

**Sustainable citizenship as a key to sustainability: Establishing a
common ground on technology use in New Zealand's dairy sector**

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Abstract

Sustainability is a key issue in New Zealand's dairy industry. Arguments are often made from either a purely economic or environmental perspective. The debate is dominated by polarised viewpoints characterised by hasty rejection or assertive support of production-focused biotechnological approaches. On the one hand is the biotechnology industry and on the other environmentalists and an anxious public. In the context of this divisive discussion, progress towards sustainable development is hard to achieve. By using the concept of sustainable citizenship as a theoretical framework, it is possible to incorporate economic, environmental, political and social approaches to sustainability. This thesis employs sustainable citizenship in order to find a common ground amongst the various points of view within the dairy sector. Shared values around farming methods and biotechnology are used to find a way to facilitate sustainable development in the industry, combining current interests of various stakeholders with the long-term interest of future generations.

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Prologue

Ten months into my research on sustainability and the dairy industry in New Zealand, I realised more fully the significance of my project, experiencing the tensions between stakeholders of the high-profile dairy sector in the country in a rather hands-on manner. At the World Dairy Summit organised by the International Dairy Foundation in November 2010 in Auckland, environmentalist protestors clashed with police and representatives of dairy businesses. Public opposition to some of the practices of the dairy sector was expressed, while the industry went about its business of selling and buying products.

Excited at the opportunity to attend the Summit in order to gain insight into the dairy industry from multiple perspectives, I was interested in hearing a range of views on dairy initiatives. In order to be able to attend, I went through an intensive screening before I was allowed to register. I am unsure of the screening criteria used by the organising committee, but I felt I was singled out by the organisers who admitted that they suspected me of trying to infiltrate the summit as a radical environmental activist. Although I cannot deny sympathising with environmentalist idea(s), I certainly had no intention to support any activist organisation through my attendance. As a student, all I wanted was to further my research and understanding of the dairy industry and sustainability issues. Admittedly, I did notice the rough and hostile atmosphere created by a group of protestors at the entrance of the convention centre and the police presence that they had triggered. When I entered, I found staff members cleaning up an unidentifiable brown substance from the floor which I believe was thrown by the protestors.

The situation I was in provided me with a perfect illustration of the crucial problem that I am investigating in my research project: the polarisation of opinions between an economics-driven industry and an environmentally-conscious section of the public, with vacillating policy makers somewhere in the middle. As a result, there is a stalemate of sorts. None of the involved parties is actually trying to transcend the divisions and move forward. At the summit, the industry, clearly worried about profit and prestige, wanted to make sure that it could go about its business without being affected by people opposed to their objectives. On the other hand, environmentalists, activists, and protestors seeking to speak for the more critical and concerned members of the general public wanted to portray dairy farming as bad for the welfare of animals, humans and the environment in one way or the other, highlighting issues

of pollution, deforestation and animal abuse, and what they see as the detrimental effects of biotechnology, especially genetic modification (GM).

The core problem though, as I found, is that neither side listens to the other. Their positions have become so rigid, and they so strongly believe that they are on the right side of the fence, that there is no attempt to find common ground. For example, the Greenpeace activist who attended the Dairy Summit went on to complain that his opinion was not heard and confirmed his position as opposed to the industry seemingly without spending time on considering their arguments. Invariably, the opposed parties stick to their guns; they simply refuse to acknowledge arguments from the other side. Needless to say, there are some very valid concerns about the environmental impacts of the dairy industry, but there are also some important points about their economic objectives and the value of the industry to New Zealand's economy. It is about time the inimical parties started considering each other's views. For this to happen, the dialogue has to go beyond statements by the industry of their goodwill (sometimes labelled "greenwash" by the environmentalists) and beyond environmentalists claiming to know all about the scientific and economic facts involving the dairy industry.

In many ways, the interface between the two sides has to go beyond mere dialogue, because action cannot stop with the exchange of words. Things need to be done around the dairy industry, but this will only happen when all parties are involved in the decision making process, and everyone agrees to a fair, effective compromise that the industry and society can move forward with. And this is exactly why in my research project I try to establish a common ground between all those extreme positions around sustainability, biotechnology and the dairy industry by drawing on the conceptual tool of 'sustainable citizenship' (Kurian & Munshi, 2009; Munshi & Kurian, 2010). This common ground can be tackled through using sustainable citizenship as a tool because the concept allows for inclusion of various positions due to its broad perception of sustainability. Sustainable citizenship, as I explain in the following chapter, incorporates all aspects of sustainability such as economic, environmental and social sustainability, and therefore provides a holistic approach that can be applied to the rigid extremes in debate around sustainability and biotechnology of the dairy sector.

Chapter One

Sustainability, the Environment and Citizenship: An Introduction

Problems cannot be solved at the same level of awareness that created them.

Albert Einstein

Sustainability and biotechnology are important, yet controversial topics that will continue to be widely discussed, both on a global level and in New Zealand. Globalisation and rapid industrialisation have catapulted new technologies such as biotechnologies into an ethereal realm, projecting them as the magic solution to all problems of the age. Yet, the same processes of globalisation and industrialisation have also led to major economic, social and environmental problems such as climate change and depletion of water and energy sources. Issues of sustainability are, therefore, taking centre stage.

Increasingly, 'green' topics such as nuclear energy, deforestation, pollution or waste management play an important role in policymaking and political debates. While most people agree on the importance of sustainability, there are many different views on what sustainability actually means, and how sustainable development may be implemented. Similarly, biotechnology is widely contested and even amongst those who promote it as a solution for sustainability problems, there are different opinions on how this can or should be done. Thus, there is constant debate around these issues, debate that has yet to reach conclusions in the direction of implementable policies which actually provide for true sustainable development.

Lack in progress partially persists because the debate is framed by opposing viewpoints on both ends of the spectrum. Dialogue circles around extreme poles of strong rejection of and assertive support for biotechnological approaches. These include techniques such as genetic engineering and the development of new chemical fertilisers, pharmaceuticals and other emerging scientific-technological methods. Rarely, however, is there an attempt to identify commonalities shared by the range of positions. Finding these shared values would make it more feasible to develop a common ground on which implementable policies that move forward into developing a sustainable industry can be based. If analysis moves away from pointing out differences and constant controversies, and into aspects that motivate all diverse positions, it may be possible to create a basis for future policies that meets the interests of diverse stakeholders.

A Review of Scholarly Literature

To explore the common ground between the diverse opinions, I draw on the theoretical concept of ‘sustainable citizenship’ (Kurian & Munshi, 2009; Munshi & Kurian, 2010). This framework links sustainability and citizenship in a way that allows for a broad conception of sustainability, while also providing room to encompass polarised views as my intention is to move beyond debate and into implementable compromises that promote sustainability at this broad level. Taking a holistic stand, through the use of the sustainable citizenship concept it is possible to encompass diverse views and focus on the commonalities shared, not the differences that separate them. The development of the concept of sustainable citizenship is an important step towards addressing a gap in the existing scholarly literature on citizenship in relation to sustainability issues. In particular, this literature only minimally addresses the role of institutions and organisations – both in government and industry – in putting theoretically-grounded ideas of sustainable development into practice¹. Focus instead often lies on individual actions, as for example addressed by Latta and Garside (2005), Phillips (2005) and Seyfang (2006). All these approaches and many others link sustainability to actions and responsibilities of the individual.

Many articles have been written on concepts of green citizenship, environmental citizenship and ecological citizenship, such as Jagers’ (2009) analysis of the typical ecological citizen, Dobson’s (2003) conceptions of environmental and ecological citizenship, and Smith’s (2005) contextualisation of responsibility and ecological citizenship. While these and other works are important and worthwhile, it seems necessary to go a step further and place responsibilities for change not only with individuals. Though it is valid to ask for education of people, to raise their awareness on environmental issues and make them reduce their personal environmental impact through using their cars less, recycling or avoiding the waste of resources, this alone will not bring about the true sustainable development that is needed. This can only be achieved if institutions, companies, and organisations are included in this process, and thereby lead to a transformation of the systems underpinning our societies. To achieve this, I draw on the concept of sustainable citizenship that asks for a broader and more active approach “that recasts the debates

¹ This is in contrast to the institutionalist focus in some critical environmental literature on deliberative democracy and green environmental politics (see, e.g., Baber and Bartlett, 2009; 2005; Eckersley, 2004; Dryzek, 1997).

about rights, responsibilities, and values around the goal of sustainability” (Munshi & Kurian, 2010).

Furthermore, it seems to be a prevalent weakness of academic writing to indulge in extensive theorising and thereby neglect the practical, hands-on, ‘real’ points that relate to that theory. While pure theory does have its place in academia, when starting to talk about the environment, citizens and sustainability, theorising does not necessarily lead to any solutions unless it is carried one step further into practice. It is necessary to focus on what people should actually *do*, how governments should actually *act* and in what ways sustainability can actually be *achieved* by policies and movements within an industry.

Research Objectives

The main objective of my research project is to find shared values amongst all parties involved in the discussions around the role of biotechnology and sustainability in the dairy sector. Based on that my aim is to establish a common ground on which policies related to the use of new technologies in dairy farming can be based. In the context of sustainable citizenship, people with different points of view should all have a meeting point. All citizens have points of interest such as safety, health, economic progress, environmental sustainability, fairness and the striving for innovation. Sustainable citizenship incorporates these aspects into a picture of an active participating citizen. The points of interest among citizens also resonate with the government, industry, scientific institutions, and environmental and activist groups. Looked at this way, the government, for example, has an interest in promoting sustainable citizenship, while individuals as citizens must ideally take their chance to participate actively as such.

The industry should reconcile its economic interests with its responsibilities in a democratic polity, carving out a space between government and citizens. All this is the case only up to a certain extent – it will not be possible to fulfil all interests or needs, and there will always have to be some compromise. The intention is to compromise on all sides to a fair amount, and not only for example on the environmental aspects but also on the economic aspects. And it is expected that there may be aspects and opinions that are irreconcilable. Wherever these occur, it may be possible to acknowledge differences, and try to work around them with a firm view on sustainable development, which still remains in the overall interest of

society. Clearly the most profitable business is not going to help the economy much when it over-exploits the very resources it is built on to an extent that will make it impossible to pursue economic sustainability in the long term.

Research questions

- ❖ What are the key indicators of sustainable development in the dairy farming sector of New Zealand?
- ❖ What are current issues in the sector around the use of new technologies such as biotechnology?
- ❖ How can citizens as consumers be integrated in the debate around new technologies?
- ❖ What are shared values among the different views on the use of new technologies in dairy farming?
- ❖ How can economic progress, sustainable development and public health and safety be ensured in the dairy sector?

As a leading country in developing new biotechnologies in the dairy sector, New Zealand is an ideal ground for research into dairy farming and applied biotechnology, including genetic engineering. Furthermore, the dairy farming industry as a significant exporter is one of the most important sectors of New Zealand's economy (Henderson, Weaver & Cheney, 2007) and it is therefore important to develop sustainable approaches to new policies in the area to ensure its development in a positive direction. Being such an influential part of the economy, it is important to develop sustainability in the area to ensure its ongoing development in a positive direction. New Zealand cannot afford to lose its position in the international market. The dairy industry is also socio-economically a crucial player in the domestic area, since it has a significant impact on the overall economic performance of the country and the population's well-being. It even serves as a kind of motivator for the local economy (see Hall, 2010).

At the same time as industrial production, biotechnological development and an increase in revenue are pushed in the sector, an increasing number of farmers are

deciding to convert to organic methods (Shadbolt et al., 2009) – partly based on economic incentives and partly with the intention of making work more enjoyable and rewarding through working with nature rather than against it. My research seeks to combine the public sphere, individual actors, industry and government in a way that allows for approaches to new paths towards sustainable development in New Zealand's biggest sector. In terms of conducting research by interviews, I limit my scope to the Waikato region. The climate and soils of the Waikato make it one of the most productive grass growing regions in the world. For this reason, the Waikato is New Zealand's most important dairy region, provides for at least a third of the country's dairy herds (Jay, 2007) and is moreover internationally known for important dairy farming research (NZTE, 2010).

