumers, the responsibility for changing current practices falls upon the household, rather than on systemic measures which perpetuate the problem. Thus, while it is evident that consumers do create large amounts of food waste, the problem of food waste cannot simply be blamed on their carelessness or lack of awareness. Societal structures, food options in supermarkets, and a culture of consumerism in the Western world are all factors which lead to individual food waste production. It is not only clear that food is wasted all along the supply chain, but also that, were sustainable changes are to occur in all those phases, food waste

would lessen. Furthermore, if retailers and businesses were to reflect on their products, they might see that the use-by date, packaging, and appearance of their food products are areas which can be altered, as altering these can positively influence food behaviour changes and, therefore, contribute to a reduction in the amount of food ending up in landfill.

Māori Perspectives on Sustainability

Indigenous peoples are the original inhabitants of a given region. Different indigenous groups, irrespective of where they are in the world, share a few similar characteristics (Tully, 2000). For instance, the majority of indigenous populations experienced a period of colonisation mainly by the West and are now under colonial rule; most have been marginalised as minorities within this newly established Western society; and (from a typical Western understanding) indigenous groups are commonly considered to be the poorer, politically weaker, and inferior members of the state (indeed, because of the effects of marginalisation, such populations are often suffering greater social, political, and economic hardships) (Tully, 2000). In fact, until recently, dominant Western society and its powerful figures, whether in politics, business or science, have always viewed indigenous peoples and their knowledge as inferior and useless (Tully, 2000). To this day, the impacts of colonisation continue to perpetuate the deterioration of indigenous people's lifestyles and the UN development group even stated that, "while they (indigenous peoples) constitute 5 percent of the world's population, they are 15 percent of the world's 'poor'" (Grantcraft, 2015, para. 3). Systemic discrimination and exclusion of indigenous peoples from the state's politics and economy are clear examples of how and why such statistics exist.

However, traditional ecological knowledge (TEK) is becoming increasingly recognised at the systemic level, especially in terms of its links to sustainability (Jamieson, 2010). International agreements such as the Rio Declaration and the Earth Charter are two of many declarations which consider indigenous knowledge to be of great significance for the goal of sustainable development.

Principle 22 in the 1992 Rio Declaration on Environment and Development clearly demonstrates that indigenous knowledge should be legally recognised in actions promoting sustainable development:

> Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development. (United Nations, 1992, p. 4)

In terms of the indigenous people of New Zealand, the connection between Māori and the environment is linked to Māori identity and well-being, with the New Zealand Ministry for the Environment describing this relationship between Māori and the environment as "intrinsically inter-twined" (Ministry for the Environment, 2017). Jamieson (2010) highlights the significance of this relationship by describing the way in which Māori often introduce themselves. Typically, Māori state the place their ancestors came from and refer to features such as a mountains, rivers, and lakes (p. 174). Māori are tangata whenua, which translates as 'people of the land'. This role brings with it a responsibility to guard, protect, and care for the land, as the land is part of Māori and they are part of it. In other words, Māori do not believe that humans are the masters of the environment and their perspectives on sustainability reflect this relationship with the land (Jamieson, 2010, p. 174).

The following section of the literature review discusses some traditional Māori values and perspectives on sustainability as an additional way of thinking about and, bringing together both Western knowledge and indigenous knowledge as a way to achieve the goal of sustainable development.

As previously discussed, Māori perspectives differ from traditional Western ideas around nature and humans in that there is a recognition in Māori culture of the interconnectedness between everyone and everything. According to mātauranga Māori (Māori knowledge), the land, the sea, the animals, and the air are all interdependent. This holistic worldview highlights the fact that in order

for humans to thrive, the environment in which we exist must be also thrive. The extract below, taken from Harmsworth and Awatere (2013) not only catalogues the key Māori values that inform the Māori worldview, but also acts as a helpful framework for understanding this indigenous philosophy. In addition, these concepts can be valuable in generating conversations around how people and the environment may exist in harmony with one another. These concepts are:

> Tikanga (customary practice, values, protocols); whakapapa (ancestral lineage, genealogical connections, relationships, links to ecosystems); tino rangatiratanga (self-determination); mana whenua (authority over land and resources); whānaungatanga (family connections); kaitiakitanga (environmental guardianship); manaakitanga (acts of giving and caring for); whakakotahitanga (consensus, respect for individual differences and participatory inclusion for decision making); arohatanga (the notion of care, respect, love, compassion); wairuatanga (a spiritual dimension). (Harmsworth & Awatere, 2013)

Harmsworth and Awatere (2013) goes onto consider the specific environmental concepts within Māori culture:

- Whakapapa – connection, lineage, or genealogy between humans and ecosystems and all flora and fauna. Māori seek to understand the total environment or whole system and its connections through whakapapa, not just a part of these systems, and their perspective today is holistic and integrated;
- Kaitiakitanga – stewardship or guardianship of the environment, an active rather than passive relationship (Marsden & Henare, 1992);
- Mana – having authority or control over the management of natural resources;
- Kiuta ki tai – a whole-of-landscape approach, understanding and managing interconnected resources and ecosystems from the mountains to the sea (the Māori concept of integrated catchment management);
- Taongatukuiho – intergenerational protection of highly valued taonga, passed on from one generation to the next, in a caring and respectful manner;
- Te Ao Turoa – intergenerational concept of resource sustainability;
- Mauri – an internal energy or life force derived from whaka-papa, an essential essence or element sustaining all forms of life. Mauri provides life and energy to all living things, and is the binding force that links the physical to the spiritual worlds (e.g., wairua). It denotes a health and spirit, which permeates through all living and nonliving things. All plants, animals,

water, and soil possess mauri. Damage or contamination to the environment is, therefore, damage to or loss of mauri.

- Ritenga – the area of customs, protocols and laws that regulate actions and behaviour related to the physical environment and people. Ritenga includes concepts such as tapu, rahui, and noa, which were practical rules to sustain the well-being of people, communities, and natural resources. Everything was balanced between regulated and de-regulated states, where tapu was sacred, rahui was restricted, and noa was relaxed or unrestricted access.

- Wairua, Wairuatanga – the spiritual dimension, a spiritual energy and dimension as a concept for Māori well-being (Harmsworth & Awatere, 2013, p. 275-276).

A common theme among all these concepts is the relationship between people and the environment. This relationship reinforces the idea that Māori concepts of sustainability require positive outcomes within the social, environmental, cultural, and economic spheres (Mika & O'Sullivan, 2014). In this sense, a collective well-being, as opposed to the individual well-being common to that found in Western ideas around goals and objectives, is sought (Mika & O'Sullivan,2014).

These concepts derive from the genealogy of Māori. In short, Māori life began with the appearance of two gods: Ranginui, the male god of the sky and Papatuanuku, the female god of the earth. Aspects that make up the earth's ecosystem such as the weather, the sea, the forests, and the plants are seen as the children of these two founding gods and Māori are able to trace their ancestral origins back to a particular area, including specific mountains, bodies of water, and areas of land (Miller, n.d.).

These stories of origin have helped to fashion the Māori relationship with the environment. Here, the key word is kaitiakitanga, which affirms Māori as the guardians of the land. Because Māori genealogy derives from nature, there is a kind of interdependence between humans and nature, as recognised in Māori perspectives. This interconnectedness is often not the case in traditional Western ideas about the relationship between humans and their environment (Miller, n.d.). These Māori understandings of nature and humanity evoke

similarities with the sustainable development discourse, as both require resource and environmental protection for current and future generations.

In this way, Māori, as the guardians of New Zealand, are considered to have a special affinity with and, therefore a special skill set around, the understanding of New Zealand environmental sustainability. At the political level, in 2001 a New Zealand Law Commission inquiry into Māori customs and values highlighted the connection between Māori and the environment, and in terms of domestic legislation, Māori values and practices have been acknowledged in various domestic regulations such as the Resource Management Act (Jamieson, 2010). However, there is criticism around how well Māori notions of sustainability are interpreted and understood within national politics. For instance, Wright (2007, as cited in Jamieson, 2010) states that the definitions found within these legislations are often "more illustrative than definitive" (p. 195). This lack of clear definitions is problematic, since non-Māori often interpret these legislative documents and when Māori cultural values and notions of sustainability are not grounded in context, nor translated correctly, their application or use to inform decision making is based upon incorrect understanding and, therefore, does not reflect Māori perspectives at all (Jamieson,2010, p. 195). A common result of this misinterpretation or lack of awareness is that Māori values become subordinate to other, Western approaches to sustainability which often favour economic growth (Jamieson, 2010, p. 196). Thus, while indigenous knowledge represents a strong tool for the goal of implementing sustainable development actions, it is imperative that these forms of knowledge are not misused once they enter the political realm in which government decisions are made.

Summary: Māori Perspectives on Sustainability

The relationship between Māori and the environment could be summed up as one of guardianship, as guardianship stresses the importance of care and nurture, two key concepts that are somewhat lacking in modern European relations with the natural environment. Linking this idea back to the discourse of

sustainable development more broadly, a strong sustainable development discourse would not only recognise and integrate local indigenous knowledge within the discourse, but also ensure that this knowledge would be handled by members of the indigenous community who can then teach, inform, and translate the correct intentions behind these concepts to others. Thus, a community of decision makers who are well-informed about traditional understandings of sustainability and who can then appropriately integrate these into local, regional, and national policy would be created.

Review of Scholarly Literature

In this chapter, I have shown that the majority of the current initiatives that are in place are directed at the consumer through awareness campaigns such as the Love Food Hate Waste campaign which started in England and has since been replicated (to an extent) in New Zealand (Love Food Hate Waste, n.d.). In New Zealand, voluntary food waste initiatives are also evident around the country, even though growing levels of food waste represent the need for stronger, political action. However, there does seem to be a growing recognition of the importance of political, systemic change, something which is especially evident in changes occurring throughout Europe (Graham-Rowe et al., 2014).

It is important to consider that much of the scholarship on food waste focuses on European and higher income, industrialised countries. The gap in the current research indicates the need for the research undertaken in this study. Furthermore, as the gap in the literature demonstrates, the accessibility of resources must be considered when analysing food waste management strategies in differing areas with diverse economic, political, and social situations. Therefore, waste reduction strategies which are effective in some parts of the world may not be effective or may not be able to be implemented in others.

The creation of the United Nations' SDGs in 2015 has been a driving force for many governments and businesses to make changes aligned with the UN's targets. While these changes align with the basic concepts of the sustainable

development discourse, which is to integrate the economic, environmental, and social dimensions of human society, the dominance of economic growth has the ability to divert attention from the other two 'pillars': the environmental and the social. Furthermore, the third target of SDG 12 "to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030 requires more focus than is currently being received. The evidence from the latest 2018 Champions 12.3 report shows that, while there is momentum from governments in implementing national-level initiatives to tackle the issue, there is still much progress to be made. Funding and resources need to increase, especially those directed at assisting developing countries and their infrastructure. Countries leading the way in the issue of food waste reduction such as Denmark and the United Kingdom are those where food waste initiatives are already in place and education for consumers is available. Thus, it is important to consider the mechanisms that encourage these countries to focus on food waste and consider the way that food waste as a problem is shaped in politics, industry, the private sector, and civil society. In order to address these components, it is crucial to look at the dominant sustainability and food waste discourses within a given nation to see how they influence decisions made and actions implemented.

Research Questions

This chapter highlights the various ways in which food waste is understood and acted upon in a global setting. Examination of the literature led to the following questions which are designed to illuminate the way in which food waste is framed and understood in New Zealand:

- What are the dominant discourses which frame the issue of food waste in New Zealand?
- What are the implications of these discourses for how decisions around food waste management are made both politically and for the wider public?

- How do the actions implemented by Xtreme Zero Waste compare with the national policy and how can this programme act as an exemplar for the wider New Zealand context?

Sustainable development, as a dominant environmental discourse that has emerged over the last two decades, which informs the United Nations SDGs, is an important aspect of my study and acts as a framework through which to analyse the current food waste discourses in New Zealand. This framework allows for a critical analysis not only of the current way in which food waste is shaped by government, but also by a town which has embraced a food waste reduction initiative. The following chapter discusses this framework.

Chapter 3: Sustainable Development as a Framework for Analysing Food Waste Discourse in New Zealand

Sustainable development is relevant to this study because food waste has fundamental implications for the long-term sustainability of society, with ramifications for the local, national and international levels. Hence this thesis deploys the sustainable development discourse as a tool to understand the nature of the discourses that underpin the issue of food waste in New Zealand.

Sustainable development as a discourse has been largely embraced by most governments as well as by the United Nations, which, as previously mentioned, created the SDGs to accelerate efforts to create a sustainable future. These changes aimed at both the individual and systemic level. While the 17 SDGs ask for governments, international organisations, and world leaders to lead the way in shaping new political, economic and social structures, the United Nations also acknowledges the importance of smaller scale action at the individual level (United Nations, n.d). *The Lazy Persons Guide to Saving the World* is, for example, an online resource produced by the United Nations. It highlights actions which people can adopt in their everyday routines in order to tackle larger scale problems such as ending poverty, tackling climate change, and reducing global inequality (United Nations, n.d.). The guide covers a spectrum ranging from level one to level four, with level one being the easiest ways to make changes, for instance, opting for online bank statements rather than paper statements, through to level four, which suggests ways in people can encourage change outside our homes and into our community and workplace. Much like these actions which exist at different levels, sustainable development is also a continuum which ranges from weak to strong sustainability.

This chapter reviews the theoretical scholarship on sustainable development in order to identify the elements that make up this concept, with a particular focus on the differences between weak and strong notions of sustainable development. The food waste discourses uncovered by the research

can then be evaluated against this framework in order to help identify the main ways in which food waste is conceptualised in New Zealand. The aim of this chapter is, therefore, threefold: to create a theoretical framework which can be used as the basis for the study; to identify the food waste discourses present within national and local government; and, to identify the discourses put forward by the Raglan case study interviewees. In this way, the framework is able to represent the large variation between specific discourses and actions that may be termed 'sustainable development'. The chapter concludes with the key elements of the discourse. These are separated out into weak and strong sustainability and summarised in Table 1.

The Integration of Sustainable Development into Politics

The concept of sustainable development has become integrated within the policies and initiatives set out by governments around the world. The World Commission on Environment and Development: Our Common Future (1987), also known as the Brundtland Report, was the first significant report to include the concept of sustainable development. The report defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.16). The 1992 Rio Declaration on Environment and Development saw the formal endorsement of the term by more than 170 countries at the Rio Earth Summit in 1992 (Meadowcroft, 2005, p. 267). The ideas put forward by the 1992 Rio Declaration on Environment and Development and the Brundtland Report remain the basis of sustainable development to this day, that is, that both the environment and the economy, which are crucial aspects of the long term viability of people and the planet, should be and can be brought into harmony for current and future generations (World Commission on Environment and Development, 2005, p. 259). Sustainable development considers the relationship between the economy and the environment, the significance of citizen and political collaboration, the importance of meeting essential needs for jobs, energy, water and sanitation,

and ensuring a sustainable level of population. Sustainable development is a discourse rooted in environmentalism and it has even been described as the 'new environmentalism' of the 21st century moving from a social movement into a political one (O'Riordan, 1991, p. 5).

The political response to the Brundtland Report has been significant in that sustainable development has become a key aspect of policy decision making around the world. Dryzek (2013) highlights that the majority of governments in the developed and developing world have since the report's publication mentioned or indicated the importance of sustainable development and acknowledged the discourse as a favourable one to engage with at the political level. Furthermore, the Rio Declaration and the Brundtland Report were able to put together a coherent definition of the term 'sustainable development'. Even though it has shown to be flexible, that definition has become the basis for how the concept is understood. Certain values are also associated with the term and its definition. However, as this chapter will demonstrate, understandings of the discourse are not always identical and many variations of both the definition and the values associated with sustainable development exist.

Problem Definition

The basis of sustainable development rests on the idea that the needs of current and future generations are met through development strategies which consider the changing levels of resource availability and act to conserve and enhance this resource base (World Commission on Environment and Development, 2018, p. 188). The definition given by the Brundtland Report, however, is extremely broad and somewhat vague, which has meant that the concept has been applied and understood in quite different ways. Consequently, sustainable development practices may be potentially more inadequate than otherwise intended (Ganesh, 2007, pp. 380-381) depending on the interpretation of the term. Woods (n.d.) explains that there have been over 500 attempts to define sustainable development, making it an extremely contested concept. Thus, part of the challenge involved in interpreting actions aimed at sustainable development is

the elasticity of the term. As a result, operations which are labelled as following the sustainable development framework may in fact be meaningless from an environmental or social sustainability perspective, according to their interpretation of the term. For example, Woods (n.d.) draws attention to this problem in his article *Sustainable Development: A Contested Paradigm* where he cites Jacobs (1999) who suggests the definition given by *Our Common Future* is "too lax" (p.3). Richardson (1997) describes sustainable development as a "political slogan that kept the commissioners happy" (p.3) and Crabbe (1997) describes the entire sustainable development concept as " a political Utopia developed by the UN initially to entice Third World countries to subscribe to the political agenda of the North" (as cited in Woods, n.d., p. 3). Kurian and Bartlett (2011) highlight that while sustainable development has become a favoured concept for global and national actors, the differing interpretations of the term meant that "barely discernible policy shifts" (p.10) in the sustainability space occurred, and other concerns, such as globalisation, free trade agreements and neoliberal structural policies continued to dominate the conversation and literature around development (Kurian & Bartlett, 2011, p.10).