Thesis Outline

In the next chapter, I provide a general introduction to sustainability and citizenship. I also analyse the contentious terms, 'sustainability' and 'sustainable development'. Rather than providing an extensive survey of the various perspectives on sustainable development, I restrict my approach to pointing out difficulties and agreed-upon aspects of the term, in order to build up a definition that is sufficient for the purpose of my research into the dairy industry. Alongside this, I provide an overview of what academic research has so far been done on citizenship and the environment, and explain approaches to environmental, ecological and green citizenship developed in the last decades.

I point out a gap in research so far: most academic literature, while exploring many facets of citizenship and its relationship to the environment (see, among many others, Dobson, 2003; Smith, 2005, Seyfang, 2006 and Jagers, 2009), focuses primarily on change at a narrow, individual level to bring about environmental protection and sustainability. As stated earlier, while it is important to be sustainable on this level, change has to be more encompassing in order to reach some measure of sustainability. Therefore, the conception of sustainable citizenship provides a broader approach to looking at it in an environmental, social, political, economic and cultural context. Therefore, sustainable citizenship goes beyond an individual level to include also government, organisations and companies as important players in pursuing sustainability. I draw on the literature and on my own reasoning to develop a set of criteria, not a static definition, of what sustainable citizenship can mean in

practice. I also discuss how I apply the concept to my case study, and how it is helpful to make sense of my data, including interviews and documents on biotechnology as well as alternative methods in the dairy industry.

In the third chapter I develop my research design. Underlying my topic are ongoing debates around the use of new technologies and sustainability in the dairy sector. Involved in these debates are institutions such as the government, companies and research institutes, but also interest groups, environmentalists and ordinary citizens. An important aspect of my analysis is therefore an evaluation of discourses around these issues. The details of the analytical framework of my research project are described in the first section of the chapter. It revolves around a postmodernist approach to research, making use of the principles of Foucault's analysis of knowledge and power and Derrida's post-structuralism. These philosophical approaches inform the discourse analysis used in this thesis. Based on this analytical framework, I use different methodological approaches to conduct my research and to reach my conclusions. I analyse the dairy industry in New Zealand by drawing from sources such as governmental documents (including party statements), legislation, newspaper articles, company releases and releases of NGOs relevant to the topic. I evaluate relevant documents around sustainability, biotechnology and dairy farming. These documents include governmental publications, scientific reports, party statements and publications from companies and federations of the dairy sector. Moreover, I conducted interviews with a range of relevant participants, including spokespeople from the above named sources, farmers and members of the public. Those interviews help to analyse the different viewpoints with regards to sustainable development, sustainable citizenship and dairy farming.

To complement this analysis, I provide a background discussion of the dairy industry in New Zealand in chapter four. Only with some understanding of the history and development of the industry in its economic, environmental and social contexts is it possible to integrate, analyse and interpret the various discourses around the dairy sector. I include a description of the historical development of the dairy industry, showing how and why it came to be what it is today. I explore its current scale and influences at various social, economic, political, environmental and cultural levels, explaining how it operates as an industry on both domestic and international markets. Moreover, I elaborate on the challenges it faces, including environmental and economic problems as much as challenges in the public sphere, both nationally and overseas.

In this chapter, I also provide an overview of biotechnology in the sector, research processes that are in place, applications in use today and an outlook into future developments, with an emphasis on environmental implications and the challenge of ensuring sustainability. Attention is paid to the influence of public perceptions and media representation in this area, as well as current laws around the issue. I then explore the aspect of citizenship within the dairy sector, pointing out where citizens have a voice and where they do not, as well as analysing what sustainable citizenship could mean in the area. The last point is an interpretation of current policies that affect the dairy industry, including the Resource Management Act (RMA), the Hazardous Substances and New Organisms Act (HSNO) and the Dairying and Clean Streams Accord. These are analysed with regards to their effectiveness and implications for sustainability in order to provide a foundation for the analysis in the following section.

In the last two chapters, I undertake an analysis of discourses around sustainability (chapter five) and citizenship (chapter six), within the specific context of the dairy industry. I develop an analysis of both differences and commonalities that emerge from the discourses, and then apply the concept of sustainable citizenship as a key to establish a common ground between the polarised perspectives. The discourse analysis is the core of my research project. I interpret the documents and interviews through a focus on conceptions of sustainability on the one hand, and citizenship on the other. While differences in this analysis are important, I focus on exploring the commonalities amongst polarised opinions.

With regards to sustainability, I explain the different points of focus - mainly environmental and economic sustainability - and analyse how companies in the dairy sector sometimes use superficial environmental commitment as a means to promote economic success. I also analyse how important sustainability conceptions are for the dairy industry and New Zealand as a country in its global perception. I then examine the view that the dairy industry's main task is to feed a growing world population, and how this relates to sustainability. I explore furthermore the links between sustainability and biotechnology. Lastly, I provide some ideas on how sustainability and its different perceptions can be combined into one approach that takes different viewpoints into consideration.

In the sixth chapter on citizenship discourses, I interpret the diverse conceptions of citizenship I discovered in my research. Moreover, I analyse public perceptions of the dairy industry and biotechnology within the sector, as well as the role of citizenship within it. Lastly, I develop three different areas of a possible

common ground: the realms of shared values my analysis yielded were sustainability, farmer stewardship and citizenship. The areas of the common ground are derived from commonalities in diverse viewpoints as interpreted from documents analysed and interviews conducted. Aspects of sustainability that form a common ground include a long term focus, consideration of a sustainable use of resources, protection of the environment as basis of all farming activity, acknowledgement of the importance of both economic and social sustainability for the long-term survival of the sector, the use of new technologies in a way that does not destroy the environment or threaten human health, but that promotes all aspects of sustainability and, lastly, an approach to politics which supports a holistic view of sustainability through democratic decision making. In terms of citizenship, the common ground that emerges from my data analysis lies in the shared interests of all dairy stakeholders as citizens. Common denominators here are a responsibility towards the country they live in, including the society and the environment, an interest in promoting its overall well-being, and a shared set of basic interests that interlink with the government and the industry. Lastly, farmers share a set of values in terms of their approach to farming, which is identified as stewardship. All three areas lead to a common ground of shared values that are found in all different viewpoints that were analysed. This common ground is the basis for a compromise suggested in the conclusion. In the conclusion, I lay out the basis for a tangible approach to sustainability in the dairy sector, and point out what policies should be adopted to bring about change. I also point out areas of possible future research.

Chapter Two

Sustainability and Citizenship

Citizenship, a Concept Debated Since the Beginning of Philosophy

Sustainable citizenship offers a bridge between sustainability and citizenship, linking both concepts into one approach to the environment and society in general. But before they can be linked, it is worth asking what citizenship and sustainability mean. What is citizenship? The concept has been widely debated throughout the history of political philosophy. Whether or not there can be one single definition of the term, and what it might be, is beyond the scope of this essay. In most works on citizenship, for example in Aristotle's *Politics* (350 BC) or Rousseau's *The Social Contract* (1762), democracy is the most crucial factor, although it quickly becomes obvious that democracy itself is a concept open to multiple interpretations (see Baber & Bartlett, 2005). And while one might call inhabitants of a non-democratic country citizens, to what extent are they actually such? Does not citizenship imply participation, having a voice, making a difference, changing things and being part of a political institution in more than just a passive meaning of the term? At least for this analysis of sustainable citizenship, I will take this approach to citizenship: an active role that requires democratic public discussion and motivated individuals.

Actively engaged with her or his *polis* or not, a citizen is part of a political institution, and has certain rights and responsibilities in this context. This is a reciprocal relationship: a citizen profits from rights and has to fulfil duties, and in turn the institution itself, as much as other citizens, profits from rights, and fulfils its duties, ideally balanced against each other to make for an effective citizenship. Rights and responsibilities in this reciprocal way are derived from being part of a political entity (Wolf et al., 2009). This notion of citizenship as comprising rights and responsibilities, as will be seen below, is one of the most important approaches used in the existing literature on citizenship and the environment. Other problems that have been dealt with evolve around whether a moral commitment exists to act responsibly towards the environment, and whether it would be possible to base this on a form of social contract similar to Rousseau's *The Social Contract* (1762). Ought we to force people and states to comply, or should they regard environmental protection and sustainability as a moral value in itself that has to be protected?

Furthermore, we need to ask the following questions in order to establish factors that work towards a concept of citizenship linked to sustainability: What are environmental rights, what do they mean, and what importance do they have? What environmental responsibilities are required for sustainability to be achieved? To what extent can the public participate in the process of decision making on sustainability issues? What does democracy look like with regards to sustainable development and protection of the environment? Are citizens consulted or ignored in this area, do they have any power? Also, how far can social and economic sustainability be incorporated in this approach?

Similar to citizenship, the concept of sustainability has been widely debated as to what it means, and what sustainable development entails. The most popular definition stems from the 1987 United Nations Report of the World Commission on Environment and Development (WCED). This 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” (WCED, 1987, p. 43). Although there are many other definitions, I draw on this one for my research because it is widely accepted, used by the New Zealand government, and places emphasis on the aspect of time with regards to sustainability. Taking the long term and future generations into consideration is crucial for sustainable development, because only when actions today do not have negative consequences in future times are they truly sustainable in economic, environmental and social terms. This is also very important for the sustainability of the dairy industry, because sustainability may today not be a palpable issue for some, but in the long term, farming operations will not be able to go on as they do at the moment, which I discuss in detail in the succeeding chapters.

When it comes to balancing society, economy and environment to obtain sustainability, it is important to note, as Lozano (2008) points out, that society and economy are embedded in the environment. This means that without the environment, society and economy cannot exist. This assumption is particularly important to the analysis of sustainability in the dairy sector because it is crucial to protect the environment that the dairy industry is located in. Farming is dependent on nature and therefore cannot afford to destroy it to such an extent that there is no basis for farming any longer.

In order to answer the questions posed above, and to develop a set of criteria for sustainable citizenship in the dairy sector, I review the scholarly literature that focuses on these aspects. I explore commonalities and differences in the existing

theories, and identify the factors necessary for sustainable citizenship to be put into practice. Sustainable citizenship does not only look at rights and obligations, but seeks to be more all-encompassing, and considers, for example, not only the present but also the future, and extends beyond the individual into political, social and economic systems.

Linking Citizenship and the Environment

Many authors treat the sometimes related or sometimes differentiated concepts of environmental, ecological and green citizenship in a similar manner. Some do not mention 'green' or environmental citizenship (e.g., Jagers, 2009), and others state that all concepts refer to the same idea (Latta & Garside, 2005). Only Dobson (2003) makes a distinction between environmental and ecological citizenship. Generally, there are two popular ways of thinking about the intersection between citizenship and the environment. The first, the civic-republican approach, emphasises duties and obligations of citizens towards nature and the environment. Nature is seen as a common good, and hence it is assumed that it is in the public interest to protect it. For example, countering the environmental problem of climate change, is seen to be a "civic responsibility" (Wolf et al., 2009, p. 504) and therefore the duty of all citizens. The second approach is based on liberal theories and stresses the concept of rights. It assumes that the right to a good, clean, and healthy environment is part of a set of universal human rights, and thus deserves protection (Jagers, 2009). These two approaches are reflected in Dobson's (2003) distinction between environmental and ecological citizenship.

Indeed the term sustainable citizenship is only mentioned by a few authors (e.g. Kurian & Munshi, 2009; Munshi & Kurian, 2010; Dobson & Bell, 2005; Scerri, 2009; Bullen & Whitehead, 2005). Searches of catalogues and journal databases for the term most commonly yields articles on corporate sustainability or similar issues focusing on the economy and organisations. Thus, the concept remains insufficiently explored, especially with regards to politics and society. A development of the term is necessary because so far the literature has primarily focused on rather narrow conceptions of citizenship and the environment. There is a predominant focus on environmental citizenship in terms of a liberal, minimal and passive conception of citizen engagement with the environment and is often limited to the private level, as I analyse below. Deeper approaches include ecological citizenship (Dobson, 2003), and

green citizenship sometimes is used as a term to navigate along the scale of commitment to the sustainability cause; however, be it used interchangeably or not, most theories focus narrowly on environmental concerns. Exceptions of this that do include questions of social and economic matters are, for example, Dobson (2003) and Barry (2003). Sustainable citizenship is intended to build on this and move beyond most approaches by providing a more holistic approach that also encompasses economic and social next to environmental aspects of sustainability. I turn to a literature review that I use as a basis for developing the discussion on sustainable citizenship and its criteria. .

The Foundation of Environmental Citizenship Literature

Andrew Dobson's (2003) account of citizenship and the environment serves as a basic foundation of the environmental citizenship literature (see, for example, Jagers, 2009; Wolf et al., 2009; Seyfang, 2006; Latta & Garside, 2005), constituting the "benchmark" of environmental citizenship discussions (Smith & Pangsapa, 2008, p. 70). As the discussion below demonstrates, much more needs to be done to develop Dobson's analysis into a more complex and all-encompassing approach that will allow a study of sustainable citizenship vis-a-vis the dairy industry case study. The distinction between ecological and environmental citizenship is fundamental to Dobson's (2003) thesis. He explains that environmental citizenship is part of a liberal ideology, and is concerned with a discourse of rights extended to the environmental context, focuses on the public sphere, and is mainly dominated by the values of reasonableness and "a willingness to accept the force of the better argument" (2003, p. 89). Furthermore, environmental citizenship is modelled on the concept of a nation-state. According to Dobson, this approach is outdated when it comes to contemporary environmental problems, which often transgress national borders, and hence require tackling on a more global scale.

In contrast, Dobson (2003) says, ecological citizenship is a child of post-cosmopolitan thinking, and instead of focusing on rights, this concept is concerned with responsibilities. These are non-contractual, which implies that an individual does not have to consent to them, but rather is required to fulfil them 'naturally', based on her or his status as citizen. Ecological citizenship is also non-territorial, which means that the conception of citizenship and the obligations towards the environment transcend boundaries of the nation state, bringing it up to a more global

level. Dobson bases this argument on the fact that today most environmental problems are of a global scale, and not confined to one nation (Dobson, 2003), a circumstance which is most palpable in the case of climate change. The conception of ecological citizenship as non-territorial has often been criticised, for example because it assumes that there is a sense of citizenship that transcends borders of nation states (Mason, 2009). Rejecting this, Mason argues that often there is not even such a sense within one country, let alone on a global scale, and therefore Dobson's concept of ecological citizenship is based on an assumption that does not reflect reality as there is no global civil society.

While it is helpful to be aware of this theoretical approach, Dobson's distinction is of lesser importance to the development of the sustainable citizenship criteria because sustainable citizenship is intended to progress beyond a focus on either of his interpretations of ecological and environmental citizenship, into a much broader conception of citizenship and sustainability. The core idea of sustainable citizenship is that it is all-encompassing and very broad; broad enough to include aspects of the environment, but also social issues, political problems and economic aspects. The concept is intentionally broad because it seeks to synthesise various positions on sustainable development within itself – a citizen is no longer seen as someone who merely recycles or tries to drive a car less frequently, but as someone who has a stake in society, who has diverse interests such as health, safety, and a clean environment, but also a political say on issues of economic security and development (Munshi & Kurian,, 2010).

Therefore, with regards to the analysis of citizens' roles in the dairy industry, the existing conceptions of citizenship do not provide enough grounds to attain sustainability. Citizenship, in order to facilitate true sustainable development, has to proceed beyond rights and obligations of individual actors. Having a right to the protection of nature and healthy dairy products, for example, while in turn being obliged to protect the environment, and maybe purchase products from companies with a 'greener' image will, in the long run, not suffice to maintain sustainability. The bigger picture will be the key to do so: trying to combine industry, private, state and environmental interests, through a focus on arriving at common understandings of a sustainable society.

Therefore, although Dobson sees his concepts at two levels – one political institutional and another of the private individual – complementing each other towards the goal of a sustainable society (Dobson, 2003), it is only one step of many towards sustainability in the sense of sustainable citizenship. Ecological citizenship

makes the personal political (Smith & Pangsapa, 2008), in the sense that it takes up issues of the private sphere such as consumption and pollution and transfers them into the public, political sphere. Again, however, the approach has to be taken yet another step, not only looking at what individuals can do, but also how the economy, political institutions, and other actors can work holistically for the environment.

Environmental, Ecological and Green Citizenship

There have been many attempts to define the concept of environmental, ecological or green citizenship in the academic literature of the last decade or so. Common features of such definitions include individuals' awareness of nature, their relationship with society, their willingness to take action to protect the environment, their recognition of responsibility to limit negative impacts on the environment, their understanding of citizenship as encompassing the public and the private sphere, and their active participation in the community or in democracy in general. To illustrate this, I cite a few examples of definitions from various scholars in order to analyse commonalities and differences, and more importantly, to evaluate their efficacy in explaining the role of citizenship in fostering sustainability in New Zealand's dairy industry.

Ecological citizenship as 'willingness to act'

In his article *In search of the ecological citizen*, Sverker C. Jagers (2009) explains that ecological citizens can be described as "individuals claiming to be very willing to make sacrifices for the benefit of the environment and poverty reduction" (p. 18). Jagers (2009) sees ecological citizenship as a "willingness to act" (p. 18) upon environmental problems and ecological issues. He therefore extends the concept of citizenship from public matters into the private sphere. This means that citizenship in the environmental realm requires individuals to take action, for example to decide to use a bicycle instead of a car to go to work, to produce less waste and recycle what is left, or to start petitions on environmental issues (Jagers, 2009). In terms of space, Jagers (2009) furthermore extends citizenship beyond the traditional territorial limits of the nation-state, arguing that because individuals affect one another globally, for example through processes of global consumption and production – an item might be produced in China and consumed in France – the concept of ecological

citizenship also has to function on a more global scale, and cannot remain confined to national borders. In this sense, an ecological citizen would also be a global citizen. This approach is strikingly similar to Dobson's (2003) thesis discussed above.

Moreover, Jagers (2009) points out that citizens in the ecological sense are "morally guided by the desire to do justice" (p. 21, quoting Dobson, 2003, p. 122f), hence suggesting that a conception of justice is the main driving force behind individual environmental actions. People care for each other and the environment they live in and are compelled to protect both (Jagers, 2009). They, therefore, exhibit this 'willingness to act', sacrificing some of their own benefits and life qualities like driving a car everywhere or consuming products unlimitedly and without concern about the environmental impacts this might have. As factors behind the 'willingness to act', Jagers (2009) lists ideology, interest in the environment, individual perception of severity of environmental threats and age. Lastly, he provides the following definition of an ecological citizen – according to his survey in Sweden, the "typical ecological citizen" is a

...young (15–29 years old) well-educated woman living in one of the largest cities and sympathising with either the Green or the Left Party. She comes from a middle-class home, has strong faith in Swedish politicians and is a member of various environmental, humanitarian and cultural organisations. She does not have children, never or rarely drives a car, but does pray to a God. (Jagers, 2009, p. 32)

This conception of ecological citizenship is focused on an individual who behaves sustainably and is concerned about the effect her/his actions have on the environment, on other people and on society in general. While this ideal ecological citizen lives a very sustainable lifestyle and can have an impact on the environment, it is questionable whether she would make a big difference to, say, the sustainability of institutions or the functioning of the dairy industry. But such a difference could possibly be made if all citizens collectively transformed into ideal ecological citizens. Given, however, that people's differences and diverse attitudes and behaviours are not easily changed at an individual level or by their own volition, a more effective way of attaining sustainability may well require changing institutions to transform rules, values, and practices (Baber & Bartlett, 2009).

Like ecological citizenship, as discussed above, environmental citizenship too focuses mainly on the individual but situates the individual in a wider democratic, political context. According to Lysack (2009), environmental citizenship means

political advocacy and civic participation in democratic structures in order to advance environmental causes and to take action to protect the ecosphere from the impacts of climate change. (p. 125)

Important here is the emphasis on democracy which is seen as crucial to protect the environment. This definition moves on from a focus on the domestic private sphere – person X trying to avoid driving a car every day, person Y recycling household waste, person Z buying only green cleaning products – into a combination of the private and the public sphere. It is the individual who takes action, but this happens within a public framework of democratic institutions, and is based on active political engagement. The following discussions attempt an even broader approach that transgresses limitations of space.

Defying boundaries of time and space

Bullen and Whitehead (2005) provide three main characteristics of their notion of a sustainable citizen. The first is that such a citizen is aware of the interdependency of nature and society. The second characteristic is a respect for the intrinsic value of biological and ecological diversity, irrespective of any utilitarian value for humankind. Finally, a sustainable citizen is part of a “trans-human community” (Bullen & Whitehead, 2005, p. 504) which transcends traditional boundaries of time and space, but also substance. It generally claims an integration of the non-human into conceptions of rights and responsibilities (Bullen & Whitehead, 2005). Notable in this conception is the focus on the individual: citizenship rights and responsibilities include the non-human realm, which I interpret to mean that non-human species and the entirety of nature are included in concepts of citizenship. This means that, for example, animals are granted rights and responsibilities along the lines of citizenship, and also that nature gains the right to be protected in the sense that a citizen would be protected from, for example, exploitation. However, this conception does not appear to mean that citizenship is extended to institutions or governments, which is what sustainable citizenship does in order to provide a holistic approach to sustainability. In the approach taken by Bullen & Whitehead (2005), it is still up to an individual citizen, but not a government or a company, to care for the environment and make sacrifices to protect the environment. In the following sections, I explain why this individualist approach has flaws and how sustainable citizenship can be an alternative approach trying to overcome them.

Altruism and Stewardship

Analysing grounds on which citizenship action promoting sustainability can take place, Kriflik (2006) says that considering the impact of actions on nature is one aspect of environmental citizenship because this shows a general concern with the environment that goes beyond mere self-interest. This altruism in dealing with the environment also relates to Jagers' (2009) idea of justice and 'willingness to act' that was discussed above, because this willingness is based on the motivation to be environmentally conscious on grounds that go beyond personal profit, but rather the concern with the well-being of society and the environment as a whole. Clearly linked to these themes is the idea of green citizenship as 'stewardship' (Phillips, 2005, p. 44). Focusing on the practice of saving seeds, Phillips (2005) argues that seed savers are interested in sustainability of "socio-natural systems" (p. 39) and therefore exhibit aspects of green citizenship with their practices. They accept that they carry the responsibility for a sustainable relationship between humans and nature. "Green citizenship as stewardship" then is "about constructing a responsible, virtuous citizen who meets their moral obligations to create more sustainable relationships between nature and humans" (Phillips, 2005, p. 44).

This concept of stewardship leads to decisions and actions that take care of the environment and protect it or at least intend to do so. Yet ultimately Phillips critiques this definition of citizenship as too narrow and calls for broader approaches that give a more diverse understanding of practices around politics and the environment. These will be able to better account for complexities of the relation between nature and society. Phillips' analysis hence states what I suggested earlier in this chapter: that in order to attain sustainability, the concept of citizenship has to be broader and account for more complex relations than what a simple individual stewardship approach can provide. The following section analyses citizenship approaches that are broader in the sense that they consider both the private and public spheres as locations of environmental citizenship.