Central to the definition of sustainable development is the recognition of societal structures and established forces which may propel or hinder action toward sustainable development. The Bellagio Principles published in 1997 were conceived as a way to assess sustainable development (Hilden & Rosenstrom, 2008). These principles called for "openness, communication, broad participation, iterative processes, sufficient institutional capacity and the need for a coherent framework" to bring about sustainable development (Hardi & Zdan, 1997, as cited in Hilden & Rosenstrom, 2008, p. 239), thus, suggesting that the political process of invoking sustainable development requires social justice, equity, and collaboration in terms of changing current societal structures which may not be in line with a sustainable development framework. Chelstowski (2012) argues that current societal structures have diminished the importance of change at a political and societal level and, instead, created an individualistic outlook, which, in turn, affects a society's ability to produce environmental and

social change (Chelstowski, 2012, p. 91). As a result, the focus on the environment around the individual does not "take into account that environmental degradation is a social and political problem" (Chelstowski, 2012, p. 93) and, rather, perpetuates the idea that sustainable development can exist in the 'household', without bringing about significant changes at the higher levels, which would undoubtedly transform the way society operates. A focus on addressing sustainable development at an individual level, therefore, does not encourage community effort on a larger scale; rather, individuals are targeted by external factors such as the media, government representatives, and businesses into thinking that a relatively simple and effective way to make a difference is by simply changing their lifestyle. In reality, Maniates (2001), Chelstowski (2012), and other advocates of collective action state that it is larger societal forces which encourage systemic change on a wide scale and that this sort of change is central to developing sustainable strategies for society (Chelstowski, 2012). Forces which have propelled this process of individualisation include market forces and consumerism. These forces attempt to communicate, and to a great degree have been successful in communicating, the idea that a sustainable society comes from buying 'green products', while simultaneously generating economic profits and depleting the earth's natural resources (Chelstowski, 2012, p. 91).

Another point of difference in sustainable development definitions and interpretations is the discussion around capital- that is, "the stock that possesses the capacity of giving rise to flows of goods and/or services" (Ekins, 2003, p. 166). Capital is understood in four ways: as natural capital, human-made capital, social capital, and human capital (Serageldin, 1996, p. 4) and each can influence whether a sustainable development policy or action is weak (producing very little sustainable results) or strong (producing positive results towards a sustainable future). Increasing and preserving the world's stock of capital has been considered to be an important factor in progress towards sustainable development. The point of difference refers to substitution. Simply put, in terms of sustaining human civilisation, a strong sustainability stance stresses the

importance of the natural environment and, therefore, environmental preservation for human well-being, while a weak stance states that humans have the ability, knowledge, and skills to sustain well-being through human-made resources (Ang & Passel, 2012). This debate around capital is, therefore, dependent on an understanding of what sustainable development means.

Thus, the way in which sustainable development is defined as a discourse impacts on the type of action put forward to meet the requirements of this discourse. In terms of food waste, which is often defined as an individual, householder problem (as discussed in chapter 2), sustainable development is commonly addressed through consumer awareness efforts, using means such as education, as opposed to addressing the wider systemic issue of the wasting of food before it even reaches the consumer. In this sense, sustainable development efforts do not challenge or attempt to alter the current way in which larger societal structures operate and dominant policy making globally is still giving priority to economic growth (Gorobets, 2014, p. 654). A sustainable development lens should attempt to address food waste and other social, political, and economic issues as systemic in nature, because when this is the case the solutions put forward can have significance on a much wider and more effective scale.

Normative Values

Sustainable development requires collaboration between the public and private sectors, as well as with citizens. There is a place for grassroots movements and, in turn, policy changes to promote sustainable development should be shaped by a diverse range of stakeholders, before being implemented by national governments, international organisations and environmental NGOs (Dryzek, 2013, p. 158). The idea of progression is a significant aspect of the sustainable development rhetoric. Dryzek (2013) describes this as one of the most attractive characteristics of the discourse in that, while moving toward a more sustainable society, a sustainable development approach suggests these changes do not need to be painful or hard to execute (Dryzek, 2013, p. 159). In the case of

business, governments, and institutions, changes may be a substantial divergence from the norm (Dryzek, & Schlosberg, 2005).

Implicit in sustainable development is the idea that the economy, the environment, and social structures must be in harmony with one another (World Commission on Environment and Development, 2005, p. 259). Preventative work is necessary to avoid environmental damage and so requires foresight and dedication from government (World Commission on Environment and Development, 2005, p. 259). The move towards sustainable development implementation requires a global shift in the way humans are currently living to ensure that natural resources can be sustained and preserved. Thus, changes in how society operates today involve questioning the current capitalist system and political institutions. Not challenging the current institutional model—one which favours economic growth—implies that interpretations of sustainable development are status quo-oriented and attempt to maintain a sustainable image without changing systems or structures or considering the trans-boundary and intergenerational impacts of current policy decisions (Dryzek, 2013, p. 157). Such an approach signifies a national focus and weaker understandings of sustainable development that do not consider implications of a nation's behaviour beyond its own boundaries. A stronger understanding of sustainable development recognises sustainability as a global endeavour. Encouraging collective responsibility and action to sustain environmental well-being is essential in minimising damage within and outside of nation states. A narrowly focused policy with unchecked economic growth often creates unjust consequences for other populations and the poor in particular.

Dryzek (2013) also considers actions implemented under the sustainable development framework as weak if they are primarily controlled and implemented by the nation state. He is not suggesting that the political environment in which a country functions does not have a main role to play in developing actions for sustainability. Rather, he is saying that a strong stance on sustainability recognises the importance of all stakeholders, including international and transnational coordinated action among organisations and

people, and at the lower, local levels, including grassroots participation (Dryzek, 2013, p. 157).

Sustainability has been often referred to as the preserve of the wealthy, who, as a population, have the resources and capabilities necessary for making changes at the individual and systemic level (Davey, 2009), but this has been refuted by many scholars. A strong form of sustainable development has a commitment to equity and justice. Strong sustainable development recognises that poverty is a concern in ensuring sustainable development; however, the poor are not responsible for creating problems of sustainability. While it is true that in extreme cases of poverty, people will use the environment in unsustainable ways for survival—often due to the political and social environment in areas such as a lack of resources, ineffective policy making, and low-income employment—there is considerable evidence of people at the grassroots agitating for greater control over their lives and resources and try to discourage environmentally destructive development efforts of corporates and governments (Energy Policy Institute at the University of Chicago, 2015). In fact, Chambers (1987, as cited in Davey, 2009) goes as far to state that "the poor are not the problem, they are the solution" in terms of development and sustainability strategies (Davey, 2009, p. 2). There are very powerful claims that much of the environmental damage and the current sustainability crisis are caused by the wealthy through the spread of capitalism and colonialism and that the least-environmentally sustainable livelihoods do in fact originate from countries in affluent parts of the world (Martinez-Alier, 2014). In this way, while economic growth is a necessary element in alleviating poverty within the developing world in order to reduce some of this existing global inequality, greater measures need to be taken within developed countries to reduce their own impact on the environment. Furthermore, economic growth must be guided in a way that does no further damage to either the environment or the living conditions of people (Dryzek, 2013, p. 155). Dryzek suggests that it is both individuals and governments acting together in affluent countries that perpetuate poverty through their actions.

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Another key aspect of sustainable development is the recognition of indigenous knowledge as an important pathway to sustainability (Jamieson, 2010). When indigenous approaches to and frameworks of sustainability are valued and incorporated within Western policy, these understandings can offer insights into how best to achieve multidimensional outcomes of sustainability, incorporating the economic, social, cultural and environmental aspects of society, while simultaneously increasing indigenous participation and inclusion in decision-making (Harmsworth & Awatere, 2013). As discussed in the previous chapter, indigenous cultures like those of the Māori in New Zealand typically have an affinity with the land that is lacking within Western culture. A relationship that emphasises connection to the land translates into actions of guardianship or kaitiakitanga (in Te Reo Māori). Māori concepts of sustainability offer a different perspective on the way in which sustainable development can be achieved. Recognising the distinct and differing perspectives of indigenous peoples means that sustainability is understood in a holistic way and informed by knowledge from various peoples with very different understandings of the environment.

Institutional Practices

The way in which sustainable development can be achieved is largely through policy (World Commission on Environment and Development, 2005, p. 259). The World Commission on Environment and Development considers action to be imperative in that it must occur now in order for a sustaining amount of the earth's resources to be available for current and future generations, not only for human survival but for human progress (World Commission on Environment and Development, 2005, p. 259). The OECD has called attention to the importance of policy coherence. Governments must actively choose to engage in coherent policy making to ensure sustained progress towards creating a global community where the interconnectedness of the environment, the economy, and the social dimensions of human life are understood and reconciled. The OECD highlight in *Policy Coherence for Sustainable Development 2018: Towards Sustainable and*

Resilient Societies (OECD, 2018), the eight main building blocks of policy coherence that must, and can be, actioned by all countries "regardless of their administrative and political traditions" (p.84). These building blocks are meant to encourage new ways of approaching policy decision making, by widening participation, enhancing partnerships with different actors and cross-sectoral collaboration, and inspiring countries to improve their strategic frameworks to achieve the goal of establishing international coherence on what sustainable development looks like and how it is to be shaped (OECD, 2018, p. 82). The eight blocks are:

- Political commitment, to ensure that those with decision making power at the systemic level will perform in ways that enhance and encourage a move towards sustainable management of resources.
- Policy integration, which asks for decision makers to consider the relationship between economic, social and environmental policies.
- Long term planning horizon, the third building block which promotes the idea that goals for sustainability need to be considered beyond the short-term political decisions being made.
- Policy effects, highlighting the need to look at the impacts of policy not just for current generations but what they will mean in the future, and simultaneously, considering the flow on effects that national policy may be having in other areas.
- The fourth building block, policy coordination focuses on selecting the appropriate candidates, at the appropriate levels to coordinate policies.
- Subnational and Local involvement, which is about collective participation from those across the country, including at the local, regional, and national level.
- Stakeholder engagement, the idea that stakeholders must be informed about the implementation of actions and be able to identify challenges that may arise, creating an engaged population.
- The final building block is to monitor and report any progress towards goals in order to be able to revaluate the outcomes and any changes that may need to occur (OECD, 2018, p. 83).

This idea of monitoring progress is a key aspect of institutional responsibility, as it will not only reveal the weaknesses of a policy which needs to be reconsidered, but also the strengths that reinforce the positive outcomes that have occurred (Dryzek, 2013). Dryzek (2013) asserts that progress is one of the

most powerful notions in the world and that policies under the sustainable development discourse need to be evaluated in order to uncover any positive or negative repercussions that may help or hinder sustainable development (Dryzek, 2013). The pressure/state/response approach, as described by Meadowcroft (2005), has been embraced by the OECD and the United Nations in order for governments to track "environment and development trends" (p. 273) through qualitative monitoring; this approach appears to be a result of the recognition of sustainable development as a policy objective.

It is not surprising that environment ministries and agencies have taken the lead in developing and advocating for this political engagement within the larger political context. While it is increasingly becoming more popular among other departments to take leading action, I agree with Meadowcroft (2013) that responsibility for decisions which emphasise environmental protection cannot be left up to just one ministry or sector, but must be shared among all political institutions (Meadowcroft, 2013, p. 272). Efforts to enforce this sort of political collaboration have already taken place in a number of countries. For example, in 1988, Norway formalised environmental responsibility within all sectoral ministries and Sweden followed suit in 1987/88 and again in 1990/91. This move enabled each major government department to monitor environmental performance (Meadowcroft, 2013, p. 272).

The Democratic Approach and the Actors Involved

A strong discourse of sustainable development calls for collective action at the global level (Conca & Dabelko, 2018), that is, a collective effort from those holding policy decision making power, such as government officials, representatives of international institutions, and, at the lower, localised level, all citizens. It is clear that the scale of the United Nations SDGs requires political effort on a global scale and a willingness on the part of all governments to collectively work towards achieving the goals' objectives. However, the importance of the local level must not be forgotten, as seen in the United Nations' *Lazy Person's Guide to Saving the Planet*, which acknowledges the fact

that all humans are stakeholders in the quest for a more sustainable future and, thus, that all citizens can make a change within their own capabilities, represents the importance of the local level. While acknowledging that policy, laws, taxation, education, and other similar top-down approaches are able to encourage and administer unavoidable change, I agree with the World Commission on Environment and Development's stance, who argue that it is crucial for local communities to have a significant role in participating in decision-making processes and ensuring that the voices of all community members are heard. This argument is made even stronger by the fact that all actions have flow-on effects which can be both positive and negative. Nevertheless, the World Commission on Environment and Development states that it is quite common for people to assume that others will continue to pursue narrow self-interest (World Commission on Environment and Development, 2018, p. 187). Many governments that have acknowledged sustainable development within national policy have not considered their own county's exploitation of the natural environment, indicating both a reluctance to change and a lack of political willingness to engage with the discourse at the policy practice level (Dryzek, 2013, p. 153). Effective community participation is one way of creating conversations around these wider problems, as such conversations are able to create communities who feel empowered, supported, and strengthened. As a result, communities which are able to then communicate ideas or problems with decision makers at a higher level are created.

Cohen (2005) reinforces this argument by highlighting first, that policies which emerge from governments will not be uniform and second, that different countries approach issues in various ways depending on the country's economy, culture, and environment. Thus, international communication and cooperation are important in ensuring that policies adopted in one country do not create negative impacts in other countries and regions (Cohen, 2005).

If one were to set out to identify those actors that espouse a weak sustainable development discourse, one would uncover a space dominated by greater governmental intervention and those involved at the business and

corporate level. The fact that there is less of a focus on citizen collaboration and participation within decision making, opens up a space that can be dominated by experts, bureaucrats/technocrats, corporate entities, and market players (Kurian & Wright, 2009). It is, therefore, left to these actors to simultaneously pursue the goals of strengthening both the capitalist market economy and environmental protection.

Actors involved in food waste clearly impact the way in which solutions are addressed. The United Nations SDGs encourage a global approach to food waste minimisation. As clearly stated in target 12.3, the goal is to halve global food waste at the retail and consumer levels by 2030. The target, however, is not individualised for the consumer nor the retail outlets, since it also asks that there is a reduction of food waste along all steps of the supply chain. That approach indicates the need for a wider, systemic change in the way food is produced, prepared, and transported. Such a commitment will require effort from all those involved in the food industry, as well as those in government, to ensure that such changes are compulsory and followed through. The scale of such a change could be one of the main reasons why efforts thus far, especially in New Zealand, have been aimed at the consumer end through educational opportunities and the rise in interest among councils in implementing food waste collections. While these initiatives are positive in the sense that food becomes a valuable resource to utilise, they do not ultimately stop the creation of wasted food.

Sustainable Development Framework

Given the range of belief systems around what constitutes sustainable development, it is important to differentiate between the sometimes conflicting versions of the discourse. These versions of the discourse do not merely describe differing definitions; they also offer quite different real-world outcomes depending on where a policy or decision lies on the discourse continuum. For this reason, I have suggested that the differing interpretations of sustainable development lie along a spectrum from weak to strong sustainable development (see Table 1). This framework will be important in identifying the current food

waste discourses in New Zealand and whether these align with a weak or strong discourse stance.