Combining obligations within the public and the private sphere

Citizenship in an environmental context can often mean the need to recognise the importance of both public and private spheres as a site of active participation of citizens. While sometimes the focus is more on the private level in individual commitments, actions taken on a public level are just as important. Such an approach

talks about “the recognition of duties in relation to the environment and taking responsibility to act in line with those duties” and asks for the fulfilment of obligations on private and public levels concerning the environment (Smith, 2005, p. 273). Related to this, as pointed out by Smith (2005), is an awareness of social and environmental relations, and the development of political skills. Smith (2005) sees this as citizenship education as, for example, in schools aiming to educate people in terms of environmental awareness. This theory of citizenship means that active green citizenship can be expressed not only in the conventional political sphere, but also in diverse spheres of social and economic institutions that have an impact on individuals’ daily lives.

This is important because a conceptual focus on the private sphere as the locus where green citizenship happens can indeed hinder progress in ecology and the environment. Green discourses emphasising individual actions and decisions are described as “anti-political” by Torgerson (1999) because they are obsessed with individual decisions and the freedom of choice and action that stand in the way of a true change towards protection of the environment and sustainability (p. 131). Torgerson argues that reform needs to come from within the system, and that green politics, if it is to be effective in protecting the environment, has to foster “ecological rationality” (1999, p. 136). In turn he proposes changes in the public sphere as much as in the private sphere. I elaborate on this idea below and provide further arguments on why current literature on environmental, green, sustainable or ecological citizenship fails to link both spheres, and is limited in its approach to sustainability. In the next section, I complement the literature review by looking at social and economic sustainability to lay the foundation for a broad sustainability approach.

Economic Citizenship Approaches: CSR and Sustainability

Corporate social responsibility (CSR) means that companies and corporations are expected to not only focus on profit making, but also on how they are linked to society, the whole economy and the environment through their methods of operation (Lawrence, 2007). It asks for them to be socially, economically, and environmentally responsible. A problem with this is that businesses are, by their very nature, more interested in the profit they generate than how they might influence society or the environment. Many, especially big, companies have therefore developed a mechanism of public relations and marketing according to CSR ideals, in

order to live up to expectations of the public, but without making profound changes to their structures, due to a lack of accountability (Lawrence, 2007; Munshi & Kurian, 2005).

Yet, CSR can also mean that companies may make a profound effort to improve their impacts on social, economic or environmental sustainability. Companies with a visible environmental impact like Shell, for example, could through pressure exerted by the public not ignore CSR conceptions and have had to show their company as attempting to take responsibility for and care of the resources that they are using and the harm that they are causing (Livesey & Graham, 2007).

Combining economic interest with environmental and social responsibility is important in order to achieve true sustainable development. Even though it is obvious that companies are there to make a profit, and will not take any actions that would harm that goal, both society and the environment are closely interlinked with the economy, and the latter is dependent on them. Without the environment, there will be neither economy nor society, and without society in turn, the economy would not exist. With regards to the dairy industry, these relations become visible since dairying is a primary sector reliant on nature to provide for its activities, and also dependent on human labour, for example.

Both holistically as well as realistically, economics need to be part of any approach to sustainability. Society, especially in New Zealand, is dependent for its economic wellbeing upon the dairy sector. Being such a large industry and one of the main sectors of the New Zealand economy, the dairy industry is a main source of employment and revenue and hence a pillar of the country's welfare and wealth. Therefore, neither the industry itself, nor society, can afford for the dairy industry to become economically unviable because of social or environmental commitments. It is my endeavour to show that all three aspects of sustainability are not necessarily mutually exclusive, and that it is possible to find a way for the industry to become economically, socially and environmentally sustainable.

Ecological modernisation

A theoretical approach linked to this idea is the concept of ecological modernisation, an approach to sustainability based on industrial societies and how they counter environmental problems (Mol & Sonnenfeld, 2000). Ecological modernisation means that environmental problems are acknowledged, and green principles are incorporated into politics, the economy and/or society (Barry, 1998). A main

assumption within this framework is that environmental problems can be solved through technical approaches, and that economic profit and environmental protection are not mutually exclusive. It is assumed that once technical solutions are found and systems function efficiently, adverse environmental impact will be eliminated (see Wright & Kurian, 2010, for a critical evaluation). A positive aspect of ecological modernisation is that it asks for the commitment of the entire society, and also considers both the environment and the economy. However, it assumes that all environmental problems will have technical solutions and are easily fixed without giving much thought to changing the root causes of the problems.

Further, ecological modernisation refers to the assumption that it is economically viable, for example, to prevent pollution from occurring since this will be cheaper than being required to clean up afterwards (Dryzek, 1997). It is based on holistic cooperation in order to achieve common ends:

Ecological modernisation implies a partnership in which governments, businesses, moderate environmentalists, and scientists cooperate in the restructuring of the capitalist political economy along more environmentally defensible lines. (Dryzek, 1997, p. 144f.)

Ecological modernisation combines different aspects such as the environment, policies, society, economy, technology, and so forth. It also incorporates different actors such as the industry, public, environmental organisations, government and others (see Milanez and Bührs, 2007). Similarly, sustainable citizenship works towards integrating all these aspects and actors. However, it is holistic and more integrative in the sense that it furthermore includes citizenship participation, democratic accountability, conceptions of justice and other principles and thereby is a much more encompassing approach.

Some theorists speak in favour of market mechanisms to regulate environmental problems: by putting a cost on environmental damage, for example (Stavins & Whitehead, 1998). While I agree with the assumption that economic and environmental sustainability can in certain circumstances co-exist, true sustainable development might not as easily be achieved as expected by supporters of ecological modernisation. It will be necessary to pursue the holistic approach through sustainable citizenship and try to negotiate between all three parts of sustainability.

Social sustainability does not only mean corporate social responsibility. While it is important for people to be respected in their work environment, have safe working conditions, and have an income with which to support themselves and their family, social sustainability also includes meaningful social networks and relationships that help sustain society. It also requires a healthy and sustainable economy. In addition, fundamental to the notion of social sustainability, and therefore sustainable citizenship, is a commitment to social justice. Unlike theorisations on ecological modernisation and triple bottom-line reporting (Barry, 2007), sustainable citizenship draws on the concept of sustainable development to recognise that equity and justice – both intra-generational and inter-generational – are central. Indeed, sustainable development as a concept “is embedded in notions of ethics and justice that operate at several levels in society,” and specifically requires the recognition of “gender, race, culture, and class issues in moving towards ecologically sustainable development” (Kurian and Bartlett, 2003).

Despite the significance of gender to sustainable development (see, e.g., Harcourt, 1994; Kurian, 2000), it remains a neglected aspect of the literature on citizenship and the environment. In much of the environmental, ecological and sustainable citizenship discourses, citizens are treated as genderless individuals, embodying masculine values (MacGregor, 2005). When looking at citizenship action, most approaches disregard the difference between female and male values and attitudes, for example as they exist in regard to leisure time activities or the taking on of responsibilities. This missing dimension of citizenship analysis is pointed out by MacGregor (2005), and linked to the fact that citizenship often has a male connotation that tends to ignore female attitudes. The fulfilment of these responsibilities along gendered lines is an important factor for environmental concerns. As MacGregor (2005) puts it: “Women will make endless trips to the recycling center because they care, and want their kids to care, about the future of the planet” (p. 116). Without generalising about or stereotyping ‘typical’ male and female behaviours, there is nonetheless a material basis to the argument that women tend to be more responsible for caring work, including issues of social reproduction – tasks which often fall outside the purview of citizenship duties in the literature on green citizenship (MacGregor, 2005). A similar conclusion was drawn by Jagers (2009) in his research: the typical ecological citizen of this survey is a female committed to both environmental and social values (see analysis in this chapter).

These issues are crucial for an analysis of sustainability, also with regards to the dairy industry. One aspect which I refer back to in chapter six is the interesting fact that I interviewed twelve male participants while only one was female, and she was part of the citizen group. That was not because I chose only male interviewees, but because there were no females available to even be invited for an interview; at least in the scope of my research project, all contacts and replies I got were from males. In addition to that, male values seem predominant in the general values of the dairy industry, as I explain in more detail in chapter six. For social sustainability as much as all other aspects of sustainability this has important implications.

The Burden of the Individual as Citizen

In the sections above I argue that what is missing in most approaches to green citizenship is the consideration of the broader context of citizenship and the environment that frames the decisions made and actions taken by citizens. Responsibility towards the environment often seems to rely on the individual, whereas institutions and industry often appear exempted from this responsibility. Moreover, individuals are usually not seen as citizens, but as mere consumers of products (Princen et al., 2002). For example, as Princen et al. point out, it is misleading to think that buying ‘green’ products will save the earth. In order to protect the environment, overall consumption needs to be reduced, not changed.

The case of these ‘green’ products is one example to illustrate the vanity of the consumer as protector of the environment. Most supermarkets increasingly offer them: recycled toilet paper, ‘earth caring’ dishwasher liquid, eco-friendly cleaning products, sustainable shampoo and a myriad of other options. These options first of all work towards assuaging the conscience of the environmentally aware buyer who can feel happy about having made the right environmental choice. However, reflecting on this phenomenon, it seems similar to ‘light’ products that make you feel better about buying chips or mayonnaise – buy the light version, and the threat is averted. However, in reality, consumption always comes at a price, be it for health or the environment.

There is, in fact, no win-win situation in the supermarket, given that you are still taking part in the rat-race that is consumption, and hence still part of the overall system. The ‘green’ product that the environmentally aware consumer purchases might still be harmful to the environment, even if less so, and hence a small step

forward. But it conveys the wrong message: consume the right thing, and you do not have to limit your consumption. Soothe your conscience today to feel better tomorrow.

Therefore, citizenship aimed at environmental protection and sustainability more generally cannot simply mean that individuals choose a greener mode of consumption. It has to mean the change of an entire system including individuals, government, non-state actors, the whole economy, and so forth. Otherwise, real sustainability will fail to take hold.

Next to broadening the platform on which change towards sustainability has to be based, it is also important to move from theory into practice, a step which is often forgotten in citizenship approaches (Latta & Garside, 2005). Few scholars actually try to extend their theoretical notions to 'real' life. They remain normative concepts (Wolf et al., 2009), but these need to be translated into implementable actions and plans in order to achieve sustainable development goals. I suggest that environmental problems can be countered in a much more effective way if individuals see themselves first of all as citizens who can participate in a democratic system, and only secondly as individual consumers who can make a difference (Princen et al, 2002; Sagoff, 1987). This is because, as stated above, it is necessary to effect a change of the social, economic, and political systems, rather than individual changes, and this has to be based on citizens as active democrats, not individualist consumers. Arguing from this viewpoint, I elaborate below on the aspects of consumers versus citizens that have implications for our understanding of sustainable citizenship. While consumers often act differently from citizens as described by Sagoff (1987), I believe that through sustainable citizenship it could be possible to combine both: a sustainable citizen can be a consumer whose consumption is influenced by a dedication to sustainability, not mass-consumption.

I begin by developing a set of criteria of sustainable citizenship that can help to identify sustainable citizens and their impact on sustainability, and relate the discussion back to the dairy industry.

Indicators of Sustainable Citizenship

Acknowledgement of responsibilities on private and public level

In line with the discussion above, a conception of sustainable citizenship has to acknowledge that citizenship activities have to take place both at a private and a public level. Individuals have to take action in the domestic sphere: they have to start thinking about ways of making their lifestyles less threatening to the environment at both local and global levels. They have to consider climate change as much as they have to look at pollution through the local landfill. Only a holistic approach to environmental matters can bring about transformative change. Environmental protection requires a change in attitudes, behaviours, and values amongst all citizens, and every individual has to accept responsibilities in terms of living sustainably.

Beyond this individual level, however, sustainable citizenship requires action as well as responsibility to be taken within the public sphere. Juergen Habermas, in his 1991 book *The Structural Transformation of the Public Sphere*, describes how the public sphere functions as a forum for exchanging opinions amongst citizens. He sees these public discussions as a way to exercise a certain extent of control over decisions made by the government. In this way, a vibrant public sphere can inform the people, allowing them to demand accountability from the state and, in turn, make the state more transparent in its actions.

Citizens, therefore, must also take action within the public sphere. They can do so through demonstrations, public speeches, conferences, and social justice movements, among many others. Only in this way will policies such as environmental and social regulations be responsive to the people, and only then can citizenship be truly sustainable. Of course, citizens can be influenced by policies and the government in general. Whenever a government exhibits values of sustainability in the way it operates, thereby providing a leading example of the importance of implementing sustainability, it will also have an impact on the way its citizens live. Therefore, changes in individual lifestyles can only signal a first step, but they will not be sufficient to protect the environment, or create a sustainable system. Effective sustainability needs a government and a system that ensures its maintenance (Baber & Bartlett, 2005; 2009).

A broad conception of sustainability

The most intrinsic value to sustainable citizenship is that it is grounded on a holistic conception of sustainability. This conception does not only focus on environmental problems and responsibility towards the environment, but also acknowledges the importance of social (including political and cultural) and economic sustainability for a system of government, economy and society functioning sustainably within a healthy environment. While a main goal of sustainable citizenship is to work towards a sustainable future, and to protect the environment for generations to come, this is only one aspect.

Sustainable citizenship also moves beyond environmentalist idealism to take into consideration economic aspects and social factors. Sustainable citizenship, for example, accepts that companies are there to make a profit in the current global capitalistic economic system. Instead of condemning this, sustainable citizenship will require changing the economic system to require accountability for the actions of companies (see Munshi & Kurian, 2005), and will try to combine interests of the industry with environmental issues. As I discuss above, especially with regards to the dairy industry, it is important to be realistic about its aims. It is unlikely that it will live up to environmental goals out of moral reasons, for example. The context of the industry is a capitalist one that will not suddenly commit to deep ecology. In addition, it would not be desirable for the country as a whole to have an environmentally friendly yet unprofitable and economically unsustainable dairy sector, as it is extremely dependent on it for revenue and employment. Therefore, environmental sustainability has to be tied in with social and economic sustainability, valuing each one and aiming at overall sustainable development in a long term perspective.

Acknowledgement of constraints

As a further criterion, sustainable citizenship aims at the acknowledgement of constraints in order to remain realistic in its claims. The conception is based on acceptance that not all people will suddenly become ideal environmental citizens, who will all bike to work, start to plant trees and to reduce their environmental impact to the extent required. Politically, it accepts that politicians have to fulfil interests of a whole range of voters, that they will represent diverse opinions, and are unlikely to suddenly change all laws to suit only environmental interests. Further, as

stated above, it considers that companies have to first of all fulfil their business purposes; an acknowledgement of these constraints is important to move forward.

Therefore, sustainable citizenship is a concept that accounts for broad interests, and instead of fostering polarisation, will try to work out common interests. This is based on accepting that there always will be different interests, and the only way to go forward will be to compromise in a positive manner. This compromise does not mean that environmental issues will lose their priority, but it means that some ideological stalemates will have to be toppled in order to proceed into a sustainable future.

Mobilisation, education, activism

Lastly, sustainable citizenship also means mobilisation. Similar to Jagers' 'willingness to act' (2009, p. 18), sustainable citizenship means the willingness to deal with problems of sustainability. It means that citizens become active, are willing to re-consider lifestyle choices and deliberately change attitudes and behaviour in order to protect the environment, foster meaningful social relationships, uphold equity and justice, and ensure a sustainable future. This is expressed on all levels: in everyday life choices, voting, the education of their children, public discussions, social activities and many other aspects where respect for nature and an equitable and just society can be expressed. A sustainable citizen is aware, strives to gain knowledge on environmental, social and economic issues, acts upon those principles as much as possible, and also tries to incite others to do similar things. But beyond individual actions, sustainable citizenship also has to mean that the institutional contexts of citizens change, reflected in changes within companies, the industry, and the government.

To find a common ground

Indicators for sustainable citizenship are therefore sustainable behaviour and respect for nature and society in both public and private sphere, a broad conception of sustainability, as well as a combination of activism, educated initiative and mobilisation of citizens, government and industry towards sustainability. This concept provides the basis for the attempt to establish a common ground between extreme sides of a debate. In relation to the dairy industry, it attempts to integrate the various stakeholders' interests into one sustainable approach. While acknowledging

economic and political constraints, it is necessary to reduce the impact the dairy industry has on the environment at its current way of operating. The aim is to find ways to allow for continued economic performance combined with reduced environmental impact and the maintenance of social sustainability. This requires the finding of a common ground, in order to use it as a basis for true sustainable development.

Government and Democracy in Sustainable Citizenship

Democratic political institutions and an accountable and transparent government are essential factors for ensuring protection of the environment and achieving some measure of sustainability (see Baber & Bartlett, 2005, 2009). For example, environmental destruction can only be stopped by a strong, 'green' state, and a government that becomes a steward of the environment, implementing policies and promoting (in the sense of both encouraging and alleviating) sustainable practices of the citizens (see Eckersley, 2004, for a discussion of a green democratic state). In order to ensure sustainable development, we also need to pay attention to the economic, social and political contexts within which citizens are situated. In this case study of the dairy industry, the political context is that of the New Zealand state, which of course includes the government and its policies. It is the role of the government to provide a basis for sustainable citizenship; without state support, individuals may have the best intentions, but idealism alone combined with individual action will not go far enough in terms of sustainability.

The significance of the role of government in furthering sustainability is recognised in the scholarship. Dobson and Bell (2005), for example, state that the government has to make sure that it fosters processes of "changing attitudes as well as altering behaviour" (p. 4) in order to ensure the promotion of sustainable development. The focus on individual actions and behaviour here is noteworthy: the government is seen as required to make people change their behaviour; nothing is said about governments changing their policies, actions and behaviour, nor is the system of economics and culture in which individuals act mentioned. Dobson and Bell's approach (2005) appears to overlook the importance of change in the overall system in order for individual actions to have an impact.

In contrast, sustainable citizenship recognises the need for bringing about transformation in political, economic and social systems as much as in individuals to

move towards sustainability. According to Maniates (2002), a truly sustainable future lies in “challenging the dominant view – the production, technological, efficiency-oriented perspective that infuses contemporary definitions of progress” (p. 66). In other words, the system has to change in order to make sustainable citizenship effective. For Maniates (2002) this happens through collective citizenship: not through a single environmentally-motivated consumer, but through communal action. To analyse this further, I elaborate on the relation between citizens and consumers with view on the dairy industry in the following section.

Sustainable Citizenship and the Dairy Industry

With regards to the analysis of biotechnology and sustainability within New Zealand’s dairy industry, the questions to ask include:

- ❖ Where is sustainable citizenship located?
- ❖ Who has a voice?
- ❖ What can citizens do and change?
- ❖ Are they included in decision-making processes?
- ❖ Is there any activism and mobilisation: do people care or do they rather function as passive consumers?

In the following chapters, interviews and relevant collected documents are analysed and used in order to answer these questions and to provide suggestions of how to use sustainable citizenship as a tool to foster sustainability in the dairy sector. I use the remaining part of this chapter to first of all elaborate on the concept of the consumer in its relation to the sustainable citizen, and try to find preliminary factors that can induce sustainable citizenship that I will further analyse in following chapters.

Consumer versus Citizen

Now you can be green and gorgeous, eco-conscious and highly fashionable, simply by buying the latest climate-friendly products. Never mind marching on Whitehall or Downing Street, or giving up flying: all you have to do to save the planet is shop.

(Lynas, 2007, p. 4, quoted in Seyfang, 2009, p. 1)

Often, people are regarded as consumers and not citizens by the industry and the government. Sometimes they see themselves as consumers as well. There seems to be a divide between consumers and citizens; even though we are just one, we are often treated as two: when we vote, we are deemed citizens, but when we enter the supermarket, we are assumed to be self-interested, rational consumers (Sagoff, 1987). Let us take the example of reading a newspaper. When we read political articles, we are citizens, but once we come across an advertisement, we take on the consumer persona. There are also two distinct goals for both sides of the same coin: as consumers, we strive for the good life, whereas as citizens, we want the good society. In fact, often individuals vote as citizens for things that are unrelated, or even opposite to what they aspire to in the private realm (Sagoff, 1987). Companies function accordingly. Their bottom line is profit, not the good of the community or public well-being; big companies that operate on a global level exert the most power in this case, and their focus is determined by business interests (Levkoe, 2006).

Those who view individuals as consumers who embody the ‘rational economic man’, not citizens, see society as a marketplace and not the polis (see, e.g., Stone, 2002). Consequently, the choices that citizens can make in supermarkets and shops are very limited, in an environmentally sustainable sense. If the choice of products is limited or lopsided from the onset (for example, when there are different kinds of energy-efficient cars, but no public transport), there cannot be any effective change in society even if all individuals were willing to act upon sustainable principles (Seyfang, 2009).

Generally consumption is determined by “socio-technical regimes” (Seyfang, 2009, p. 17), which means that individuals have limited choice and their decisions are furthermore determined by the system of industry and companies whose priority it is to increase profit. This leads to the fact that patterns of consumption according to business interests often take priority over the free choice of the individual.

Consumers are “effectively trapped within particular consumption patterns and lifestyle practices by the overarching social structures of market, business, working patterns, urban planning and development” (Seyfang, 2009, p. 17). Choices can only take place within what is offered by the market, but never go beyond it. It is also limited by the surrounding social institutions, consumer norms and infrastructure (Seyfang, 2009).

With regards to the dairy industry this means for example that the consumer can choose between a range of artificially manipulated milk – think trim milk, skim milk, double calcium, more vitamins, no fat options – but cannot buy raw milk at all, which might be an attractive option for many consumers concerned about both the environment and their own health. The current system established a never ending cycle of consumption (Seyfang, 2009). What is really needed is not even more choice, but the right options. Having 20 different types of milk available in the supermarket shelf is not necessarily sustainable; not if options centre on the same principle of marketing or product (more calcium, less fat, more manipulation of the natural product) and none of them stems from a company or farm with truly sustainable approaches. Choice is also limited when it comes to the producer: at the moment, most dairy products available come from the main dairy producer in the country, with other manufacturers being marginal.

There is a vast amount of literature on the concept of sustainable consumption. According to the definition provided by the OECD in 2002, derived from the Norwegian Ministry of Environment in 1994, the term sustainable consumption refers to

the use of goods and related products which respond to basic needs and bring a better quality of life, while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations (Seyfang, 2006, p. 384).

In practice, this approach to sustainable consumption often leads to a focus on the individual consumer, as stated above. It means that people express their citizenship through consumption: in relation to the environment they try to “do their bit” by “buying green” (Seyfang, 2005, p. 290). Sustainable consumption in that interpretation however will not help to achieve true sustainability, because more fundamental change is needed. For example, economies need to become more localised and decentralised to avoid the excessive environmental impact of global economies that focus on ever more production and consumption without

consideration of nature or societies. Instead, at least partial focus has to lie on securing consumer well-being and environmental protection. In order to succeed in doing so, lifestyles, infrastructure and institutions have to change (Seyfang, 2005).