Table 1

Sustainable Development Framework

Key Elements of the Discourse	*Weak Sustainable Development*	*Strong Sustainable Development*
Problem Definition	• Human-made capital can replace natural capital and, therefore, energy can be spent engineering technology and solutions rather than protecting the natural state of the environment. • This is an open-ended and easily manipulated understanding of sustainable development. • It stresses individual responsibility. • Human ingenuity and human-made capital are substitutable with natural capital.	• Natural capital can never be replaced with human-made capital. • There is integration of the economic, environmental, and social dimensions of human life. • The emphasis is on systemic and institutional responsibility. • Natural capital cannot be substituted.
Normative Values	• Focuses on economic growth. • The needs of future generations can be met if economic growth and human-made capital continue to increase in productivity and sophistication. • Conservation of human-made capital is nonessential. • Societal structures maintain the status-quo. • Capitalist institutions and markets are seen as necessary. • Impacts outside of national boundaries are not considered.	• Economic growth created in an environmental and socially just manner which can support poorer populations and their well-being. • Environmental sustainability is seen to have greater lexical priority than economic and social sustainability. • It is a discourse with roots in environmentalism. • Natural resources must be sustained. • Trans-boundary and intergenerational impacts are considered. • Prevention and anticipation of environmental damage are considered. • There is recognition of indigenous knowledge. • Capitalist institutions are challenged.
Actors involved	• Market players. • Business/corporate. • Bureaucrats/technocrats.	• National, international and transnational institutions. • Community-based actors. • Market players. • Business/corporate. • Bureaucrats/technocrats.

Key Elements of the Discourse	Weak Sustainable Development	Strong Sustainable Development
Democratic approach	- Top-down administration at the national level. - Weak participatory process.	- International, transnational, national, regional and local participation. - Partnerships between political institutions, communities and businesses. - Acknowledgment and inclusion of grassroots movements. - Strong participatory process.
Institutional practices	- Short-term and fragmented approach to policy decision making. - Lack of monitoring on policy progress.	- Long-term, integrated approach to policy decision making. - Continuously monitoring policy progress.
Assumptions about the nature of sustainable development solutions	- Technology will provide a solution to sustainability problems. - Problems are exported to other countries in order to secure the nation's own sustainability. - Changes made at the individual level suffice. - Government -driven solutions are decided without extensive collaboration. - Experts are the drivers of sustainable development solutions. - International cooperation is absent. - Market solutions are favoured.	- Systemic change is required to ensure sustainable development goals are met. - Strong policies need to be implemented at the international level to keep all governments accountable. - Sustainable development must be an element of national political strategy. - Aims towards equitable economic resource availability for the poorer and most vulnerable. - Supports developing countries by providing economic means and other necessary tools to help local populations and empower change within communities. - Solutions evolve through discussion and the sharing of ideas within communities. - National policies that are produced must not negatively impact the well-being of people, nor other areas in the world.

Conclusion

In spite of the introduction of sustainable development into government policies, and the actions produced by from it, there has been significant ecological and socioeconomic destruction, as seen in, for example, climate change, biodiversity loss, ecological footprint, natural resources depletion (e.g., fresh water deficit), excessive consumption in developed countries and poverty, hunger, overpopulation and environmental degradation in developing ones, that represent a worsening situation which has not been significantly reduced through a sustainable development pathway. This decline in environmental and societal wellbeing confirms that the transition to a sustainable world, following the introduction of the concept of sustainable development in the 1980's, is far from being realised.

In terms of food waste and sustainability, the issue is clearly a shared global responsibility and, therefore, requires collaborative and effective participation between sectors and countries. The Sustainable Development Goals Fund, a multiagency and multidonor development mechanism created in 2014, has that very role, namely, to ensure that "UN agencies, national governments, academia, civil society and business address the challenges of poverty, promote the 2030 Agenda for Sustainable Development and achieve SDGs" (United Nations, n.d.). Increasing food security is one of the Fund's focus areas and actions targeting very different stakeholders have already begun in order to address this problem, for example, through the Food Africa programme and the global contest of sustainable cuisine, #Recipe4Change on social media. If food waste is to halve by 2030, mechanisms like the Sustainable Development Goals Fund are crucial elements in organising and bringing about change. In terms of local actions in New Zealand, Raglan's food waste collection service run by Xtreme Zero Waste is an example of collective action at the local level working within a larger political structure. However, given that the Raglan case is somewhat unique, as evident in chapter six, and it would seem that we need to

increase community conversations, strengthen community power, and promote local sovereignty in New Zealand to encourage larger political action at the national level.

I now turn to the methodological approaches harnessed in this research to analyse food waste discourse in New Zealand.

Chapter 4: Research Methodology

Chapter overview

This chapter describes the methodological considerations underpinning the research. It begins with an explanation of the use of qualitative data collection. Next, the chapter offers the rationale for the case study aspect of the research before setting out discourse analysis as the primary methodological approach and exploring the data collection and evaluation approach. The chapter ends with an outline of the research ethics aspect of the thesis before summarising the chapter as a whole.

A Qualitative Approach

As defined by Denzin and Lincoln (2000), qualitative research is the act of studying things "in their natural settings, attempting to make sense of , or to interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2000, p. 3). Qualitative research is a method of research which "locates the observer in the world" (Denzin & Lincoln, 2000, p. 3) in order to understand the nature of what or who is being studied. This method can, therefore, be described as taking an "interpretive, naturalistic approach to the world" (Denzin & Lincoln, 2000, p. 3). Unlike quantitative research which provides objective measurement of phenomena, qualitative research involves the collection of empirical data through methods including case studies, interviews, and observational studies (Denzin & Lincoln, 2000). These methods provide a way to explore the complexities of social issues and, as such, are helpful in analysing the issue of food waste, which is a social, political, and environmental issue.

This research took a case study approach, combined with a discourse analysis of the wider policy environment, to uncover how food waste is problematised in the New Zealand context and how underlying assumptions about this issue influence policy action. Adopting qualitative methods was useful in helping to address the study's overarching research question: How is food

waste constructed in the dominant discourse in New Zealand and how does this construction shape the current practice of food waste management in New Zealand?

Through this analysis of policy and interviews, themes emerged around the way in which food waste discourse influences and shapes current food waste management practices. It is common for qualitative data analysis to be focused on uncovering themes, patterns, concepts, and understandings that are valuable in answering research questions concerned with behaviours, practices, and actions. Uncovering key themes allows the researcher to make connections between data collected from other sources and vice versa (Suter, 2012). Such was the case in this thesis, as the themes that emerged from both the interview and document analyses were then compared and so this comparison highlighted similarities and differences between the food waste discourses at different political levels.

Research Study Design

Two main approaches to research are utilised in this thesis, namely, an analysis of food waste discourse that existed in the policies of national and local government, specifically the national Waste Minimisation Act (WMA) and the Waikato District Waste Minimisation and Management Plan (WMMP) plan and, secondly, an analysis of in-depth semi-structured interviews undertaken for the Raglan case study of a food waste minimisation initiative. The particular focus of the interviews was to identify the key themes that came out of discussions with interviewees in different professional areas and to uncover the strategies that have been applied in the Waikato District area to avoid or address food waste. The themes identified were useful in helping to understand the main problems associated with the production of food waste and how to deal with it on a wide scale. In addition, the interview data revealed the ways in which the interviewees' conceptualisations of food waste varied and how these compared with national level discourse on this topic.

Although the two substantive components of this research are interrelated in that they both describe responses to and ideas around food waste, it is acknowledged that the contexts in which these take place are quite different. Central government deals with the issue of food waste at a macro level, while the micro level of the problem is tackled at the local levels, creating change on a smaller, yet potentially much more achievable, scale. Both spaces are informed by quite different motivations, logics, and values. Therefore, in discussing these, the substantive components are separated in the discussion chapter. The qualitative datasets are first presented independently and then compared and evaluated together.

The Case Study of Xtreme Zero Waste

The case study method was used in the research to explore, in depth, the current food waste practices occurring in Raglan. A case study is a research-based and evidence-led form of enquiry which is undertaken in order to answer a research question or a series of research questions. The method involves the use of submethods to gain the information required to answer research questions. These submethods often include interviews, observations, and document analysis (Gillham, 2009, p. 13). As such, case studies are predominately qualitative in nature, in that the majority of the submethods seek to gather qualitative evidence (Simons, 2012, p. 8). Research questions are often used to design a case study by identifying a gap in current knowledge of the issue or situation which can then be filled through the study of the specific case in question. In terms of food waste, the literature highlights a lack of New Zealand-based evidence around food waste practices, discourses, and sustainable development. These key areas influenced the development of the research questions and the subsequent choice of interviewees. Simons (2012) quotes MacDonald and Walker (1975) who state that a "case study is the examination of an instance in action"(p. 8) which, by uncovering certain behaviours and actions helps to better demonstrate what is occurring at a given time, in a particular space, in regard to a research question. This 'instance' illustrates the 'real life'

context which is being studied, providing the opportunity for an in-depth exploration of the particular subject or subjects of interest. This approach is, therefore, suitable for a study that seeks to identify the way in which food waste is discussed at the national level and how this discourse affects action that is put in place.

Simons (2012) goes on to define the primary purpose of a case study as an attempt to "generate in-depth understanding of a specific topic, programme, policy, institution or system to generate knowledge and/or inform policy development, professional practice and civil or community action" (p. 9). Here, Simons captures the purpose of the case study used in this research, in that undertaking interviews and a textual analysis of food waste discourses at the local and national level in New Zealand can uncover the way in which food waste is popularly framed and discussed in both national and local politics. The findings thus demonstrate how the dominant discourse informs and inhibits policy action, which underpins the final recommendations produced from this research.

While case studies are an effective way to explore a real-life context, Gillham (2009) states there can be large discrepancies between "what people say they do and believe to be the case and what they actually do" (p.14). Thus, a case study which evaluates an established programme or policy should do so alongside analysis of other sources such as documents, records, and interviews, in order to converge evidence and form a reliable and true scenario (Suter, 2012). Hence, a case study usually harnesses multiple submethods for data collection.

The case study employed in this research involved a local Raglan organisation, Xtreme Zero Waste. Waikato District Council was one of the first councils in New Zealand to roll out a dedicated food waste service and Raglan was the first area in the district to get kerbside food waste collection (Waikato District Council, 2017). In this regard, Raglan's food waste collection is the main food reduction initiative in the Waikato District. In the case of Raglan, Xtreme Zero Waste was formed by a group of locals who were passionate about the

environment in response to an actual need, resulting from the closure of the local landfill in 1998. The service was influenced largely by the local Māori community, initiatives in Europe, while the Hot Composting Unit for the collection service was inspired by that of the unit already operating in Kaikoura, in the South Island.

Discourse Analysis

Discourse analysis is a method of analysis which explores the meanings produced by language use and communication. When speaking of text, Fairclough (2010) broadens its meaning to incorporate "both written texts and transcripts of spoken interaction" (p. 125). Discourse analysis does not simply analyse what is written or spoken; in discourse analysis, one must consider not only the context of words, but also the processes behind the words and how these shape and are shaped by particular practices and external factors.

Shaw and Bailey (2009) highlight the importance of discourse analysis as a method of studying the social and political aspects of a given population. Discourse analysis is, therefore, analysis of language in its widest sense "including face-to-face talk, non-verbal interaction, images, symbols and documents" (Shaw & Bailey, 2009, p. 413). Such a study offers a way to investigate the meaning behind the text and what this reveals about culture and beliefs. In particular, Shaw and Bailey (2009) suggest that by undertaking a discourse analytical approach, one is asking "what are the implications for individuals and/or wider society?" of what is discovered through the analysis of common discourses relating to a problem.

Discourses have the ability to change over time. New knowledge is developed and people's perspectives can also shift from one discourse to another as their priorities and understandings evolve. One such change has occurred in the way in which the environment is conceptualised (Dryzek, 2013). The prevailing discourse associated with the relationship of humans with their environments has been changing from one of 'mastery over nature' to one that

acknowledges the effects the health of the planet has on people's lives and daily activities and, in particular, the ability of modern lifestyles to have a profound impact by depleting the earth's natural resources (Dryzek, 2013). The array of different environmental discourses represents the differing perspectives on how humans should live and interact with the natural world. Some of these ask for radical change, while others do not challenge the status quo. Similarly, some discourses encourage sustainable behaviour no matter what the cost, whereas others pursue environmental protection while simultaneously seeking economic growth through the use of new technologies, a discourse described as ecological modernization (Dryzek, 2013).

For this research, discourses were analysed at two main levels: the national, political level in which data collected was from the national waste minimisation policy and at the local level where the analysis focused on the specific initiative in Raglan and relevant actors involved in that system.

Data Collection

A variety of data collection tools and methods were used in the research. Each is described and justified below:

Participant selection and recruitment

Participant recruitment for the Raglan case study consisted of identifying key members of Xtreme Zero Waste, Waikato District Council, and Go Eco, Hamilton. Internet websites and news articles were searched to identify these participants. All the interviewees were sent a recruitment email. It contained a brief personal introduction about myself, a description of my research, and an information sheet so they could better understand the purpose of my research and my reasons for requesting an interview. Using this process, I contacted three members of Waikato District Council, the Waikato District Council Mayor, the Waikato District Council Waste Minimisation Officer and the Waikato District Council Raglan Ward Councillor. All three agreed to be interviewed and we then arranged a suitable time and place to conduct the interview. In terms of Xtreme

Zero Waste, I knew that I wanted to interview the founder of the enterprise and someone who was directly involved with food waste. Xtreme Zero Waste does not include personal contact details for individual employees online, so I phoned Xtreme Zero Waste and was given the founding member's email address. We then conversed via email and set up a time and place for the interview. The second member I interviewed from Xtreme Zero Waste was a recommendation from the Waikato District Council Raglan ward councillor, who gave me the email address of the food waste composting expert. I contacted these two members and interviews were then organised via email. The manager of Go Eco was recruited in a similar way in that I could not find online contact details for GO Eco individuals. I contacted Go Eco by phone and was able to talk with the manager. In that conversation, we set up an interview time and day.

Semistructured interviews

Interviews are a commonly used tool in qualitative research (Cohen, Manion, & Morrison, 2017). According to Cohen et al. (2017), an interview is "an interchange of views between two or more people on a topic of mutual interest, sees the centrality of human interaction for knowledge production, and emphasizes the social situatedness of research data" (p. 506). Interviews are typically an exchange between two people, the interviewer and the interviewee. The interviewer believes that she can gain important information from the interviewee. The interview typically, but not always, involves asking a series of questions. In this sense, an interview is rather like a conversation. Interviews cannot be purely subjective or objective, as they allow participants to discuss their interpretation of the world in the way that they understand it. Thus, Cohen et al. (2017) describe interviews as intersubjective. Data collected from an interview cannot be purely quantitative, as the data collected is strongly related to who is asking the questions and who is answering them. In this sense, the interview conversation is bound up with human experience and personal knowledge (Cohen et al., 2017). Given that the interviewer has a specific goal— gaining information and discovering answers to questions posed for a specific

research project—the interview process has a very specific purpose (Cohen et al., 2017, p. 506).

While many forms of interviews exist, I chose to employ semistructured interviews. This type of interview uses a less structured format than structured interviews do; however, semistructured interviews are more structured than unstructured interviews. Cohen et al. (2017) note that an interview is semistructured when "the topics and questions are given, but the questions are open ended and the wording and sequence may be tailored to each individual interviewee and the responses given, with prompts and probes" (p. 511). I decided on a semistructured interviewing format as it allowed for some level of structure and planning and so would ensure that I covered the key questions that I wanted to ask, while also allowing me some flexibility. The use of semistructured interviews also allowed some freedom in the way that I worded the questions for each individual participant. I could also follow up on answers that were given and ask further questions that were prompted by the participant's answers. I prepared a set of open-ended questions (see Appendix…) which I used as a guide during the interviews. To test the quality and ordering of questions, I first conducted a mock interview with a fellow student who is writing a PhD. This exercise was useful because it allowed me to practise the interview process and, through this process, I reframed some of my questions from a closed type question to more open-ended ones, and to ensure greater clarity. Thus this reframing process improved my data collection.

All the interviews were conducted one-on-one. They ranged between 50 minutes to approximately an hour in length. They were conducted in a quiet setting to ensure that in-depth discussion could take place and at a place and time suitable for the participant; most often this venue was the participant's office. There was one exception when the interview was held in a participant's home. All the interviews were recorded on my mobile phone. I gave each interviewee a consent form (see Appendix 1) and an information sheet (see Appendices 2, 3, and 4). Although information sheets had already been given to the participants via email during the recruitment process, presenting these again

gave the participants another chance to find out more about my research and their rights as participants. I also went over the information sheet verbally with them and asked them if they would allow me to audio record the interview. I asked them to sign two consent forms: one for them to keep and one for my records. I do not disclose the names of interviewees in the analysis that follows, as stated in the information sheet and consent forms, and instead they are acknowledged by their job titles, as well as by alpha-numeric codes. These are informed by the organisation they are working within, as well as the number of individuals that were interviewed within this one organisation. I acknowledge that, given the information provided about their job titles, the participants are easily identifiable, and this was something I communicated with all participants. The following abbreviations are stated below:

- Waikato District Council Mayor (WDC1)
- Waikato District Council Waste Minimisation Officer (WDC2)
- Waikato District Council Raglan Ward Councillor (WDC3)
- Xtreme Zero Waste Founding Member and Relationship Manager (XZW1)
- Xtreme Zero Waste Head Composter (XZW2)
- Go Eco Hamilton Manager (GEH1)

The interview questions varied depending on where the participant worked. Therefore, those working in Waikato District Council were asked the same questions; those who were part of Go Eco and Xtreme Zero Waste were asked different questions which related to their specific organisations.