In that sense, sustainable consumption could be a first step in the right direction, and a good start towards a long journey to sustainability. It raises people's awareness, which in itself can already be seen as a good thing that will help protect the environment. However, once people are aware and display a certain willingness to base their actions upon principles that take the protection of the environment and sustainability into consideration, the development has to proceed much further than mere sustainable consumption.

Sustainable consumption as a term could even be seen as a paradox: how can consumption ever be sustainable? It is the system of production and consumption, and the ever increasing materialism— asking for more and more — that has created most of our problems with environmental degradation in the first place. Because there is so much consumption, which is in both directions related to production, the sustainability of the environment is put into danger. Therefore, it does not seem to make sense to ask for a sustainable way of this consumption — one might even argue it is sustainable not to consume at all.

This however is impossible. We are reliant on consumption, and to claim that this can be stopped is unrealistic. For human existence and survival at a meaningful level, there has to be production and consumption. Therefore, it might be seen as preferable to at least consume sustainably and to consider environmental and social issues as much as possible. Also, sustainable consumption can imply a reduction in consuming — not only are there different products produced, but also less of a certain kind, as people aware of sustainability will try to make an effort to reduce waste, buy less products, and so on.

Many scholars argue that we have to start considering consumers as citizens in order to protect the environment and establish sustainable systems. As Sclove (2000) states:

Our judgements as citizens need to consider but also transcend our narrower interests as consumers [...]. When it comes to public policy and the common good, our citizen-selves ought to be sovereign over our consumer-selves. [...] Democracy, after all, is not just another ordinary consumer good [...]. (quoted in DeLind, 2002, p. 219)

Citizens, however, are often distant from the political process. In the process of democracy in modern states, where people's involvement in politics is usually

restricted to taking part in elections every three, four or five years, “today’s citizens are unable to critically examine the course of their own collective future” (Baber & Bartlett, 2005, p. 166). This is a very pessimistic view on the capability of citizens; there are certainly people who are much more concerned with politics than this example. However, the number of people completely oblivious of the collective interest and generally the happenings in politics seems to be increasing, looking at voter turnout at recent elections in many Western countries, and a general perception of interest in politics and elections in many social circles (see, for one example, Hughes & Guerrero Martinez, 2008). Juergen Habermas approaches this matter by saying that the lack of political participation of individuals is caused by a system in which political information cannot flow uninhibited based on factors such as economic competition, secrecy and specialised experts that leave no room for the general public to express their views (Baber and Bartlett, 2005). This alienation from participating in politics then leads to environmental problems, because citizens do not get actively involved in decision making processes anymore, and their social (and environmental) interest get ignored (Smith, 2005).

Whatever the cause of the disinterest, the result is that individuals are much more likely to see themselves as consumers than citizens. I explore this statement in the analysis of interviews and questionnaires, especially in relation to the dairy industry. I conclude this chapter by identifying preliminary aspects of how sustainable citizenship could be fostered, and what it might look like within the dairy sector. More details on these points are developed throughout the following chapters.

Fostering Sustainability through Sustainable Citizenship

Sustainable citizenship cannot be based on an atomistic voluntarism that requires the individual to be the ‘stakeholder’ of the environment, because personal practices are only a part of sustainability. This approach leaves people alone with their responsibility, which makes it difficult, if not impossible, to foster true sustainability (Scerri, 2009). The individualism of sustainable citizenship needs to be extended to the overall system of society, government and industry (Marzall, 2005). Sustainability in this area cannot be easily enforced. In fact, it is not possible to force anyone – be it a company, and individual or a government – into being more sustainable in a coercive sense, without resorting to violence or similar. A better way to approach this

can be incentives that will make people and companies want to consider the environment more often.

Financial incentives for sustainability can be seen as a tool to attain more sustainable actions; but they can only be one of many tools, never the only one (Dobson & Bell, 2005). Other reasons to be acting sustainably according to these authors could be the attaining of social esteem or a certain status, assuming that sustainability works as a value of high importance in society (Dobson & Bell, 2005).

On the citizen side of sustainability, incentives are based on the virtues of citizenship and the benefits that these can yield. Civic virtues include being an active, informed, critical member of a community or a political entity. These virtues are learned through formal education but also community social relations and participation in social movements (Levkoe, 2006). Sustainable citizenship in the end is put into action by voters and consumers as a part of a local community (Wolf et al., 2009, p. 518). Sustainable citizenship and its virtues can be used in order to evaluate how the surroundings – the economy, the political institutions but also society – have to change in order to promote sustainable development. This is not an easy task, but it has to be achieved if we want to preserve our environment in a way that it will remain (or in some cases become again) pristine and usable for our interests now and in future.

The aspect of the future is one that often hinders sustainability: policies aiming at sustainability have to take into consideration what consequences actions have in future, and therefore there is no direct effect on the decision making entity. Practically this means that good decisions are often not directly rewarded, and therefore they are often not made; also, bad decisions will be followed by bad consequences only much later – often too late. At the moment, sustainability in the dairy sector still has a long way to go. In this chapter, I show what sustainable citizenship is, and how it can help achieve sustainable development through using the values shared by citizens as an incentive to change the entire system of governments and industry towards more sustainability that considers political, social, economic and environmental aspects. This approach to sustainability is suited to the task at hand: trying to find sustainable development in New Zealand's dairy industry with its various methods of farming and approaches to biotechnology. It provides a step towards dissolving the strong oppositions that are prevalent in the sector, in order to combine forces into true sustainable development. I present an analysis of New Zealand's dairy sector, its development, environmental issues and relations to the biotechnology industry in chapter four.

Chapter Three

Research Methodology

Qualitative Research as Craft: An Analytical Framework

The qualitative researcher may take on multiple and gendered images: scientist, naturalist, field-worker, journalist, social critic, artist, performer, jazz musician, filmmaker, quilt maker, essayist. The many methodological practices of qualitative research may be viewed as [...] bricolage, quilt making, or montage. (Denzin & Lincoln, 2003, p. 5)

In my analysis, I begin with a theoretical viewpoint that builds on constructionism. The constructionist paradigm means that a researcher bases his or her research on a relativist ontology and subjectivist epistemology. This assumes that there is more than just one reality that can be described by research, and that both the carrier of knowledge and the receiver of knowledge co-create an understanding of this reality (Denzin & Lincoln, 2003). This relativist, subjectivist approach to research is a characteristic of qualitative methods and deliberately allows for an inquiry that is framed by values (both of the researcher, and his or her surrounding environment) and an approach that stresses the socially-constructed character of reality that is analysed (ibid.). Denzin and Lincoln (2003) state that qualitative research consciously puts

Emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. (p. 13)

In line with this approach, I focus on subjective discourses, opinions of individuals and groups, and streams of thinking located within society and nature. All opinions analysed are acknowledged to be relative in terms of validity and importance, and the intention of finding common values means that there is not one right answer or a single truth out there. The paradigm under which I conduct my data collection and analysis is based on a postmodern and poststructuralist philosophy described in detail in the next section.

A Research Paradigm

A paradigm, as described by Thomas S. Kuhn in *The Structure of Scientific Revolution* (1970), functions like an umbrella under which a researcher conducts investigations. It is essentially a set of ontological and epistemological assumptions on which that the researcher bases his or her research (Prasad, 2005). Denzin and Lincoln define a paradigm as “the net that contains the researcher’s epistemological, ontological, and methodological premises” (2005, p. 22). This interpretative framework influences how the researcher poses questions and how he or she interprets them to reach conclusions on the topic. The paradigm under which I conduct my research is based on an analytic framework that draws on the philosophy of poststructuralism as described by Foucault (1969; 1980), as well as ideas of postmodernism based on Derrida (1974; 1978).

I take poststructuralism to refer to Foucault’s idea that there is no objective viewpoint by which society can be analysed (Foucault, 1980). Therefore, there will be no final answer or ultimate truth, only diverse ways of exploring it. An analysis such as discourse analysis finds meaning through something that is not structured according to rational terms; answers will be more subjective, and never ultimate (Jones, n. d.). Postmodernism in turn similarly stands for the claim that there is no ultimate truth, and no rational way of analysis that could yield true answers. Derrida’s conception is that there are always multiple interpretations and ambiguity will remain without reaching a final answer. Therefore, both poststructuralism and postmodernism, despite differences in the objects they are studying, are related in the rejection of the ultimate truth and the absolute. For my analysis this means that there is not one single answer that is right or true, but rather that there are multiple approaches and interpretations possible. This approach matches the complexity of the concept of sustainable citizenship, as much as it provides the ideal theoretical and analytical background for a framework that does not aim at providing one single structured rational answer, but rather provides for a broad range of diverse viewpoints and possibilities. An analysis based on this philosophy is most suitable to best help answer the questions posed by my research.

My analysis is based on the assumption that society, and with it the issues of environment, sustainability and citizenship, is socially constructed. Social reality and all knowledge is regarded as constructed through discourse: there is not one reality or truth ‘out there’, but rather linguistic discourses, texts and constructions which can be analysed and critiqued by the researcher (Prasad, 2005). This kind of approach has been developed by thinkers such as Michel Foucault and Jacques Derrida. Disenchanted with the way of thinking developed during the Enlightenment, they focus on language as a means of social construction of knowledge. Foucault’s (1969; 1980) critique of society was an intellectual one that analysed the function of language with regards to society, knowledge and power: they related language to the role of institutions and ultimately to power, saying that knowledge also means power. Foucault (1980) states that power is constructed based on its link to knowledge; whoever possesses knowledge, or claims to do so, possesses power. Knowledge itself is constructed through texts, both verbal and non-verbal, also called discourses. Discourses in turn are very broad, and not restricted to particular texts, or language. Discourses are everywhere, where people have opinions, do things, and where issues are debated and any kind of action within society takes place.

Discourses are a form of power that is derived from a mutual constitutive process between knowledge and power (Baker, 1999). One way of breaking down these discourses in order to analyse them and understand their meaning is based on the concept of *deconstruction* that Derrida develops in his book *Of Grammatology* (1974). Deconstruction refers to the interpretation of language and its meaning, a process that is actively pursued by the reader of a written text. Derrida (1974) writes:

The “rationality” – but perhaps that word should be abandoned for reasons that will appear at the end of this sentence – which governs a writing (...), no longer issues from a logos. Further, it inaugurates the destruction, not the demolition but the de-sedimentation, the de-construction, of all the significations that have their source in that of the logos. (p. 10)

Deconstruction means going through the ‘sediments’ of language, looking for meaning and interpreting signs. It means investigating forms of text through “rigorous rhetorical analysis” (Prasad, 2005, p. 240). This form of literary critique hence dismantles discourses within society by “rethinking, rewriting and reconstructing” those “basic features of modernity” (Prasad, 2005, p. 240). For this research project, those sediments are documents, press releases, newspaper articles, letters to

the editor, company reports and various other sources. I analyse the relations between institutions and citizens, and the knowledge and power they represent with regards to sustainability and biotechnology. Although Derrida, who stated “il n’y a pas de hors-texte”² (1974, p. 158), was often criticised in his approach for being exclusively focused on texts and forgetting about the outside world beyond literature (Sprinker, 1980), the approach is indeed relevant to environmental questions in that it allows the study of all kinds of social expressions and the social context of sustainability questions. Social and also political contexts frame all texts; therefore, the texts can be analysed through looking at how they are socially and politically constructed (Foucault, 1980; Fairclough, 1995). Social processes and institutions can hence be studied alongside and through the use of relevant texts, and even those processes themselves can be regarded as texts in a wider sense (Jagtenberg & McKie, 1997). What is most important in the analysis of a text of any kind is to look at its context in order to explore its meaning (Fairclough, 1995).