I consciously highlighted for each participant the fact that I did not expect them to be an expert in the field of food waste, as some were more directly involved in the issue than others, for example, those who were in a more managerial position. As the interview data revealed, those who had a more direct involvement with the area of food waste were a lot more specific in their answers. For instance, these interviewees were able to discuss statistics. As I deliberately sought to interview at least two stakeholders from each organisation, I was able to get a fuller understanding of the way that a particular

organisation functioned around the issue of food waste. Nevertheless, some participants were more knowledgeable about food waste per se, while others who came from a more managerial position spoke of the issue in terms of finances and feasibility.

Although my sample size was relatively small, with a total of 6 interviewees, the participants were able to provide their personal knowledge about food waste, as well as the actions and initiatives instigated by either the Waikato District Council, Xtreme Zero Waste and/or Go Eco (depending on which organisation they are a part of). While a sample of this size cannot reflect all that is occurring in this food waste space, the interviews were able to uncover some of the key discourses related to the issue at a localised level within Raglan, Hamilton, and the wider Waikato District. Given the nature of the case study research, I could not expect to make generalisations about how New Zealand as a whole understands food waste, even by questioning a large number of people. The value of even a small number of in-depth interviews, however, lies in their ability to provide a deeper understanding of the current food waste discourses which exist at different levels and that can allow for unexpected issues and discourses to be raised.

Interview data analysis

All interviews were audio-recorded. I rarely took hand written notes, though at times I did write down a specific sentence or word which seemed especially important to reflect back on. The transcription of each interview took place as soon as possible after the interview to ensure the conversation remained fresh in my head. Transcribing one interview before I conducted another was also important, as doing so kept me focused on the conversation that had recently occurred. I was, therefore, also able to pick up similarities and differences between conversations with different interviewees. I typed up each interview into a word document while listening to the recorded interview. Once all six interviews had been transcribed, I began to analyse the text by reading through the interviews and searching for key themes that emerged through the

conversations. I also used the search tool bar to assist with finding key words from each interview as a way to compare and contrast the discourses emerging from each conversation and as an alternative way to find key themes among the interviews.

Textual analysis

In order to investigate how the issue of food waste is shaped at the national level, I chose to examine the primary waste management act of New Zealand, the Waste Management Act (WMA). The document was available to download through the New Zealand Legislation website. The process of reviewing this text began once I had solidified the theoretical framework of the weak and strong notions of sustainable development underpinning the research. The process of reading through and analysing the text involved thorough analysis. I analysed each section of the WMA for key words associated with food waste, organic waste, and minimisation and management strategies that occurred in the text. Once a thorough examination of the Act had been completed, the theoretical framework and literature were used as tools to compare and contrast the implications of the regulations and goals set out in the Act so as to bring together a coherent understanding of what sort of discourse was evident from the Act in terms of dealing with food waste and waste in general. The same process was undertaken with analysis of the Waste Management and Minimisation Plan (WMMP) accessed through the Waikato District Council's website. Although the documents analysed in this study are not extensive in that they do not cover the entirety of information available on waste management policy in New Zealand, both were useful in forming an impression of dominant discourses and debates regarding the research topic.

Research Study Ethics

This research was approved by the University of Waikato Human Research Ethics Committee and was undertaken in accordance with the committee's guidelines and procedures. All participating interviewees were provided with verbal and/or

written information and opportunities to ask additional questions at any time during the study. Informed verbal and/or written consent was given prior to undertaking the interviews. All of the interviews were carried out at a time and place convenient to the participants.

Conclusion

To summarise, this chapter detailed the study's research methods and explained my rationale for using a qualitative methodological approach. The use of semistructured interviews enabled me to explore at sufficient depth, Xtreme Zero Waste's food waste initiative and the relationship between this initiative and the wider public, including the Waikato District Council. Carrying out a discourse analysis was crucial in the examination of the language used to problematise and conceptualise food waste by national and local government.

The next chapters summarise the findings from the data that was collected through policy documents and interviews.

Chapter 5: The Legislative and Policy Context for Waste Minimisation in New Zealand

Despite the United Nations' target to halve food waste globally by 2030, little action has been taken to address the issue at the national level. The most recent and most promising action towards substantive political effort is the New Zealand Parliament's Environment Select Committee's proposition to carry out a briefing on food waste, which was announced at the end of 2018. It is not a formal enquiry, but highlights an opportunity for learning, as the committee is seeking submissions from stakeholders in the food and waste sector in order to develop recommendations for waste minimisation. This is an issue currently governed by the Waste Minimisation Act of New Zealand.

This chapter highlights the ways in which food waste has been targeted at the national and local levels by central government and local councils. The first part of the chapter examines the legislative context, namely the Waste Minimisation Act of New Zealand. Second, because the Xtreme Zero Waste case study is situated in Raglan and because it is a partnership with Waikato District Council, the local level action will focus specifically on the WWMP of the Waikato District Council, in order to maintain clarity and precision throughout the chapter. The chapter ends with a discussion of the way in which national legislation influences and shapes action, or lack thereof, at the local council level.

The purpose of this chapter is to explore two sets of legislation that currently exist on waste management in New Zealand; it, therefore, seeks to investigate not just how food waste is discussed, but also to discuss key features of the legislation in terms of how they exist within the economic, environmental, and social context of sustainable development.

National Government Positioning on Waste Minimisation in Official New Zealand Waste Policy

Background of the Waste Minimisation Act

The WMA was established in 2008 and introduced to parliament by the Green Party. The legislation was informed by the OECD's 2007 report entitled *Environmental Performance Review of New Zealand*, which drew conclusions about New Zealand's approach to waste management (Ministry for the Environment, n.d.). The report highlighted the increasing volume of waste generation that was occurring throughout the country, as well as declaring that the current way in which waste was dealt with was insufficient. More specifically, it was stated that among other waste challenges, the current legislation that did exist dealt "with the disposal end of the waste hierarchy, with recycling, recovery and minimisation dealt with solely on a voluntary basis" (OECD, 2007, p. 4). Such a comment highlights the way in which effective waste minimisation efforts had not yet occurred at the national level, and that any efforts to do so focused exclusively on management as opposed to minimisation and recovery. The OECD recommendations highlighted the need for developed national regulations and increased support for recovery and recycling to be addressed in the WMA. The Act is administered by the Ministry for the Environment and sets out waste management activities for local government to action.

Review of the Waste Minimisation Act

The WMA established the regulatory procedures for the reduction of waste generated and disposed of in New Zealand. The Act has since been amended five times, with the last amendment being in January 2018. The WMA (2008) states that the purpose of the Act is to:

> Encourage waste minimisation and a decrease in waste disposal in order to—
>
> (a) protect the environment from harm; and

(b) provide environmental, social, economic, and cultural benefits (p. 6)

These elements are very much in line with the sustainable development discourse which emphasises the importance of bringing the social, environmental, and economic aspects of society into harmony and sustaining them for future generations (Dryzek, 2013).

Underpinning the assumption is the idea that by increasing waste minimisation, and thereby decreasing waste disposal, the safety of both people and the environment will improve, an outcome which, in turn, will have positive consequences for these other areas of humanity. The stated purpose of this Act thus demonstrates the incorporation of sustainable development discourse into its text.

Part two of the Act, entitled "Product Stewardship", focuses on the people and organisations involved in the life of a product. This section sets out policy on the ways in which such action should be taken so as not to create harmful repercussions from the creation and disposal of a product (Waste Minimisation Act, 2008, p. 9). The text reiterates a focus on sustainable development and stipulates that the people and organisations involved in the life of a product must ensure that the long-term consequences of their product are taken into consideration. These stipulations include ensuring that there is "effective reduction, reuse, recycling, or recovery of the product; and managing any environmental harm arising from the product when it becomes waste" (Waste Minimisation Act, 2008, p. 9). While this statement represents the long-term approach of decision making found within a sustainable development discourse, in that the entire life of a product should be considered, including the life of the product after the consumer has finished with it and not merely the production phase, it seems to contradict the overall purpose of the Act with its focus on environmental protection from harm before it has occurred. The fact that the Act uses the term "managing" implies that it is not calling for radical change. It is not making strong claims about a need to focus on the prevention of

environmental harm before it can occur. However, since the implementation of the WMA, waste volumes going to landfill have continued to increase. Furthermore, literature in the waste minimisation space has picked up on the fact that the national figures show little evidence of waste reduction (Tucker & Farrelly, 2016, p. 683). Moreover, using the word "encourage" suggests a lack of political willingness to force producers to take responsibility for the waste produced by their products. The word "encourage" is followed in brackets by the words "in certain circumstances, require". This parenthetical statement suggests that only in specific instances is it necessary for producers to take preconsumer and postconsumer responsibility in terms of the lifecycle of their products. The Minister has the authority to declare if a product is deemed a "priority product" and certain factors allow the Minister to declare a product a priority. These include if the product may or will cause harm to the environment when it becomes waste, if there are significant benefits when the product bypasses becoming waste, and if it can be managed under a product stewardship scheme (Waste Minimisation Act, 2008, p. 10).

The language used here suggests a long-term approach, in that even if the product "may" cause harm, it should still be considered a priority product. Other elements presented under "Product Stewardship" demonstrate an inclusion of the participatory process, in that the community must be given the opportunity to comment on the product in question and public concerns are to be taken into consideration, as shown below.

> (The Waste Advisory Board) must consider any public concerns about environmental harm associated with the product when it becomes waste (including concerns about its disposal); and
> Must provide the public with an opportunity to comment on the proposal.
> (Waste Minimisation Act, 2008, p. 10)

The above factors, coupled with the focus on environmental welfare, show an element of strong sustainable development discourse, in that the decision-making process should not be restricted to experts and because the

wider community is able to bring forward their concerns, as well as being informed of any proposed changes to waste legislation before they occur.

The Waste Disposal Levy, discussed in part 3 of the Act, sets out the regulations involved in the disposal costs of waste to landfill. The baseline levy is $10 per tonne on all waste sent to landfill. Alternatively, a rate can be determined according to the weight of material disposed of at a facility; this charge is paid by the disposal facility operator (Ministry for the Environment, 2018). The Act emphasises the point that the waste disposal levy is not only to raise revenue to promote and achieve waste minimisation, but also to highlight the costs of waste in terms of the environment, society, and the economy which make waste production an undesirable practice (Waste Minimisation Act, 2008). Although this regulation is positive, in that increased costs can propel councils to increase measures to dissuade the public from endorsing landfill disposal when alternatives are possible, it is also a reflection of an individualised issue. When levies increase, disposal facility operators may pass this cost on to waste producers such as households and businesses. Thus, it is the wider community that is affected when prices subsequently increase for landfill waste collection services provided by local councils. For many communities, there are no alternative disposal options for items such as food, even though landfill disposal should be the last option. However, landfill disposal is by far the most accessible to all forms of disposal and so when the cost of using it increases, it is individuals who are impacted and restricted to landfill waste disposal due to accessibility and availability.

The Act goes on to explain how money collected from the levy is to be spent. Half of the money collected from the levy is shared among city and district councils around New Zealand and is to be spent on actions relating to waste minimisation. The amount each area receives is determined by the number of people in the district (Ministry for the Environment, 2018) .

While valid in that each authority is given an equal share in accordance with its population, this determination does not take into consideration the economic

differences and variabilities within authorities. The way in which the levy funds are allocated suggests that lower income areas are disproportionally disadvantaged in terms of waste minimisation financial aid coming from government. In addition, these areas are potentially those that are the most in need in terms of increasing waste awareness education and opportunity in the area.

This approach is not in line with a strong discourse of sustainable development which aims towards equitable economic resources for the poorer and most vulnerable of a given community and/or population.

The fourth part of the WMA—"Responsibilities of territorial authorities in relation to waste management and minimisation"—is the operational aspect of the Act which directly guides a local government's WMMP. A WMMP is obligatory for each city or district council and the WMA provides the fundamental guidelines for what these plans need to include. For instance, the plan must include the objectives and policies required to achieve effective waste minimisation and management, methods for achieving this from collection, recovery, recycling, treatment and disposal services, and how the plan will be funded. Furthermore, the Act requires each WMMP in New Zealand to include "any waste management and minimisation activities, including any educational or public awareness activities, provided, or to be provided, by the territorial authority" (Waste Minimisation Act, 2008, p. 25).

The extract above suggests not only a focus on waste disposal, but also a focus on behaviour change at the consumer level, which indicates that alternative methods separate from physical waste collection services are encouraged to positively change the way people think and behave in terms of their waste disposal behaviour.

The Act states that each territorial authority may financially support any person, organisation, group, or body of persons in the local area that is promoting action towards waste minimisation and management. This statement is significant for two reasons: first, that waste minimisation occurring at the local

level can generate significant support and positive results in the waste minimisation space—for example, the work of Xtreme Zero Waste in Raglan—. Secondly, financial aid for these projects is key in encouraging initiatives which can help to strengthen such action and target larger groups of people, thus, increasing the reach of positive results.

The WMA sets out that each WMMP must be reviewed at regular intervals and with no more than 6 years between reviews. When revoking and reviewing these plans, the Act underlines the range of methods for waste management and minimisation. These are listed in order of most to least important. They range from reduction, to reuse, to recycling, to recovery, to treatment, and, lastly, to disposal. This prioritisation of methods relates to a strong notion of sustainable development which requires policies to be continuously monitored in order to ensure that such policies deliver positive outcomes (OECD, 2018, p. 84). This assessment must also include "a statement of options available to meet the forecast demands of the district with an assessment of the suitability of each option" (Waste Minimisation Act, 2008, p. 28).

The extract above suggests the importance of addressing the needs of future generations in terms of effective waste minimisation and collection. However, while the aim of this part of the Act is to "ensure that public health is adequately protected", it makes no link to the environmental impact of waste, nor how a shift from disposal to reduction will occur. Although a waste assessment must propose options for future demands, the Act seems very focused on the collection, recycling, recovery, treatment, and disposal services within a district as opposed to the reduction aspect of waste. Reduction, as listed by the Act, should come before all other waste management methods. Requirements for an assessment also mean that "the extent of the territorial authority's resources" (Waste Minimisation Act, 2008, p. 29) must be considered, before making future decisions and action plans: However, this proviso suggests that the WMA actually inhibits potential growth and action in waste minimisation and management. Restricting the potential for waste management

and minimisation can occur within any given area and/or district, because the resources needed to fulfil these functions are currently not equally distributed across New Zealand councils. As previously mentioned, this inequity is due to factors such as population size. Thus, under-resourced communities suffer in terms of what they can and cannot implement and achieve.

Section 52 states that "A territorial authority may undertake, or contract for, any waste management and minimisation service, facility, or activity (whether the service, facility, or activity is undertaken in its own district or otherwise)" (Waste Minimisation Act, 2008, p. 29). Applying a waste management and minimisation service from one community into another represents a sharing of knowledge among councils which strengthens the ability for councils to extend their services and creates homogeny in the way that waste management occurs around the country. This approach not only allows potentially very beneficial services to expand, but it also enables knowledge to be more freely accessible and available for others to access. However, it would be interesting to know how often this sharing occurs and if it is facilitated by government. Discussion with interviewees from Xtreme Zero Waste confirmed that other councils around the country have contacted Xtreme Zero Waste in regard to their interest about its food waste collection service. "We have had a lot of interest, especially from Auckland council who have come to see our collection and how it works" (XZW1). Coupled with the fact that Xtreme Zero Waste has been very open about its journey to becoming a food waste collection and has been "totally transparent" (XZW1), providing free access to its online documents and audits demonstrates an organisation that is eager to share knowledge that could benefit other communities. However, these same interviewees also commented on the fact that this transparency is not always common among other organisations, councils, or private companies which tend "to hold on to their IP very tightly" (XZW1), thereby reducing opportunities for information sharing. Furthermore, one cannot assume that one community will be as receptive as others when it comes to specific waste management and

disposal options; therefore, these may need to be adjusted significantly according to the area in which they operate.

Section 5 highlights the offences and enforcements relating to insufficient follow-through of the waste minimisation and management practices established in the Act. Fines of up to $100,000 can be imposed. While the offences relate to the misconduct of a person, producer, and/or territorial authority that does not follow the guidelines set out by the WMA relating to the reduction of waste; and the reuse, recycling, and recovery of waste and diverted material, none of these offences specifically targets food waste, nor mentions the opportunity for organic waste diversion. Furthermore, while the WMA sets out overall waste minimisation guidelines for councils to achieve, there is an absence of policy targeting specific waste streams. Comparing this situation to recent developments in Europe suggests that waste policy in New does not set out sufficiently clear goals and the consequences when such goals are not met. European examples include the €3,750 fine supermarkets face in France if edible food is disposed of to landfill. Italy's 2016 law not only encourages food retailers to donate food to charities and food banks, but also ensures that these same businesses will not face fines if they give away food that has reached its best before date. They also receive tax cuts proportionate to the amount of food they give away. Additionally, in Italy, the law now states that stealing small amounts of food such as food from supermarkets waste bins is not a crime (Matamoros, 2019).

Governance of the Act

In New Zealand, decision-making power for all waste minimisation and management related issues lies with the Minister for the Environment. The Waste Advisory Board (WAB) is the body which advises the Minister on these matters; this board must be representative of a diverse group of people including local government, Māori, waste-related industry, and community projects for waste minimisation. The fact that the Act recognises this need for diversity among decision makers represents an important aspect of strong sustainable

development discourse, in that the democratic approach to decision making should be inclusive of people who are experts in their field and those that have expertise in different areas which impact or are affected by waste (Waste Minimisation Act, 2008, p. 48).

Implications of the Waste Minimisation Act

This section now turns to the implications of the WMA in terms of the visible gaps in the Act. The fact that food waste has not been sufficiently addressed in New Zealand law at the systemic level can impede progress at the local level.

Māori partnership and expertise are mentioned once in the Act in relation to the WAB election process. The Minister for the Environment must consult the Minister of Māori Affairs before appointing any member to the Board and potential members are chosen in relation to their skills and expertise, with tikanga Māori being one of these categories. However, there is no part of the Act that directly engages with indigenous knowledge nor references the significance of indigenous knowledge. The mention of cultural diversity in the overall purpose of the Act indicates an acknowledgement of the diversity of people and cultures in New Zealand. Nevertheless, the absence of specific Māori recognition and Māori knowledge throughout the Act highlights the way in which a Westernised perspective has come to be the norm in New Zealand society. As previously mentioned, the food waste collection in Raglan is deeply involved with the local Māori population who were able to offer those at Xtreme Zero Waste invaluable information which helped in the implementation of the service. Furthermore, indigenous knowledge has been recognised as offering important and crucial information in the process of policy decision making; yet this is not the case with the WMA (Jamieson, 2010).

Next, food waste does not feature within the WMA. While Part 1 does define the term waste as including any " type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste)" (Waste Minimisation Act, 2008, p. 8), the

general way in which the term waste is used means that the specifics on certain types of waste are not identified. This factor could potentially inhibit action, because it represents a certain lack of guidance from the Act, especially for territorial authorities across the country which must follow the guidelines set out by the Act when planning waste management and minimisation. A lack of specificity in terms of which waste should be considered a priority shows how a gap at the national level can influence and shape actions at the local level.

While the Act encourages the sharing of waste management activities between territorial authorities and allows councils to contract for these facilities in their own area, there is little evidence of positive initiatives being picked up and shared by other regions. As previously mentioned in this chapter, while Xtreme Zero Waste has shared much of its knowledge and journey, interviewees also highlighted that sharing this knowledge freely with other councils is much more viable when research is funded, because organisations such as Xtreme Zero Waste still need to have sufficient economic capital to continue their services and research. Thus, economics is clearly an issue for community initiatives such as Xtreme Zero Waste in terms of how a service is paid for. Having appropriate central and local government investment and support will serve multiple purposes. Primarily, it would encourage service community initiatives, sustain them, and allow for increased collaboration between service providers without fear of these initiatives failing to provide due to their financial costs.

Kaibosh—a food rescue service in Wellington similar to Kaivolution in Hamilton—is one of the organisations which submitted a paper to the Environment Select Committee. Its submission highlights funding as a significant challenge to delivering a food rescue service, or a service of a similar nature, to the public. Furthermore, Kaibosh points out that, as a service starts to achieve greater success, more funding is required to effectively meet demand and that, at present, such adequate funding is not coming from government.

In terms of current national government policy, it is clear that New Zealand has not yet implemented food waste. The country has not taken many of

the measures instituted by other, predominantly European, countries. Unlike France, for example, New Zealand does not ban supermarket food waste (see chapter 2). However, the WMA is a mechanism to hold local governments accountable, as these authorities have to have dedicated waste minimisation plans for their area. Thus, all local councils in New Zealand need to meet certain requirements in terms of dealing with waste. These requirements are set out in each district's Waste Management and Minimisation Plan.

Waikato District Council Waste Management and Minimisation Plan

The vision of the Waikato District Council's current WMMP is "Zero Waste and Resource Recovery" (Waikato District Council, 2018, p. 7). Between 2012 and 2018, there was an overall increase of around 47% in the amount of waste going to landfill in the Waikato district from all sources including council and private services (Waikato District Council, 2018, p. 4). As a result, the WMMP highlights food waste as an area to minimise in its list of proposed activities to reduce overall waste going to landfill. The plan states that there will be:

> a review of waste services and behaviour change programmes to bring them into alignment with the WMMP (including, but not limited to, contracting of solid waste services, kerbside refuse service, inorganic collection, food waste and drop off collections). (Waikato District Council, 2018, p. 4)

The objectives of the Waikato District Council's WMMP are all set around a "zero waste" framework which aims: to manage the social, cultural, spiritual, economic, health, and environmental impacts of waste; reduce the quantity of material entering the waste stream and simultaneously increase resource recovery; increase collaborative partnerships within communities; and, provide communities within the Waikato district with waste management and minimisation information that is in alignment with National Waste guidelines.

These goals represent the comprehensive plan that the Waikato District Council aims to carry out by 2024; these goals focus on waste minimisation and all aspects of societal well-being. The WMMP is explicit in acknowledging the

Waikato District Council's role in ensuring effective waste minimisation. The plan states that the Council will achieve the set targets through structures such as establishing and maintaining waste contracts and programmes throughout the district. It also highlights the way in which councils within the Waikato region will work together to ensure the deliverance of waste minimisation practices. The WMMP also suggests increased collaboration between regions as a way in which waste minimisation can improve on a larger scale; in this way, the Waikato District Council's plan contains similar ideas to those presented in the WMA. The WMMP also highlights that while council is able to encourage and implement varies strategies to work towards its goal of zero waste, some waste streams cannot be managed by council and need to be the responsibility of national government. This area includes producer responsibility for items that require different disposal processing such as e-waste and agriculture chemicals, both of which are highlighted as requiring legislative change to manage. Infrastructure capacity is another challenge highlighted by the WMMP, with food waste infrastructure specifically identified as a waste stream requiring increased attention moving forward. Planning for increased infrastructure requires long-term decision making. Here, the district's WMMP suggests a timescale of 10-20 years for infrastructure improvements and highlights the probable high costs associated with these.

The plan specifically states that food waste collections will be considered in the 2018-2019 period, with the potential to implement waste minimisation activities, including food waste, in 2020 and 2021 (Waikato District Council, 2018, p. 9). It is proposed that these services will be funded through levies and rates. One specific proposal is that in July 2020 a food waste collection service will be implemented in Hamilton—a city which is located in the Waikato but is under Hamilton City Council jurisdiction (Stuff, 2018). This service will provide residents with a weekly 20-30-litre food bin collection service. The bin's size is similar to the 20-litre bin used in Raglan.

There is also specific mention of the Raglan food waste collection service in the WMMP where it states its intention to: "Evaluate Raglan food waste

service and assess suitability for expansion. Expand if suitable" (Waikato District Council, 2018, p. 9).

The plan goes on to indicate that the timeline for expansion could be 2022, again through levies and rates, although this possibility has yet to be confirmed. These activities specifically targeting food waste demonstrate an increased awareness of the problem at the local level and within local government. When comparing the 2012-2018 and the 2018-2024 WMMPs, we can see that the issue of food waste is given more attention in the latter. The official assessment of the 2012-2018 WMMP provided two scenarios. The first was the recommended option, which included assessing the Raglan food waste service and considering options to expand the service. The second focused on educational programmes to encourage behaviour change and promote other food waste behaviours such as composting. The second scenario is much more direct in that it states a kerbside food waste collection service should be introduced to all urban households, alongside educational programmes (Murray, 2018, p. 79). As yet, the Raglan food waste collection is the only one of its kind in the Waikato district. Thus, the Waikato District Council is one of the first councils in New Zealand to roll out a dedicated food waste service, with Raglan being the first area in the district to receive kerbside food waste collection (Waikato District Council, n.d.). The council focuses on residential households and waste, as opposed to the preconsumption stages of waste, as the council exists to support the community and the people in those communities, which in the Waikato, largely consist of smaller towns and rural farming areas. Furthermore, the waste contracts that Waikato District Council operates at the moment run until 2021. The review process that takes place when an existing contract is due to expire will include looking at the Raglan scenario as a possible alternative for other Waikato communities.

Lastly, the plan briefly acknowledges the relationship between waste management and Māori, stating that the WMMP is in line with the views held by the tangata whenua (people of the land), a term that can be used to describe the Māori population of New Zealand. However, the plan is not clear about how

collaboration with Māori occurred, in order for the plan to be in line with such views. It would be beneficial if the measures set out by the local tangata whenua were stated and clear links between indigenous values were represented in the plan.

Implications of the Waste Management and Minimisation Plan

The vision and targets of the WMMP demonstrate an incorporation of sustainable development discourse into its text. The goals of the WMMP stipulate this commitment to sustainable development in that the "social, cultural, spiritual, economic, health and environmental impacts of waste" (Waikato District Council, 2018, p. 7) will be equally considered throughout the decision-making process when implementing waste management action. The collaborative aspect of sustainable development is also evident within the WMMP, with goal number 4 highlighting the need for "collaborative partnerships" (Waikato District Council, 2018, p. 7). This aspect is evident, as the plan calls for collaboration between territorial and regional councils around New Zealand, as well as equal partnership with central government and with the community (Waikato District Council, 2018, p. 3).

A focus on sustainable development is reiterated in the issues and challenges section of the plan, as these call attention to the need for systemic change to occur in dealing with aspects of the waste problem that are beyond the scope and reach of the Waikato District Council. These issues include the need for greater infrastructure and the tightening of consequences in terms of the responsibility that producers have for products that will eventually end up in the landfill waste stream.

While the WMMP sets out that the Waikato District Council will work collaboratively with Māori to achieve waste minimisation outcomes, as well as acknowledging Māori values and knowledge when it comes to dealing with waste, there is little evidence of an incorporation of indigenous knowledge into the WMMP; the document is merely stating an acknowledgement of the Māori

culture and community in general. It would be interesting to see the kind of collaboration that has occurred since the 2018-2024 WMMP was produced to determine whether there has been an inclusion of cultural diversity and the indigenous population of New Zealand in council waste minimisation decision making.

The Waikato District Council face a number of challenges regarding the implementation of a food waste service similar to the one in Raglan. These include not only the general challenges to ensure that effective waste minimisation and management occurs, but also relate to a lack of infrastructure for resource recovery, the need for increased community drive and knowledge, and the need to overcome variable commitment to waste minimisation from the private sector (Waikato District Council, 2018, p. 14). These difficulties demonstrate the institutional barriers that hinder the council's ability to make sustainable changes. Council must ensure that the community is supported in a way that makes waste minimisation accessible and affordable, which means that external factors such as costs and infrastructure must first be developed and reliable. Nevertheless, the council only plans to expand such a service 'if suitable', even though the success rate for food waste diversion in Raglan—i.e., 225 tonnes of food diverted from landfill within the first 18 months of operation—has been significant. Furthermore, since the service started in Raglan, 10,000 fewer blue 60-litre prepaid bags have been bought. Sales of the 30-litre prepaid bags have, however, been increasing due to a reduction in waste entering residents general waste rubbish bags (Xtreme Zero Waste, 2019). These successes, among others, suggest one very positive solution to the problem of food waste, yet the WMMP sets out that this solution will only be considered. The question then becomes against what criteria will this solution be evaluated. The council's stance suggests an element of weak sustainable development discourse in that the current status quo of food waste management is not being challenged at the institutional level and, instead, a short-term approach to decision making is being favoured. Setting up food waste collections in other areas of the Waikato will require time and sufficient funds. However, providing

these services will provide residents with a better and more sustainable way of disposing of food.

Summary

The main tenet of sustainable development is that the economic, environmental, and social dimensions of human life must be maintained through actions which do not negatively impact the environment and current and future generations. For the most part, the WMMP adopts this view. It specifies that its goals of "zero waste" and "resource recovery" are concerned with the health of the environment and people. The Waikato District Council's WMMP highlights the importance of cultural diversity, collaboration, and long-term planning and sets out specific, measurable goals which can be monitored by council.

The findings show how local government in the Waikato has positioned food waste more strongly than central government has by discussing the possibility of specific food waste action such as rolling out kerbside collection services in other areas of the district. The fact that there is no discussion on food waste within the WMA highlights an inconsistency in the way in which waste is discussed politically. While the WMA acts as the overarching framework for councils when establishing their own waste management plan, the lack of specificity in the WMA may create a disjointed effect in the way that councils around New Zealand are managing their communities' waste stream. Thus, the absence of government leadership in the food waste space has filtered down to the local level, as is evident by the increasing waste disposal volumes occurring in the Waikato and in other parts of the country.

In summary, the WMA reflects aspects of both a weak and strong sustainable development discourse, which then affects local level policy. The purpose of the Act encompasses what lies at the core of sustainable development, in that the economy, environment, and society are protected and sustained through decisions that are made collaboratively at the national and local levels. However, the lack of specificity in how to deal with separate waste

streams creates inconsistency at council level, as is demonstrated in the Waikato where a food waste collection service which has had very positive results is only available to a very small population of people. The use of vague, aspirational words such as "manage" and "encourage" that are found in Part 2 of the Act demonstrates a lack of political willingness to enforce changes and create set guidelines in terms of how products are dealt with in their pre and postconsumer stages. Instead, this ambiguity creates interpretative leeway for producers who may or may not be attempting to increase the sustainability of their product.

Decision-making power falls to the Minister for the Environment who is advised by the WAB. Ideally, the make-up of the Board should reflect both the cultural diversity of New Zealand and a range of people with knowledge and expertise in different areas of waste minimisation. One would hope that the Waikato District Council has the same level of diversity among its waste minimisation team; however, this issue is not addressed in the WMMP.

Furthermore, the specificity in the WMA in terms of funding limits local level initiatives. The Raglan food collection service is no longer funded, and if it is to continue, it will be paid for by the community. This situation demonstrates that the food waste problem has been largely established as an individual responsibility, even though the waste issue begins well before the consumer. Finally, there remains a lack of 'hard policy' within the WMA. While consequences of harmful waste management practices are evident predominately through fines, there remains no set comprehensive food waste management policy, both in the public and private sector and at the local level.

Chapter 6: Addressing Food Waste at the Local Level: The Raglan Case

This chapter identifies the discourses relating to food waste and food waste management that emerged from interviews with key actors involved in waste management issues in the Waikato District, particularly the Raglan kerbside food waste management initiative. The focus is on exploring interview data that emerged as participants reflected on their experiences of involvement in the initiative and the recommendations they offered on ways to mitigate and/or solve the wider problem of food waste in New Zealand. The analysis reveals that a variety of perspectives emerged on the issue of food waste and highlights two important arguments: first, that food waste is perceived differently in this local context by comparison with the wider regional and national context; and, second, that the way in which food waste is perceived affects the way the problem is constructed and responded to in both the policy and public arenas.

The chapter compares the food waste discourses at the local level with those at the national level that were examined in the preceding chapter. The interview analysis strengthens the main argument that different food waste discourses drive different responses to food waste management. The discussion that follows presents the findings under the following headings: (1) descriptions of the problem of food waste; (2) the distinctive local response to food waste in Raglan; and, (3) the contrasting perspectives on policy solutions. The chapter concludes with a discussion of what the Raglan case can teach us about food waste management and what this lesson means for sustainable development in terms of economic, environmental, and social/cultural sustainability.

Local Depictions of the Problem of Food Waste

The problem of food waste was conceptualised and depicted in a variety of ways at the local level and was attributed to both systemic and individual factors. Comments that emphasised systemic causes referred to poor regulation of waste in the food production and consumption cycle. For instance:

The big producers of food need to be held responsible, and that needs to start with government making changes in order to create that accountability (WDC3).

The main tool the New Zealand government should use is having a ban on sending organics to landfill, which would target both producers of food and consumers of food. They (central government) would then need to set up localised composting facilities as a way of sequestering carbon and which would act as a resilience tool to localised food supply as well (XZW1).