Postmodern and poststructuralist approaches try to avoid reproducing the relationships of power and knowledge it analyses and criticises. This is done by trying to not simply copy the ways of thought that are pre-established by institutions in power in thinking and writing (Prasad, 2005). This means that new paths of interpretation have to be taken, and new ways of approaching controversial issues should be found. This allows for the consideration of views that are otherwise marginalised, and may also make room for finding compromises, without reinforcing polarised and by now rather rigid viewpoints in different camps. Both Derrida and Foucault allowed for flexibility of reaching multiple answers and interpretations. This openness is ideal for my research: it provides the ideal framework in order to break out of conventional analyses of the issues around sustainability and biotechnologies in the dairy sector.

Moreover, the postmodernist approach provides an ideal platform for the application of the theoretical framework developed in chapter two; that of sustainable citizenship as a key to analysing sustainability and the uses of biotechnology in the dairy industry. This approach is particularly relevant because the concept of sustainable citizenship is intended to encompass various opinions and discourses. Since the goal of this research is to explore the shared values of opposing positions and combining them all into one broad, yet concrete approach to sustainability and new technologies, the postmodern analysis of discourses is the

² There is nothing beyond text (own translation)

most suitable method of research and very applicable to the task at hand. The emphasis of postmodern scholars, in particular Foucault, on power relations is central to sustainable citizenship. However, whereas Foucault explained power and its link to knowledge, he did not necessarily critique the use or abuse of power. In my thesis, I extend the Foucauldian approach to power by looking at how power relations underpin the goal of sustainability. In particular, I critically evaluate the dimensions of power exercised by institutions, organisations, companies and individuals with regard to citizenship and sustainability by looking at aspects such as inequality, social justice, and environmental sustainability. These aspects can be analysed through the method of discourse analysis which I explain in the following section.

Dairy Discourses and Discourse Analysis

A discourse is a “term commonly used to denote speech, conversation, text or body of knowledge” (Prasad, 2005, p. 250). It is also:

A specific ensemble of ideas, concepts and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities. (Hajer, 1995, p. 44)

Foucault (1980) analyses discourses for what they are, but also how they come into existence (including trying to gain historical understanding) and what effects they have on society. Derived from this is the method of discourse analysis, which is meant to “*denaturalise* a number of categories (...) by exposing them as nothing more than the products of particular discourses” (Prasad, 2005, p. 251; emphasis added). Discourse analysis looks at relevant texts and contexts around a specific issue – in this case on sustainability, citizenship and biotechnologies in the dairy industry – and studies practices and ways through which power is exercised on various levels. On the origin of discourses, Foucault (1980) writes:

What makes power hold good, what makes it accepted, is simply the fact that it doesn't only weigh on us as a force that says no, but that it traverses and produces things, it induces pleasure, forms of knowledge, produces discourse. It needs to be considered as a productive network which runs through the whole social body, much more than as a negative instance whose function is repression. (p. 119)

For Foucault, the analysis of discourses reveals that power is not a force exerted by one source but is a relationship within society. As such, it is prevalent in all aspects of society and works by social interactions on all scales, from the family to the nation, from interaction amongst friends to governmental institutions.

Using discourse analysis as an approach, I intend to craft a qualitative method informed by the theoretical assumption that there is not one absolute truth to be found. I analyse discourses around new technologies, sustainability and citizenship in the dairy sector and how these link to relations of power and knowledge, drawing on Norman Fairclough's (1993, 1995) approach to critical discourse analysis. According to Fairclough, discourses include spoken and written language, as much as any actions that produce meanings, visuals and any non-verbal communication. Critical discourse analysis aims at investigating tensions between the "socially shaped and socially constitutive" use of language (1995, p. 55). Relationships analysed in a discourse exist on three different layers: text, discourse practice and sociocultural practice. The first layer refers to spoken, written or visualised texts; the second to both production and consumption of texts; and the third layer refers to the social and cultural context in which texts are placed and in which they shape reality (Fairclough, 1995). These levels build the analytical framework in which critical discourse analysis takes place.

Fairclough also broadens his lens of analysis by incorporating Antonio Gramsci's (1971) theory of hegemony as working through power and domination. In this theory, hegemony is reached through achieving consent. Power and domination relate to discourses because they can be used to disseminate dominant views and gain and sustain power by keeping those discourses dominant (Fairclough, 1995). Although Fairclough's analysis focuses primarily on media discourses, his approach can also be used to look at other texts that form discourses.

Within the dairy industry, looking at sustainability, citizenship and biotechnology, current discourses centre around the opposition between organic and conventional approaches to farming as much as polarised views on the use of biotechnologies such as genetic engineering (see, e.g., Chug, 2009; Kurian & Wright, 2010). Another main focus is the aspect of sustainability, with much public criticism directed at dairy farmers often seen as 'polluting' or 'dirty' with regards to the environmental impact of their farm operations (Chug, 2010; Littlewood, 2010). Less attention is paid to the involvement of citizens in decisions that have environmental or social impacts (e.g. Wood, 2010).

As the intention of my project is to find out about common grounds and shared values within this discourse, I proceed beyond an analysis of polarised positions to an enquiry into points of compromise amongst various dairy stakeholders and interests. In the analysis of the dairy discourses, I focus on sustainability, sustainable citizenship and biotechnologies: how they are perceived by various groups, how they are used and what impact the latter two can have on the former. My methods of data collection as a first step for the discourse analysis are described in the following section.

Epistemology and Methodology: A Case Study Strategy

As part of my discourse analysis, I use the dairy industry as a case study to explore sustainable citizenship, sustainability and biotechnologies. In general, case studies are used as a strategy for projects that pose questions of “how” and “why”. Case studies usually focus on a phenomenon that is both contemporary and placed within a real-life context. This means that it is directly related to and located in every-day life, not a laboratory research situation. Furthermore, a case study looking at real life does not remain on the level of theoretical concepts, but moves into a practical realm that relates to a specific problem or case of life (Yin, 1989). Case studies are therefore useful to study situations and issues within society, policy questions and other controversial topics that are directly related to real life.

Often, methods of case studies have been accused of shortcomings such as lacking precision, rigour and objectivity. A general view has been that they are a rather weak form of investigation, not suited for scientific research and therefore to be avoided. However, case studies and their intentions often are also misunderstood, and their advantages have been ignored (Yin, 1989). Case studies can be used in order to gather knowledge around a particular context or case, and develop and verify hypotheses that are related. They function as a kind of narrative that promotes progression in science: research can be furthered by it through analysing a case in detail, and it can also provide a basis for further research (Flyvbjerg, 2006). I use the dairy industry as my case to show how biotechnology can be used to deal with problems of sustainability, but also how alternatives can be incorporated, and how sustainable citizenship can be seen as a key to achieving sustainability. The dairy industry is particularly related to issues of sustainability. Because this specific part of the agricultural sector in New Zealand has developed into an industrial way of

farming, it has major consequences for the environment and environmental sustainability. Large scale farming and dependence on global markets also impact on economic and social sustainability that are fundamental aspects of sustainable citizenship. Because the dairy industry has such a major importance for New Zealand's economy overall, provides a main source for employment as well as export revenue and promotion of research, social and economic sustainability are directly linked, with environmental sustainability being the basis of future farming operations. This means that the dairy industry is an ideal platform for putting theory into practice.

In addition, the dairy industry as a case study is suitable to this analysis because of the importance this sector has in terms of biotechnology, research and development. It is the stronghold of New Zealand biotechnological research with many applications that are discussed in chapter four. A large proportion of the New Zealand population is employed within the dairy industry (DCANZ, 2011). Furthermore, there is a direct link between population and industry through consumption of dairy products. This aspect should be given due attention since the concept of sustainable citizenship to be studied places high value on the immediate link between citizens, the economy and the environment, which can be illustrated through those relations with regards to the dairy industry.

According to Yin (1989, p. 23) a case study can be seen as an inquiry that

- ❖ investigates a contemporary phenomenon within its real-life context; when
- ❖ the boundaries between phenomenon and context are not clearly evident; and
- ❖ multiple sources of evidence are used

All three aspects are applicable to my topic. The dairy industry as a context of studying sustainability is, therefore, a suitable case to answer my research questions. Sources of evidence include interviews, government and non-government documents, newspaper articles, party statements and other sources.

Setting up Research Objectives

Existing research on discourses on sustainability and biotechnology focuses mainly on the controversies in the New Zealand dairy industry. It barely touches upon any potential common ground and shared values that would allow for compromises and implementable legislation. It is evident that current debates around the dairy industry and sustainability feature proponents of the new sciences on the one hand (e.g., ViaLactia, 2002), and environmentalists and supporters of organic methods (e.g. Hammond, 2010) on the other.

The main objective of this research project is to find shared values of all parties involved in the discussions around the role of biotechnology and sustainability in agriculture. Based on that my aim is to establish a common ground on which policies related to new methods and developments can be based. I analyse how citizens can be included in this debate, how active citizenship – and consumership – can be established and how the public's interests can be incorporated. In doing so, not only extreme viewpoints, but also diverse opinions and stakes will be considered, in order to articulate a common ground of values that promote sustainable development. Methodologically, I cover as many different opinions as possible, taken from a broad range of stakeholders of the industry. Other data complements the survey of viewpoints as I describe in the following section. Key research questions to be answered by this research project are

- ❖ What is sustainable development, and what is it with regards to NZ dairy farming?
- ❖ What are current issues around biotechnology and scientific research in the sector?
- ❖ How can citizens as consumers be integrated in the debate around sustainability and biotechnology?
- ❖ What are shared values among the different views on sustainability, biotechnology and dairy farming?
- ❖ What is the status quo of dairy farming in New Zealand and how can economic progress, sustainable development and public health and safety be ensured?
- ❖ What policies can be developed and implemented in order to achieve these aims?

Data Collection

Data collection is a central part of the research process, and should be done with consideration and care in order to avoid biased outcomes of the project (Yin, 1989). Bias however is not an issue for this research project, because it does not lay any claims on being objective. There might be researcher bias – admittedly I cannot avoid having an opinion on sustainability, methods of farming or the use of biotechnologies – but because qualitative research is inherently subjective, this influence of bias is acknowledged. In the end, I collect as many different viewpoints as possible within spatial and temporal constraints, and present them in a fair manner. All opinions are treated as equal and valid, and the common ground sought for is not pre-determined by any alignments with one or the other side.

Documents collection

The first part of data collection is a review of the dairy industry, farming methods, sustainability and biotechnologies. For this, I analyse relevant parts of governmental publications, party statements, and publications of the industry including statements from Fonterra³, DairyNZ⁴ and the Federated Farmers⁵. I also look at articles published by interests groups concerned with farming or the environment, such as Greenpeace. Lastly, I gathered opinions and streams of discussion within newspapers published in New Zealand such as the *New Zealand Herald*, the *Dominion Post* and the *Waikato Times*. Documents were selected on the basis of a general internet search for keywords such as sustainability, biotechnology and dairy farming. Furthermore, news articles were selected over the last twelve months whenever appearing in the current news. The collection is selective and although it was as exhaustive as possible, it is likely that not all relevant articles have been covered. All these documents are used to formulate a brief report on the state of the dairy industry, policies on sustainability, various viewpoints of stakeholders taken from documents and also development within biotechnologies – already accomplished and to be expected in the near future. Documents are also used for the discourse analysis in chapters five and six.