Another aspect of this thinking was that food waste was depicted as a problem of "modern lifestyles". Some interviewees linked food waste to the changes that have occurred in lifestyles based around a consumption-oriented society in the 20th and, more strikingly, the 21st century. The Waikato District Council waste minimisation officer sums up this argument by stating that:

Our lives are so busy. We now shop for convenience over consciousness and there is also a lack of knowledge about the issue and how to deal with it more responsibly at the consumer level (WDC2).

These observations reflect the issues raised by Evans (2012), who recognised the effects of contemporary lifestyles on the amount of food waste produced. He argued that, while this may seem to be an individual problem, it has transformed into one of social responsibility, in that the very social context in which people live and work contributes to food waste. Lifestyle influences include the fact that our lives have become increasingly 'busier', alongside the ease of purchasing prepackaged food and meals.

The founding member and waste relationship manager at Xtreme Zero Waste framed the issue of local waste in a way that emphasised its economic and employment potential. He stated that the mission behind Xtreme Zero Waste as an organisation and the food waste initiative was to "turn the negative of waste into multiple positive benefits for the community" (XZW1) by increasing

employment opportunities, increased access to available resources, and local economic generation. In this way, food waste, which is predominantly shaped as a negative outcome, is transformed into one which provides opportunity for the community as a positive resource.

This perspective can be juxtaposed with the idea that food waste is a burden on society, as was demonstrated in comments made by the Waikato District Council mayor who highlighted the economic burden of the problem. He stated that:

> The cost of disposing of solid waste to landfill is going up. There are pressure points around costs and the food waste service in Raglan is an additional cost over and above what people are already paying for solid waste collection (WDC1).

The perspective that food waste represented an economic cost was also evident in comments that referred to the lack of financial savings to be made from food waste reduction. From this perspective, business opportunities derived from food waste reduction were limited. While reducing overall waste sent to landfill would save money for both local council and government, the absence of a monetary incentive for reducing food waste was, for these participants, a factor hindering further action at both the local and national level. When I interviewed the manager of Go Eco in Hamilton, it was clear that the council's focus on profit was an obstacle to increasing food waste minimisation opportunities:

> The desire for a profitable business is the biggest problem for effecting change, especially when it comes to changing behaviour in the commercial and political setting… It becomes a barrier to action and it means action is slowed right down at the government level (GEH1).

Interviews with council members highlighted the fact that food waste going to landfill was a problem in terms of cost:

Council is about trying to provide a high level of service but lowering the cost of it and with landfill prices going up, we have to minimise the tonnage of waste sent to landfill, including food (WDC1).

While an overall reduction in landfill reflects positive environmental action, the focus on doing so primarily in terms of lowering costs and saving money reflects a weak sustainable development discourse as it was outlined in the theoretical framework used to guide this analysis. Furthermore, looking at food waste in a way that favours economic growth or protection over the environmental and social dimensions of society reflects the arguments of Dryzek (2013) that environmental action conducted to sustain or increase economic growth does not challenge the current institutional model, which already favours economic growth. Such action abstains from resolving the creation of the problem and instead favours profitability. An interviewee from Xtreme Zero Waste went on to highlight the way in which government creates this model which councils then follow:

Our government is reluctant to regulate the market. With the government we have at the moment it is more likely that environmental issues will feature higher on the agenda which differs from our previous government who were more protective of commercial interests (XZW2).

The way in which food waste is described at the local level demonstrates a variety of perspectives within this context. When food waste is understood as a potentially positive resource which can increase employment and economic development, as has been the case in Raglan, it can be categorised under the societal pillar of sustainable development which emphasises human and societal well-being. Seeing food waste in this way is quite different to the way in which food waste was otherwise described in the interviews, where it was seen as a more negative resource in terms of both the environmental disruption it creates and also the costs related to landfill waste and waste disposal. The latter perspective is another representation of how the economic aspect of waste disposal sits at the forefront of popular food waste discourse.

The Response to Food Waste in Raglan

The response to food waste in the Raglan community has been to tackle the issue separately from other waste streams in order to ensure that food waste did not end up in landfill and add to the creation of methane. However, the initiative was also an opportunity to create change without having to "wait for permission" (XZW1) from central government and local council, which interviewees from Xtreme Zero Waste stated can often result in no action or very little action. A project such as food waste diversion was a way in which the community could make positive change informed and led by community members. One interviewee commented that:

> No one really cared about Raglan, so an aspect of this initiative came from the community wanting to show resilience as a community who can initiate change (XZW1).

There was a shared understanding among interviewees that the food waste collection service was implemented successfully in Raglan largely due to the town's distinctive local culture. The Raglan community was described as "unique", "resilient", and "environmentally knowledgeable", indicating the community's understanding of waste-related issues. This vocabulary indicated that there was a strong community identity in Raglan that was different from that of other areas and one that contributed to the establishment of the food waste collection service. The Waikato District Council mayor described the situation in Raglan as a "showcase" for the wider New Zealand, as well as stating that:

> The Raglan community are passionate about waste minimisation which is why the kerbside food waste collection has been successful in the microclimate of Raglan (WDC1).

Here he was not referring to the weather, but to the cultural climate. The distinctive culture of the Raglan community was understood as reducing the likelihood that similar food waste collection initiatives could be successfully

copied and implemented across the wider Waikato District region—unless they were tailored to fit each individual area.

Interviewees from Xtreme Zero Waste discussed the journey the community and Xtreme Zero Waste have been on to create the food waste service. This journey had involved the sharing of knowledge across the entire community through a variety of different avenues, including the *Raglan Chronicle*, the weekly local newspaper, which regularly ran articles on waste. Xtreme Zero Waste also sponsored the local radio station, which provided the opportunity to use radio as a medium to generate conversations around waste issues. Furthermore, Xtreme Zero Waste often held community events as an opportunity to increase local conversations about waste and sustainable waste management. This approach suggests that a strong local information network existed in Raglan and that it contributed to the dissemination of knowledge on environmental issues. The community was also described by interviewees as very receptive to the information relating to environmental issues, a factor which contributed to the desire of the community to have a food waste collection service.

> It has just been a journey that both Xtreme Zero Waste and [the] community have taken together to become knowledgeable about waste and, in turn, this has made us very literate about the issue as well as concerned about consumption and consumerism and passionate about making a positive change (XZW1).

Environmental education was aimed at issues of sustainability and providing the community with the ability to participate in activities which foster the growth of an informed town. The Raglan ward councillor highlighted the fact that Raglan was an inclusive community with learning opportunities that all people could engage in:

> We are a community that fosters and encourages learning for people from right across an age spectrum (WDC3).

The transparency of Xtreme Zero Waste in the formulation of the food waste collection service meant that there existed an information network in Raglan whereby the community was actively involved in the process. The fact that Xtreme Zero Waste was an organisation formed by community members, as opposed to a private company or a political body such as a council, ultimately contributed to the success of the service. The success of the programme is also proved by the high participation rate that Raglan saw when this new and unconventional food waste collection became available to the community. The community's engagement with Xtreme Zero Waste is exemplified by the following statement made by a member of Xtreme Zero Waste:

> They (community) trust us (Xtreme Zero Waste) and, when we bring in another service, we will get 50-70% participation whereas I know when Auckland council brings in a service, they struggle to get 17-30% for a new service (XZW1).

While it is a partnership between Xtreme Zero Waste and the Waikato District Council, the initiative is very much community-led and operated, as it was Xtreme Zero Waste that started the service and then sought council support for it.

The community response to food waste in Raglan can also be seen as having been influenced by Māori concepts of sustainability. As discussed in chapter 2, traditional Māori perspectives of the environment differ from Western understandings. For Māori, there is a heightened understanding of the interconnectedness between nature and people, as described by one of the founding members of Xtreme Zero Waste, in terms of organic waste and how to divert it from landfill. He described the local Māori community in Raglan as offering knowledge on this particular issue in a way that Western ideology typically does not:

> It was particularly our Māori community who had more of an emotional and spiritual connection to the land. They highlighted how the green

waste produced in Raglan should be returned to the soils of Raglan (XZW1).

The journey Xtreme Zero Waste took in establishing the food waste collection service was very much tied to these values around the land. With the establishment of the Hot Composting Unit, food waste is being returned to Raglan land in the form of compost, which is considered an important resource. Such action is reflective of the Māori concept of kaitiakitanga. This concept was described in chapter two as being "stewardship or guardianship of the environment, an active rather than passive relationship" (Marsden & Henare, 1992). Compost generation reflects an active engagement with the land. Composting means that food waste does not end up in landfill, but once again becomes part of the land and, as such, compost is a product that supports the fertility and the health of Raglan soils. This approach is a reflection of both the cultural and environmental aspects of sustainable development described in the framework that informs this thesis. Indigenous knowledge is being valued and helping to inform decisions made in a society predominantly predicated on Western ideas about the environment. Thus, the incorporation of Māori perspectives has had positive consequences for the Raglan community in terms of environmental health and employment opportunities.

The Waikato District Council Raglan ward councillor also noted the historical landscape of Raglan as being a significant aspect of community resilience. She stated that Raglan's community is known for its activism, for example, the protest led by Eva Rickard to reclaim the Raglan golf course. She explained that, for her, there is a link between the cultural history of Raglan and the community's desire to protect and seek guardianship of the land; the food waste collection service is one way in which the community's passion to reduce landfill waste and reuse food in a sustainable manner is reflected:

> This has been fostered through the decades of journey that Raglan has undergone... those sorts of historical narratives on the landscape contribute to people saying and wanting to do something positive for the

people and the land…. It is working in the space with Xtreme Zero Waste where we are upholding our Treaty principles because we are taking responsibility for what we are doing on our landscape and papatuuaanuku and the planet (WDC3).

The food waste collection service established by Xtreme Zero Waste in partnership with the Waikato District Council looks very different from the partnership between the Raglan community and Xtreme Zero Waste. While the district's community has been ultimately supportive of the service, as reflected in the fast and successful uptake of the scheme, relationships with council have been slightly more tenuous, representing the difficulties of community-led action working alongside formal policy processes:

The Waikato District Council have always been involved but we have always been ahead of them as they work a lot more slowly, so we have to initiate communication with them for support (XZW2).

Furthermore, while the Waikato District Council ultimately views Raglan as an experiment, and as one which it will consider as an alternative approach to food waste management for the wider district, it has made no commitment to long-term funding for the initiative:

The council said they would offer 2 years of food waste collection free to ratepayers but then they would talk to the community about having a targeted rate for the service, as they have made no promises to continue this funding after that time period (XZW1).

All three interviewees who live in Raglan and were involved with the kerbside food waste collection commented that the service should and could easily act as a blueprint for the rest of New Zealand, with community involvement key to the success of creating support for this change. In contrast, participants from the Waikato District Council acknowledged the significance and success of the Raglan initiative, but did not see the Raglan model as suitable for all communities:

Our district (Waikato) is large and diverse so what works in Raglan might not work for the rest of the district, maybe in some areas, but not on a broad scale. So, you have to weigh up what is practical and affordable for each community. It is not one size fits all (WDC1).

This difference in perspectives uncovers some of the problems the local authority faces when considering actions to implement food waste programmes in communities that vary in population, size, and location. It also represents the institutional inertia that occurs when council and government are presented with new ideas that are potentially very different from the norm and highlights (on a much smaller, local scale in terms of Waikato District Council) the barriers to putting into practice new action through a political establishment such as a council and government. Such is an example of the tendency for these bodies (in politics) to continue with "business as usual" 'which is familiar and unthreatening (Maniates, 2002, p. 57). In contrast, responses from the community interviewees illustrate the challenges they face in getting the Raglan food waste collection scheme recognised as a service that is relevant and which can be adapted to other places rather than as something unique to Raglan. The seeming resistance to change on the part of council illustrates the importance of government leadership and raises the question as to whether councils should have a mandatory obligation to address food waste through support of local schemes which address issues of food waste as a way of supporting local community and increasing council presence in these schemes.

The Contrasting Perspectives on Policy Solutions

All interviewees concluded that regulatory action from central government would contribute to positive change around food waste minimisation. Many stated that regulatory policy action could help to significantly increase people's awareness of the issue, both at the individual level and at the food industry level. Policy targeting areas in the food supply chain, rather than simply targeting consumers, would ensure that the bigger corporate players such as supermarkets would have guidelines to follow, much like the policy in France

which has made it illegal for supermarkets to discard or destroy unused food (Bryant, 2016). The Waikato District Council Raglan ward councillor explained that policy is especially significant for bigger players along the food supply chain if the necessary changes are to be made. As long as consumers remain the centre of attention and are expected to make personal changes, systemic issues will remain unchanged. She said:

> Of course householders contribute to food waste but I feel sorry for householders because we get lumped with huge levels of accountability and responsibility. Not only do we pay over the counter to purchase goods but at the end of the products life, which isn't even the end of its packaging life, we are stuck with it again. It's always the individual household at the bottom of the food chain, and we are the ones taking responsibility, through initiatives such as Xtreme Zero Waste and grassroots activism. So yes we can enable householders to make better choices but the big producers and corporate players, such as supermarkets and food brands need to be held responsible and come up with other ways of doing things, such as looking at their packaging and buying food that is sourced more locally. They have almost no responsibility as of yet, for what they are producing and for me, that is almost criminal (WDC3).

This comment highlights the fact that New Zealand lacks a comprehensive plan to deal with the increasing amounts of food waste being produced. Go Eco, which sees huge amounts of wasted food come in through its doors daily, was acutely aware that, without services such as the Kaivolution food rescue initiative, all of that food would be destined for the landfill. It is not surprising, therefore, that all interviewees supported regulation that would encourage the growth of local initiatives, increased investment from government in composting infrastructure for food waste, gave clear guidance for local councils, and created visible and tangible consequences for when food waste does end up in the landfill through mechanisms such as higher levies.

The recognition of sustainable development as a concept central to the issue of food waste was another theme mentioned in the interviews. The manager of Go Eco highlighted the way in which Go Eco uses the UN SDGs as a guide when considering any new action or decision. Taking this approach increased awareness of the environmental and social impacts of decisions and acted as a useful tool with potential to inform both small organisations such as Go Eco and larger businesses and government. Xtreme Zero Waste also used the UN SDGs as a decision-making tool in planning projects, which suggests that the knowledge that has been shared within Raglan from Xtreme Zero Waste has been guided by the goal of sustainable development.

The interviewees who discussed the UN SDGs noted that the goals were not extensive enough, with the Go Eco manager specifically suggesting the importance of an eighteenth goal for Aotearoa and the indigenous people of this country. She suggested that having such a goal would be a way for government and New Zealand as a whole to reflect on the Treaty of Waitangi and uphold Māori values and partnerships that have not always been respected.

The idea of community awareness and the power of the community were two central themes which all interviewees touched on as important factors in minimising food waste. The main point was that an environmentally informed community was more likely to want to reduce the negative impacts of waste at the local and national level. Raglan was a prime example of a community seen to be environmentally aware. Interviewees highlighted the importance of education around the impact of greenhouse gases on the environment and linking food to the methane produced when food waste ends up in landfill. This sort of education occurred in Raglan through various channels, as discussed earlier in the chapter, including the use of the radio and the local newspaper. Other forms included waste education through traditional schooling, for example, the introduction of "Matua X-Man" in Raglan schools. Matua X-Man (also known as the Rubbish Man) was instituted by Xtreme Zero Waste. This initiative provides students and the wider community, staff, parents, and Board of Trustees with environmental lessons. Topics are focused on reducing and dealing with waste.

The Raglan ward councillor believes that Matua X-Man is beneficial in informing younger generations about the waste problem and is a way to "'militarise" younger people on the topic, who can then influence their parents and caregivers" (WDC3).

The need for education also becomes obvious when comparing the issues of food waste and plastic bags. The waste minimisation officer of Waikato District Council contrasted the lack of visibility of food waste compared to that of plastic bags. The New Zealand government's recent decision to ban single-use plastic bags beginning in July 2019 (Ministry for the Environment, n.d.) has received huge public support. Unlike food waste, plastic bags and their effects on the environment are very visible. There are, for instance, photos of these effects on marine life and New Zealand's landscape all across the internet and social media (Ministry for the Environment, 2018; Bennett, 2018). Food waste and the methane and other greenhouse gas emissions that it releases in landfill are not as obvious and have not received much media attention. The 'invisibility' of the issue makes it harder for the public to understand its causes. Hence, interviewees saw education that results in increased societal awareness as a significant part of implementing solutions which the New Zealand public will support.

Another solution put forward was collaborative action for creating change. Xtreme Zero Waste has collaborated not only with community members, but also with local government. This form of collaboration means that people with various skillsets can work together to implement positive changes informed by experts in various areas. A member of Xtreme Zero Waste suggested that, while government action and legislation are important in setting rules and boundaries, people should not have to rely on legislative changes in order to change behaviour:

> Action doesn't always have to come from the top (i.e., government) and if the community is passionate and understands linkages between food waste and climate change and wants to make some local changes, the

government is there and needs to be there to support those changes (XZW1).

It is clear from the Raglan case that, depending on the perspectives and actions of decision makers and leaders in the area, food waste discourse at the local level helps to inform local action. Raglan had strong community leaders from Xtreme Zero Waste who shared and developed a sustainability discourse among the community that food waste could be dealt with in ways which were quite different from the norm. This discourse ultimately led to the development and success of the kerbside collection service.

Lastly, an interesting suggestion from some interviewees was the need for food sovereignty and autonomy. This suggestion links to the idea of empowering communities to take control of their own food production and food waste methods by, for instance, creating community gardens to produce food for the community, composting, and worm farming. This localised level of action was mentioned by several of the interviewees as a way to connect people with their food—something that "seems to have been lost in today's generation and within society" (XZW2). The localisation of the food waste system can lead to the diversion of food waste into reusable products such as compost at the local level, as seen in the in Raglan case.

Alongside comprehensive food waste legislation and policy, such strategies may help to bring about societal changes. While achieving these changes may seem to be a challenge for many areas in New Zealand, especially cities, where, as one interviewee noted, it can be potentially harder to create a sense of community, it is clear from the study's interviewees that empowering communities with information, education, and the necessary resources in addition to assistance and regulation from government are key ways to deal with food waste. In this way, the power to make changes lies not only with government and experts, but also with citizens working in partnership to bring about food waste minimisation.

Raglan as a Blueprint

Xtreme Zero Waste was born out of a landfill closure. As building a new landfill was not commercially viable, the founding members of Xtreme Zero Waste, informed by the needs of the community, started up Xtreme Zero Waste as an alternative to routine landfill disposal. The organisation focused first on diverting plastics, glass, paper and cardboard, metals, wood, and reusables from landfill. Then around 2008, the organisation began to look into the residual waste going to landfill. After conducting community audits on the use of prepaid bags, Xtreme Zero Waste realised that a very high proportion of organic waste or compostable waste including food waste was being sent to landfill. The food waste initiative, which then began in 2017, was informed by the research conducted by members of Xtreme Zero Waste who primarily looked at international approaches to dealing with food waste. The Hot Composting Unit used to compost the community's food waste was based on the system in Kaikoura, New Zealand, although this system runs differently in that there is no food waste collection service associated with it. While Xtreme Zero Waste's initial focus was on waste stream management and improved employment and resource access, interviewees from Xtreme Zero Waste revealed that the focus soon changed to environmental concerns. One interviewee commented that the community jumped onboard: "we began to share waste-based information with [the] community who then became very involved and concerned with the issue. So, we had a lot of support from them" (XZW1). Community members even "learned to be thrifty and reuse everyday items during lean economic times" (Piddock, 2018), so the idea of waste diversion was largely supported and created by the community itself (XZW1, XZW2).

Xtreme Zero Waste has been in constant collaboration with the Raglan Community Board, and as discussed earlier in this chapter, shares information through social media, the radio, and local newspapers as a way to involve the community in the process of waste minimisation and management. While it was a lengthier process to engage and collaborate with a local council which was "not

as involved in the waste minimisation phase but became more involved, we (Xtreme Zero Waste) kept to initiating communication with them" (XZW2). In terms of funding, the New Zealand Waste Minimisation Fund was able to fund a portion of the cost, while other funding came from local and regional councils.

As a result of the initiatives put forward by Xtreme Zero Waste, 75% of Raglan's waste is now diverted from landfill. As a result of its waste minimisation and management successes, Xtreme Zero Waste could be seen as a sort of blueprint for the rest of New Zealand. Indeed, its success has been acknowledged as the organisation was a finalist in the 2017 Green Ribbon Awards; these recognise those striving to protect the New Zealand environment (Green Ribbon Awards, 2017). With food waste making up approximately 20% of the total waste stream, the successful food waste initiative in Raglan represents one way in which food waste could be diverted and recycled, that is, into compost, as is the case in Raglan. This nutrient-dense compost is then returned to the community as a product available for purchase.

The success of Xtreme Zero Waste has been its ability to engage and collaborate with the community, who were involved in the creation of the different waste minimisation strategies. The Raglan case represents action that occurs in conjunction with the community, as opposed to changes that are forced upon a community which has not been educated along the way. Xtreme Zero Waste is an example of a self-starter organisation. It was formed independently from local or/and national government to address community issues. The issues that Raglan faced are not only reflective of those facing the country as a whole, but also a global problem. While it may have taken from 2008 to 2017 to get Raglan's food waste service up and running, this timescale shows the importance of research to gain an in-depth understanding of both the problem and a possible solution, which in this case, has resulted in a food waste collection service.

Interviewees from Waikato District Council stated that Raglan is currently an experiment that is being closely monitored. When outcomes from the service

have been examined, the council will consider whether such an initiative could work in other areas of the Waikato. The council focuses on residential households and waste, as opposed to preconsumption stages of waste, as it is the role of council to support the community and the people in the district's communities. In the case of the Waikato, these largely consist of smaller towns, rural, and farming areas. The fact that the nature of the Raglan community does not reflect the entirety of the areas in the Waikato district was an issue for some interviewees in terms of how a food waste collection service could be implemented elsewhere in New Zealand.

The Waikato District Council waste minimisation officer stated that the situation in Raglan is a departure from the norm in terms of how food waste is typically dealt with in New Zealand, as there is no alternative food waste stream in the majority of the country. Furthermore, the waste contracts that the Waikato District Council operates at the moment run until 2021. Waikato District Council interviewees highlighted that the review process that takes place at the end of a contract's time period will include looking at the Raglan scenario as an alternative to the norm for the rest of the Waikato district.

With reference to strong and weak sustainable development, the process of decision making that occurred in Raglan was very much community-oriented. This level of community engagement, which also included strong input from the community board, strengthens the idea that community partnership and collaboration is a key method in generating wider support for a new and different service such as a kerbside food waste collection. Educating the wider public meant that community members were able to fully understand the reasons for a change of service and support these changes because they had an increased environmental awareness and because that awareness was shared by community groups, organisations, and individuals. The participatory process of decision making and action implementation in Raglan represents a strong sustainable development discourse. The journey Xtreme Zero Waste had with the community meant that information was disclosed publicly and people had opportunities to be educated about the food waste issue. Therefore, when the

time came for a food waste service to be introduced, the community already understood how it would work and the reasons why it was so important for the future of New Zealand and the planet as a whole.

Furthermore, the strong Māori presence in Raglan is reflected in the actions of Xtreme Zero Waste. Xtreme Zero Waste's actions were influenced directly by the local Māori community and translated into action that was informed by and valued Māori knowledge and ways of thinking. The food waste minimisation scheme in Raglan set out to do what was requested by local Māori, which was to "return what was grown in the soil of Raglan back into the land again". Once again, this stance reflects what could be described as a strong sustainable development discourse which not only recognises indigenous knowledge, but aims to harness this knowledge in a way that supports decision making. The interviewee from Go Eco in Hamilton emphasised that, in New Zealand, the opportunity to reflect on and harness Māori knowledge is significantly underutilised, with Raglan being a unique case. That is, historic knowledge that allowed Māori communities to thrive before colonisation, by growing and producing their own food, is not sufficiently acknowledged. This interviewee went on to highlight the importance of recognising and utilising these skills which come from New Zealand and create opportunities for increasing food autonomy, i.e., food grown locally for the community.

In this way, Raglan may be described as a "sustainable community". This term, sustainable community, can be briefly described as one which attempts to restructure contemporary decision-making power roles, which are currently dominated by government and, instead, give more rights and responsibilities to communities in order to generate long-term benefits without depleting environmental resources and through careful management of economic and social resources (Rogerson, Sadler , Green, & Wong, 2011, p. 4). In all, Rogerson et al. (2011) categorise such communities as those wanting to "change the culture of planning regimes and public sector bodies" in order to move to a more sustainable future, with sustainable development as a key guiding framework informing their decision making.

Overall, this chapter has demonstrated that food waste action in Raglan is very much in line with a sustainable development discourse. This discourse has resulted in the production of a service benefitting the local environment and the community. This research suggests that being able to achieve similar results in other areas of the country requires the same/similar level of collaborative work, sharing of knowledge, community passion, environmental awareness, and Māori knowledge that led to the successes of Xtreme Zero Waste. In this way, it is reassuring to know that we as a country are all capable of creating positive changes in the waste minimisation space.

Chapter 7: Conclusions and Recommendations

This research has focused on understanding discursive representations of food waste and the implications for food waste policy in New Zealand. It has also examined an innovative and successful food waste programme at a local level to gain further insight into the potential for alternative responses to this issue. The analysis shows how the problem of food waste has not yet become a sufficiently major issue on the political agenda. Food waste initiatives at the national level are primarily educational and, in the absence of comprehensive food waste legislation, largely categorise food waste management as a consumer issue rather than a systemic issue.

The initial areas that this research aimed to address included uncovering the popular food waste discourses in New Zealand at the national and local level and the implications of these discourses on wider food waste action. The discourse analysis of policy texts, along with the data collected from interviews, revealed the way ideas about waste minimisation and management are produced within central and local government and how these influence action at the local level. The interview analysis highlighted the importance of structural change in order for local action guided by council to succeed. The difficulty of implementing such change within a political structure which has not yet set clear directions on how to deal with food waste sustainably was also highlighted. These findings are reinforced by other scholarship on the issue of food waste and systemic responsibility which call for larger scale political action in an attempt to restructure society in a way that supports the wider environment. While action at the individual and local level is part of this change, without political guidance and legislation, the society we live in today, with its emphasis on economic development, will not be challenged nor restructured in a sustainable way (Dryzek, 2013; Maniates, 2002; Meadowcroft, 2013). Conversations with interview participants revealed that there is a limit to what can be achieved by council when there is no national policy on the issue.

Community engagement and leadership in Raglan were largely tied to the generation of the kerbside collection service in that community, with Xtreme Zero Waste guiding the council rather than the council guiding a community venture. The Raglan case highlighted the key aspects that make up a sustainable community, as reflected in the literature examined in chapter 6. Xtreme Zero Waste shifted the responsibility from council to itself as an organisation in terms of how food waste, and waste in general, is processed. Food waste generated by the Raglan community does not leave the area; instead, it becomes compost which is put back into the land.

This research shows that food waste is primarily tackled in New Zealand at the consumer level, with current action targeting households using educational opportunities such as those offered by the Love Food Hate Waste campaign and even the kerbside collection in Raglan, as opposed to legislation directed at the other main producers of food waste i.e., food outlets, supermarkets, and businesses. The successes of the Raglan food waste service highlight how such action has the potential to decrease food waste disposal to general landfills on a much wider, national scale.

Analysis of the central government Waste Minimisation Act revealed a discourse that directly influences what occurs at the local level in terms of council action. Food waste is not mentioned in the Act and factors such as funding and infrastructure limit what can be achieved at the local level. This situation translates into an absence of strict food waste policy in New Zealand, with local level initiatives such as the Raglan initiative forming outside of national guidance.

The government is thus failing to deliver crucial food waste policy. In so doing, it is minimising its broader responsibilities through inadequate efforts to address the environmental burden of the food waste sector and is not exploiting the significant environmental and social benefits offered by alternative food waste management pathways. Furthermore, the discursive strategies employed by the government push much of this responsibility onto regional and local

government, while at the same time impeding their efforts through funding constraints and the removal of strategic and legislative impetus.

Significance of the Findings

The study is an attempt to contribute to existing scholarship by specifically examining the position of food waste in contemporary waste minimisation and management policy and the implications of such discourses for the development of a long-term sustainable food waste management system. The findings demonstrate how current policy settings are controlled by central government through discourses which frame food waste management as an issue left to the responsibility of local council. The analysis of food waste discourses was an effective way to uncover these perceptions, as well as revealing how little action has been taken in this space due to the absence of a strong and effective food waste management discourse.

The discourse analysis approach taken in this research provides a way of understanding current policy direction and highlights how local efforts to mitigate food waste have the potential to be successful on a much wider scale in the future. The discourse uncovered at the national and local level represents the disparity between these two decision-making levels and highlights how gaps in national policy guidelines for waste management, more specifically an absence of food waste management direction, influence what can be achieved at the local level, especially in light of inadequate funding and the lack of food waste management resources and infrastructure.

The study into Xtreme Zero Waste in Raglan highlighted the fact that currently kerbside food waste collection has untapped potential to deliver a number of benefits for New Zealand, thus, making it a topic worthy of closer examination. When considered as a waste product, food can fairly easily be diverted away from the typical landfill waste stream. As is shown through the Raglan service, waste food can be composted and transformed into a product of value, which can then go on to benefit the land as a nutrient rich product. The

service also created employment opportunities for those in Raglan and generated community collaboration on an issue which has severe environmental consequences when dealt with in the traditional manner through landfill disposal.

Review of the Theoretical Framework

The theoretical framework used in the study differentiated between weak and strong sustainable development discourse. This framework allowed for the data collected from the document and interview analyses to be compared against the criteria of each category and helped to determine where along the spectrum of weak to strong sustainable development the discourse lay. The framework had the potential to be developed further as a more comprehensive framework specific to food waste and could have been more extensively linked to UNSDG 12—Responsible consumption and Production—which includes a specific target for food waste management. However, as it stands, the framework serves as a useful analytical tool for evaluating other real-life issues with complex economic, societal, and environmental consequences not dealt with under the strong sustainable development discourse. In this way, the framework is robust and has potential applicability in other policy areas, as the sustainable development discourse is not specific to food waste. Overall, the framework helped in evaluating the popular food waste discourses present in New Zealand against a sustainable development approach to policy decision making.

Policy Recommendations

The research shows that there have been recent efforts to increase food waste management awareness in New Zealand through programmes such as the Love Food Hate Waste campaign and the recent investigation into the issue led by Parliament's Environment Select Committee. However, without a long-term, comprehensive food waste policy, the lack of consequences for food waste generation mean that the problem is likely to continue as it is and even increase in volume in the future. In New Zealand, the kerbside collection service in Raglan

can be seen as one example of what can be achieved in reducing food waste at the household level, although there is still much progress to be made in terms of national food waste management and reduction at both pre and postconsumer stages.

Thus, influenced by the information presented throughout this study, the following recommendations are suggested as ways to increase the prevention of food waste in New Zealand and improve the management of this issue on a national scale:

- A food waste-specific policy should to be developed by the New Zealand government targeting both the pre and postconsumer stages of food waste.
- A review of funding should be undertaken to allow for more local level action in the food waste space to be implemented and supported into the future.
- There should be an increase in food waste education in schools as a formal aspect of national school curriculum, as per the guidelines set out by the SDG 12 which encourage school curricula to mainstream sustainable development learning opportunities.
- There should be increased collaboration with Māori in terms of finding alternative solutions to the food waste problem, both at the institutional level, which could involve creating a separate decision-making body to collaborate with national government in the waste space and locally, as was the case with Xtreme Zero Waste which considered the local Māori community as one of the main contributors to the food waste collection service.
- There should be a focus on sustainable development in policy decision making, including increased effort to achieve UNSDG target 12.3 relating to food waste by 2030.

Limitations of the Research

One limitation of this study is the characteristics of those involved in the interviews. The interview participants were all involved in the food waste space either directly or indirectly and, therefore, did not necessarily provide an average representation of all food waste discourses at the local level. All the interviewees were linked in some way to the Raglan case study and/or were knowledgeable about the efforts in Raglan. Thus, the interviewees were already involved in some action to reduce food waste. It would, therefore, be interesting to explore more local-level food waste discourses in other sectors which deal with food waste on a daily basis such as mainstream supermarkets and even individual householders.

Furthermore, the small interview pool of six people meant that food waste discourse was not researched extensively at the local level. If I had had more time to conduct this study, the study would have benefitted from engaging with a larger group of people in the local area to get a more comprehensive understanding of the way in which food waste is conceptualised.

A final limitation of the study was its timeframe. Being a one-year master's student, I was restricted to a relatively short timeframe to research the issue, conduct interviews, and write the thesis. This timeframe means that restrictions needed to be put in place in terms of what could be discussed at length and the amount of material that could be identified. Therefore, it is possible that other information relating to food waste management in New Zealand, as well as the broader international literature on food waste—but which could have been useful in answering the research questions—was not identified in the study.

Further Research

This thesis initiated a critical study to understand the varying food waste discourses in New Zealand that influence decision making and consumer behaviour. In doing so, it uncovered a number of issues worthy of further

research. For example, the following research questions could be asked: How will the findings from the investigation led by Parliament's Environment Select Committee be used to make changes in the space of food waste management. Why has such a study not been undertaken by government before? Why has the New Zealand government not yet implemented food waste specific policies when countries overseas have already done so, and with success? How is food waste viewed by the public? Exploring questions such as these has the potential to assist in understanding the ways in which food waste discourse influences consumer behaviour, in particular, the way in which food waste is dealt with at the individual level in the absence of specific or binding legislation. It would also be beneficial to discover who the largest New Zealand food waste contributors are and whether policy should first and foremost be targeting industry or households. In terms of Raglan, it is clear that sufficient infrastructure is required to be able to deal with a community's food waste. In the case of Raglan, the Hot Composting Unit was the most important piece of equipment needed to turn food waste into compost. Therefore, it is worth researching the impact that infrastructure has on the ability for households to dispose of food waste more sustainably and if alternative ways of disposing of food waste influence social norms.

Furthermore, while the Raglan case study can be seen as an exemplar in terms of one way to manage food waste, food waste reduction through initiatives like Xtreme Zero Waste may still not get to the much deeper problem of food scarcity for certain communities in this country. Food waste is linked to other issues which I have not been able to touch on in this thesis, yet these would be significant to research as they could further understanding of the other consequences of food waste generation. In addition to the environmental aspects, food waste is linked to social problems such as access to food. Answering these questions would require further research to gather a comprehensive view of food waste discourses in New Zealand, as well as information about other food waste management efforts occurring throughout the country.

Conclusion

This research indicates that the way in which food waste is perceived and discussed has an effect on the actions implemented in response to it. In Raglan, food waste has been dealt with in a way which brings the community together and creates positive environmental change and awareness. At the national level, the lack of food waste policy implies that it has been an issue predominantly left to the individual to deal with. Without guidelines and legislation, however, food waste as a problem continues to increase in volume. In terms of sustainable development, food waste is an issue that must be addressed in order to reach the goals set out by the UNSDGs, especially target 12.3—to halve food waste by 2030. At present, action in New Zealand does not represent a dedication to these goals. While there are pockets of significant action taking place such as the food waste collection service in Raglan the immense scale of food waste produced in the country requires changes that shifts consumer behaviour more radically, as well as investment from government, in order to create change that will be successful, including improved and new infrastructure and increased research into food waste management.

In the current environment where initiatives run by bodies separate from council like Xtreme Zero Waste have to be economically self-sustaining, there should be provision from councils in other areas to pay for those services if they want to adopt them, as well as support from councils where the initiative is currently operating. Moreover, food waste needs to be understood as a subissue which exists within a much larger system. Unsustainable food production and consumption externalise the social, economic, and environmental costs related to the journey that food makes before ending up in people's households. Food passes through a complex supply system even before it reaches the consumer. However, food producers are not being adequately required to take control of this process nor are currently being held responsible for the consequences of their actions. This issue links back to the suggested further research questions which highlight the need for research into other areas affected by or impacting

on food waste, in order to gain a more detailed insight into the problem and how it exists amongst and perpetuates other societal, economic, and environmental issues.

This research has addressed a gap in New Zealand literature on food waste discourse and management in New Zealand, specifically by focusing on national and local discourse. Policy makers, researchers, and local communities and organisations can use these findings to support more sustainable practices in this area and contribute to the goal of reducing local, national, and ultimately, global food waste generation.

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Appendix 1: Participant Consent Form

PARTICIPANT CONSENT FORM

UNIVERSITY OF WAIKATO

FACULTY OF ARTS & SOCIAL SCIENCES

Semistructured In-Depth Interview for a Master's study at the University of Waikato

Project Title: Trashing New Zealand: A Critical Evaluation of Food Waste Management Discourses in New Zealand and their Implications for Sustainable Development.

Student: Laura Hetherington

Supervisors: Dr. Patrick Barrett and Dr. Priya Kurian

Name of person interviewed:

_____

I have received a copy of the Information Sheet describing the research project. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my participation at any time up to three weeks after the interview.

During the interview, I understand that I do not have to answer questions unless I am happy to talk about the topic. I can stop the interview at any time, and I can ask to have the recording device turned off at any time.

When I sign this consent form, I will retain ownership of my interview, but I give consent for the researcher to use the interview for the purposes of the research outlined in the Information Sheet.

Please complete the following checklist. Tick [✓] the appropriate box for each point.	YES	NO
I agree to participate in an interview as specified in the information sheet		
I have been given the opportunity to ask any questions relating to my participation in the interview.		
I agree to this interview being audio-recorded.		
I understand that I can withdraw from this research project up to three weeks after the interview has taken place and that if I do so, the interviewer will delete the recorded interview and destroy the interview transcript.		
I agree that the interview may be used in the thesis.		
I wish to receive a copy of the findings.		
I do not want my name to be mentioned in the research		
I understand that, though I may request to have my name remain confidential, it is possible that my role within the organisation of interest may reveal my identity anyway.		

Participant :   Researcher :

Signature : _____   Signature : _____

Date : _____   Date : _____

Contact   Contact
Details : _____   Details : _____

_____   _____

Appendix 2: Information Sheet A

INFORMATION SHEET

<table>
<tr><td>

Laura Hetherington

Master's Student

Department Political Science and Public Policy

The University of Waikato

</td><td>

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

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</table>

Information Sheet

Project Title

Trashing New Zealand: A Critical Evaluation of Food Waste Management Discourses in New Zealand and their Implications for Sustainable Development.

Purpose

This research is conducted as partial requirement for the Master of Environment and Society, within the Political Science and Public Policy Programme at the University of Waikato.

Background

I am a Master's student at the University of Waikato, under the supervision of Dr. Patrick Barrett and Dr. Priya Kurian. My Master's thesis will examine the growing problem of food waste in New Zealand, specifically focusing on the food waste discourses that exist and how we might address this trend. As part of my research, I am carrying out a case study of the Xtreme Zero Waste food waste minimisation initiative in Raglan. This will include interviews with key individuals

involved with this initiative and/or the goal of food waste minimisation. My goal is to gain a deeper understanding of the issue of food waste minimisation in New Zealand, and of how we may better respond to this challenge.

Participating in this project

Your assistance in the project is important, and has been sought due to your role as a principal member of Xtreme Zero Waste. Participating in an interview will give you the opportunity to discuss your views on food waste management and your contribution and/or interest on this particular issue. Furthermore, it will give you the opportunity to communicate the way in which you believe food waste is and should be understood and what you see as the best ways in which this issue should be addressed for future action.

What will you have to do and how long will it take?

I am inviting you to participate in an interview. This should take no longer than 60 minutes. The interview will be recorded with a mobile phone. You will be asked to give consent prior to the interview by signing the consent form provided to you at the beginning of the interview.

What will happen to the information collected?

The information collected will be used to write a research thesis as part of my Masters study at the University of Waikato. It is possible that articles and presentations may also be the outcome of the research. Only the researcher and the two supervisors involved with this research will be privy to the notes, documents and recordings from the interview. Once the notes and documents have been analysed, they will be destroyed and recordings erased. I will keep transcriptions of the recordings and a copy of the paper but will treat them with the strictest confidentiality. If requested, you can ask to have your name supressed from the research, however there is a chance that your identity may be revealed anyway, as your role within the organisation you work within will be publicised. Therefore, you must understand that agreeing to take part in the

interview means that you also agree to having your role and potentially, your identity revealed.

Declaration to participants

If you take part in the study, you have the right to:

- Refuse to answer any particular question, and to withdraw from the study three weeks after the interview.
- Ask any further questions about the study that occurs to you during your participation.
- If requested, participants may be given access to a summary of findings from the study when it is concluded.

Who's responsible?

If you have any questions or concerns about the project, either now or in the future, please feel free to contact either:

Researcher:

Laura Hetherington

lhetherington97@gmail.com

Supervisors:

Dr. Patrick Barrett, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 838-4466 Ext 5028, patrick.barrett@waikato.ac.nz

Dr. Priya Kurian, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 837- 9319, priya.kurian@waikato.ac.nz

Appendix 3: Information Sheet B

INFORMATION SHEET

Laura Hetherington

Master's Student

Department Political Science and
Public Policy

The University of Waikato

*"This research project has been approved by the Human Research Ethics Committee of
the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this
research may be sent to the Secretary of the Committee, email fass-
ethics@waikato.ac.nz, postal address, Faculty of Arts and Social Sciences, Te Kura Kete
Aronui, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105,
Hamilton 3240."*

Information Sheet

Project Title

Trashing New Zealand: A Critical Evaluation of Food Waste Management
Discourses in New Zealand and their Implications for Sustainable Development.

Purpose

This research is conducted as partial requirement for the Master of Environment
and Society, within the Political Science and Public Policy Programme at the
University of Waikato.

Background

I am a Master's student at the University of Waikato, under the supervision of
Dr. Patrick Barrett and Dr. Priya Kurian. My Master's thesis will examine the
growing problem of food waste in New Zealand, specifically focusing on the food
waste discourses that exist and how we might address this trend. As part of my
research, I am carrying out a case study of the Xtreme Zero Waste food waste
minimisation initiative in Raglan. This will include interviews with key individuals

involved with this initiative and/or the goal of food waste minimisation. My goal is to gain a deeper understanding of the issue of food waste minimisation in New Zealand, and of how we may better respond to this challenge.

Participating in this project

Your assistance in the project is important, and has been sought due to your role as a member of the Waikato District Council. Participating in an interview will give you the opportunity to discuss your views on food waste management and your contribution and/or interest on this particular issue. Furthermore, it will give you the opportunity to communicate the way in which you believe food waste is and should be understood and what you see as the best ways in which this issue should be addressed for future action.

What will you have to do and how long will it take?

I am inviting you to participate in an interview. This should take no longer than 60 minutes. The interview will be recorded with a mobile phone. You will be asked to give consent prior to the interview by signing the consent form provided to you at the beginning of the interview.

What will happen to the information collected?

The information collected will be used to write a research thesis as part of my Masters study at the University of Waikato. It is possible that articles and presentations may also be the outcome of the research. Only the researcher and the two supervisors involved with this research will be privy to the notes, documents and recordings from the interview. Once the notes and documents have been analysed, they will be destroyed and recordings erased. I will keep transcriptions of the recordings and a copy of the paper but will treat them with the strictest confidentiality. If requested, you can ask to have your name supressed from the research, however there is a chance that your identity may be revealed anyway, as your role within the organisation you work within will be publicised. Therefore, you must understand that agreeing to take part in the

interview means that you also agree to having your role and potentially, your identity revealed.

Declaration to participants

If you take part in the study, you have the right to:

- Refuse to answer any particular question, and to withdraw from the study three weeks after the interview.
- Ask any further questions about the study that occurs to you during your participation.
- If requested, participants may be given access to a summary of findings from the study when it is concluded.

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If you have any questions or concerns about the project, either now or in the future, please feel free to contact either:

Researcher:

Laura Hetherington

lhetherington97@gmail.com

Supervisors:

Dr. Patrick Barrett, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 838-4466 Ext 5028, patrick.barrett@waikato.ac.nz

Dr. Priya Kurian, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 837- 9319, priya.kurian@waikato.ac.nz

Appendix 4: Information Sheet C

INFORMATION SHEET

Laura Hetherington
Master's Student
Department Political Science and Public Policy
The University of Waikato

THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Information Sheet

Project Title

Trashing New Zealand: A Critical Evaluation of Food Waste Management Discourses in New Zealand and their Implications for Sustainable Development.

Purpose

This research is conducted as partial requirement for the Master of Environment and Society, within the Political Science and Public Policy Programme at the University of Waikato.

Background

I am a Master's student at the University of Waikato, under the supervision of Dr. Patrick Barrett and Dr. Priya Kurian. My Master's thesis will examine the growing problem of food waste in New Zealand, specifically focusing on the food waste discourses that exist and how we might address this trend. As part of my research, I am carrying out a case study of the Xtreme Zero Waste food waste minimisation initiative in Raglan. This will include interviews with key individuals

involved with this initiative and/or the goal of food waste minimisation. My goal is to gain a deeper understanding of the issue of food waste minimisation in New Zealand, and of how we may better respond to this challenge.

Participating in this project

Your assistance in the project is important, and has been sought due to your role as the manager of Go Eco Environment centre in Hamilton. Participating in an interview will give you the opportunity to discuss your views on food waste management and your contribution and/or interest on this particular issue. Furthermore, it will give you the opportunity to communicate the way in which you believe food waste is and should be understood and what you see as the best ways in which this issue should be addressed for future action.

What will you have to do and how long will it take?

I am inviting you to participate in an interview. This should take no longer than 60 minutes. The interview will be recorded with a mobile phone. You will be asked to give consent prior to the interview by signing the consent form provided to you at the beginning of the interview.

What will happen to the information collected?

The information collected will be used to write a research thesis as part of my Masters study at the University of Waikato. It is possible that articles and presentations may also be the outcome of the research. Only the researcher and the two supervisors involved with this research will be privy to the notes, documents and recordings from the interview. Once the notes and documents have been analysed, they will be destroyed and recordings erased. I will keep transcriptions of the recordings and a copy of the paper but will treat them with the strictest confidentiality. If requested, you can ask to have your name supressed from the research, however there is a chance that your identity may be revealed anyway, as your role within the organisation you work within will be publicised. Therefore, you must understand that agreeing to take part in the

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If you take part in the study, you have the right to:

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Laura Hetherington

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Supervisors:

Dr. Patrick Barrett, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 838-4466 Ext 5028, patrick.barrett@waikato.ac.nz

Dr. Priya Kurian, Political Science and Public Policy, Faculty of Arts and Social Sciences, University of Waikato, 837- 9319, priya.kurian@waikato.ac.nz

Appendix 5: Interview Questions

Xtreme Zero Waste

1. How did the food waste initiative come about in Raglan?
2. What were key concerns that you had about food and waste?
3. Where did you get the information that led to the development of the food waste collection service?
4. What were the main factors that drove you to implement a food waste service?
5. How has the food waste service changed consumer behaviour in Raglan?
6. Why do you think the food waste service has been able to succeed in Raglan?
7. What do you see as the main challenges in addressing food waste on a national scale?
8. Do you see your role in managing the food waste collection initiative as being help or hindered by current national policy?
9. The issue of food waste has been receiving media attention in NZ and globally, which tends to place the blame on individual households, what do you think about that?
10. In New Zealand and globally, there is a big concern about the production of methane, especially in terms of farming. Why do you think there is more discussion on reducing greenhouse gases in other areas as opposed to food waste?
11. There are countries that are enforcing specific food waste policies into national legislation. For example, many governments in Europe are also planning to ban food waste to the landfill. Do you think there should be similar policies initiated in New Zealand and do you think that is foreseeable in the near future?

Waikato District Council

1. In your role as the Waikato District Council Waste Minimisation Officer/Waikato District Mayor, what is your assessment of the food waste collection service run by Xtreme Zero Waste in Raglan?
2. How involved is the Waikato District Council with the Raglan food waste initiative?
3. What do you see as some of the main causes of food waste?
4. Do you know of any imminent council or localised plans to encourage food waste reduction in other areas of the Waikato?
5. What do you see as some possible solutions to reduce food waste in the wider Waikato region and nationally?
6. Is there a growing recognition of the issue of food waste at the national level?

7. The issue of food waste has been receiving media attention in New Zealand and globally, which tends to place the blame on individual households, what do you think about that?
8. In your opinion, with whom does the accountability of food waste lie?
9. In New Zealand and globally, there is a big concern about the production of methane, especially in terms of farming. Why do you think there is more discussion on reducing greenhouse gases in other areas as opposed to food waste?
10. There are countries that are enforcing specific food waste policies into national legislation. For example, many governments in Europe are also planning to ban food waste to the landfill. Do you think there should be similar policies initiated in New Zealand and do you think that is foreseeable in the near future?

Go Eco Waikato Environment Centre

1. What is your assessment of the Xtreme Zero Waste food waste programme in Raglan?
2. What are your thoughts on food waste management in New Zealand?
3. How does the environmental organisation you are involved with address the issue of food waste?
4. Does your environmental organisation have any ideas for future actions to propel food waste minimisation at the wider, local level and what are these?
5. How do you think the Xtreme Zero Waste food minimisation programme could benefit/or not, the wider New Zealand public?
6. In New Zealand and globally, there is a big concern about the production of methane, especially in terms of farming. Why do you think there is more discussion on reducing greenhouse gases in other areas as opposed to food waste?
7. There are countries that are enforcing specific food waste policies into national legislation. For example, many governments in Europe are also planning to ban food waste to the landfill. Do you think there should be similar policies initiated in New Zealand and do you think that is foreseeable in the near future?