³ Fonterra is New Zealand's largest company and a multi-national dairy co-operative formed in 2001. Manufacturing and retailing dairy products, Fonterra accounts for about 30 percent of the world's exports in the industry. (See www.fonterra.com)

⁴ DairyNZ is an organisation conducting research mainly in the area of productivity, sustainability and business operations, working with farmers to develop farming methods. (See www.dairynz.co.nz)

⁵ Federated Farmers is a rural advocacy organisation representing farmers and farming, supporting businesses in all areas of agriculture in New Zealand. (See www.fedfarm.org.nz)

Interviews

The second part of my data collection involves interviews with voluntary participants. The participants were selected on the basis of representing various stakeholders' viewpoints on sustainability and dairy farming. A non-random sample of 13 participants from across the Waikato, including policy makers and analysts from Regional Government, scientists from DairyNZ, representatives of Fonterra, independent dairy farmers as well as politicians and citizens were selected. Participants were chosen on the basis of personal contacts and information available on websites, and contacted first by email or telephone to ask for the possibility of their participation. I used snowballing technique to approach potential participants who were recommended by the initial participants. The participants were informed about the nature and purpose of the research before being invited to participate in the interview. Informed consent was obtained by providing participants with an information sheet on the project (Appendix 1), and a consent form to be signed subsequently. All participants were guaranteed anonymity and confidentiality (see Appendix 2 for the consent form).

Participants were interviewed after they signed the consent form. The interviews were based on relevant questions for the individual participant (see Appendix 3 for a list of sample questions) and followed a semi-structured format allowing for the exploration of the interviewee's perceptions and ideas about the use of new technologies and sustainability in the dairy sector. Questions also touched upon perceptions of citizenship and different methods of farming. They were tailored to each individual participant in order to gain most from their expertise; hence interviews with farmers focused on farming methods, interviews with scientists on biotechnology, research and development, interviews with politicians on policies around environmental protection and biotechnologies and so on.

Interviewees are coded randomly from IP01 to IP13 (Interview Participant) as shown in Appendix 4. The table links the code names to their function or position (occupation of status relevant to the research project), affiliation with organisation, if applicable, and their gender, as this is an important part of the discussion on social aspects of sustainability, citizenship as well as the discussion of further research in the conclusion. Code names will be used to identify participants for quotations taken from interviews in chapters five and six.

Location of the Research

The main centre of study is the Waikato region, and although research was not limited to this area, interviews were conducted within this region. As the Waikato region is the country's main dairy hub both in terms of farmers and research and development, conducting research at this location is ideal for the purpose of this project. No other region can provide such a density of farms, institutes, companies, experts, trial projects and so on. The region⁶ features about 25 percent of the entire country's dairy cows, more than one million animals, and 3500 or 30 percent of the herds (DairyNZ, 2008). By 2010, dairy farms were taking up more than 440,000 hectares of land (Environment Waikato, 2010b). Furthermore, main centres of dairy research by companies such as Fonterra and DairyNZ, as well as the Crown Research Institute AgResearch are established in the Waikato. Therefore, the region is of major significance to the sector, and an ideal place to conduct this research in.

Interpretation of Data Collection

As stated in the preceding sections, a qualitative research project is always subjective, and deals with personal opinions and discourses rather than quantitative analysis. The research process includes observing, interviewing, surveying and analysing documents according to a given set of research questions. Because of the constructionist approach taken, the interpretation of data is necessarily constructed. The researcher is never be neutral or objective, because he or she is always a part of the systems of language, discourse, knowledge and power – and therefore located within it. The researcher is moreover not only a part of the world he or she studies, but also interacts with it (Baker, 1999). The subjective and interactive position is explicitly incorporated in this research and is embraced as a basic feature of the research process.

Along the lines of discourse analysis, documents, articles and interview transcriptions are scrutinised looking at common themes, representations and differences. Interpretation is focused around applying the theoretical concept of sustainable citizenship and its criteria as described in chapter two. The interpretation

⁶ In the DairyNZ report, the region Waikato is not named, but roughly coincides with what features as South Auckland; as the intention here is merely to show the importance of the region in the dairy sector, it is assumed that number will vary only slightly when taking the statistical sample of the actual Waikato region.

also takes account of the postmodern framework described in this chapter, using understandings of power, social construction and knowledge to apply to the formation of discourses and their effects on society related to sustainability, citizenship and biotechnology in the dairy industry. This is particularly crucial when looking for manifestations of sustainable citizenship, and possibilities thereof, within the area. Through looking at sustainable citizenship and its features, the interpretation of data explores sustainability aspects in the dairy sector, develops common values that various opinions hold, and defines how sustainable development in the industry can be promoted.

Ways of examination of the collected materials include matching patterns in opinions, building of explanations for certain views and their consequences, and looking at historical developments of both technologies and opinions with regards to the dairy industry (see Yin, 1989). An essential part of this is the consideration of the results stemming from the analysis of the dairy industry in chapter four, where historical developments, economic developments, the current impact of biotechnology, future prospects and socio-cultural issues are described in order to create an overview of the dairy industry today. From there it is possible to draw conclusions on how sustainability can be tackled both in theoretical as much as practical terms.

Chapter Four

The Dairy Farming Industry in New Zealand

Introduction

Dairy farming in New Zealand is a large scale industry. The sector is an enormous profit-generating business, and farmers are more often than not businessmen juggling numbers. New Zealand is the world's largest single exporter of milk and other dairy products, accounting for about 30 percent of the global free trade (Jay, 2007, p. 266). New Zealand dairy products reach more than 100 million people worldwide, according to DairyNZ (2010). This means that most of the milk produced in the country is exported, and less than 5 percent is sold on the domestic market (Jay, 2007, p. 269).

With dairy farming being a global industry focused on staying competitive and profitable, sustainability is often seen by the sector in mainly economic terms (e.g. NZPA, 2011; n. a., 2011). Environmental problems, therefore, tend to be underplayed. Only recently, with pressure coming from environmental groups and negative media coverage, has environmental sustainability become an issue for the dairy industry (e.g. Littlewood, 2010; Daniels, 2010). The sector had a huge environmental impact on the country, including pollution of water and deforestation resulting in the loss of numerous native plants and animals (Mortlock & Hunt, 2008). Yet, even now, "environmental issues are framed and perceived narrowly in terms of their link to production" (Jay, 2007, p. 267). Because of this focus on economics rather than the environmental impacts of the industry, and the resulting negative perception of the dairy industry, it is important to have a multi-faceted conception of sustainability in order to move to a more sustainable future.

The dairy sector of New Zealand is the ideal platform for testing the theoretical framework of sustainable citizenship because it allows for a combination of the aspects of citizenship, biotechnology and sustainability into an approach that attempts to negotiate polarised opinions. In addition, citizenship is directly relevant to the case as citizens have an important stake in the sector, both as individuals dealing with the impacts of farming such as water pollution and as consumers who want to buy products that are ideally abundant, cheap and of excellent quality.

The dairy industry as a case study to apply the concept of sustainable citizenship is furthermore ideal because biotechnology is an issue of utmost

importance to it. Biotechnology is a crucial part of dairying since innovation and development of new technologies are regarded as vital to maintain and improve the industry. Also, New Zealand has always been progressive in developing new technologies, although in current times public concern has slowed down developments in particular with regards to the development of genetically modified organisms and the application of GM generally (Henderson et al., 2007; Kurian & Munshi, 2006).

Historical Developments of Dairy Farming in New Zealand

An exploration of the historical developments of the dairy sector in New Zealand reveals that its methods of operations were focused on the use and development of technology and economic profitability from the beginning. This focus on technology influenced the way the industry developed over time, leading to more and more emphasis being placed on new means of production and methods of increasing productivity.

According to DairyNZ (2010), the first cows were brought into New Zealand as early as in 1814, nearly 200 years ago. The first dairy co-operative was formed in 1871. In 1893, the first mechanical milking machine was trialled, with the first devices commercially used in the early 1900s, showing early traces of a mechanised (and later industrialised) approach to dairy farming. Experts mainly from Denmark, Scotland and Canada were brought into the country by the New Zealand government in the late 19th century to show mainly British settlers how to farm and teach them modern methods around production, hygiene and transportation. The government, with the Ministry of Agriculture being established in 1892, embraced the dairy industry from the earliest stages (Brooking, 2006). In 1920, conversion of bush into farmland turned 18 million acres of native land into paddocks covered with introduced English pastures such as rye grass and clover (ibid.). Often, land was taken from the indigenous Maori population, robbing them of fertile land which was instead given to colonialist settlers (King, 2007).

The very first specialised institution for research in New Zealand was the Dairy Research Institute set up in 1927 (Brooking, 2006). A major step in technological development, the electric fence made by Bill Gallagher, promoted the scale of dairy farming from 1937 onwards. Research stations to foster the productivity of animals were set up only two years later in Ruakura and Wallaceville

(DairyNZ, 2010). All governmental subsidies were cancelled in the 1980s but dairy farmers managed well without such support, especially as markets in both Asia and Europe opened up in the phase of neo-liberalism (Brooking, 2006). The dairy industry entered a phase of significant expansion and success – the dairy boom – in 1995. With new means such as irrigation that opened up areas otherwise not suitable for dairy farming such as the Canterbury plains and areas in North Otago, dairy farming took over substantial amounts of land hitherto reserved for sheep farming and the sector expanded into its current size. Herd sizes continue to increase with many herds featuring thousands of cows, while prices of the products encourage up-scaling of farms (ibid.).

It can be concluded from this that early development of technology and a business approach to farming led to the dairy industry being the gigantic operation it is today. In this approach, it is palpable that emphasis was placed on using technology to further production. Control over natural processes from grass growth to calving was exerted in order to increase efficiency and sustain economic gain (King, 2007). In this sense, developments of the dairy industry have taken a utilitarian approach, an approach that sees farming as a way of creating revenue. This approach has meant compromising on environmental sustainability.

Although economic growth may be achieved for the moment, environmental sustainability remains elusive. Issues that need to be dealt with include reducing destructive impacts on the environment including water and soil; the dependence on fuel; the necessity of fertilisers created by the intensity of the scale of farming operations which the land cannot sustain any longer; and marketing of a product that works on a market niche of a ‘clean and green’ product based on the more general reputation of the country (Jay, 2007; Brooking, 2006). The ‘clean green’ is a global marketing strategy for New Zealand dairy products. In vast contrast to this, however, the dairy industry has had an enormous impact on the environment of the country. A lot of environmental damage has been done through the exploitation of natural resources by farming practices over many decades. Both native fauna and flora have been negatively affected by continued species extinction (Jay, 2007). Another problem has been high levels of pollution from fertilisers (nitrogen in particular) and cattle effluent (Mortlock & Hunt, 2008). Hence, the focus of the industry to augment economic profitability through biotechnological and measures has profound implications for sustainability.

Biotechnology: Engineering a Future for Dairying

As discussed earlier, the dairy industry is the backbone of the New Zealand economy. The export-oriented industry is also at the forefront of scientific development and technological progress driven by its desire for global market supremacy. The primary markets for dairy products lie overseas, mainly in the European Union, South-East Asia, Latin America and China (Ministry of Agriculture and Forestry, n. d.). Developments in biotechnology, especially genetic modification, are regarded as necessary and even desirable to ensure the economic success of the industry (Henderson et al., 2007). While in sectors such as the kiwifruit industry, the target market is Europe which is often critical of commercial application of food biotechnology – and in particular averse to genetic modification of organisms – the markets of the dairy industry seem less opposed to the use of biotechnologies. Environmental integrity seems to play a marginal role in a sector that tries to become more technologically advanced as a means of staying competitive and ensuring profits (Henderson, et al., 2007).

Biotechnology and its relevance to dairying

Biotechnology in itself is “a set of scientific tools which uses living things to solve problems and make products” (Independent Biotechnology Advisory Council [IBAC], 1999, p. 2). It has also been defined as the

Technological use of living organisms to make or modify products, to improve plants or animals, to develop micro-organisms for specific uses or to provide goods and services. (MORST, 2005, p.16)

Applications of biotechnology aim at improving production, and therefore economic gain. At a more fundamental level, of course, it aims at a better understanding (and therefore control) of biological processes, but the connection between biology and technology today leads to an area of industry research that benefits the economy first of all. Biotechnology has been around almost as long as humankind existed; the ancient forms of bread and beer making practised in Egypt more than 6000 years ago are a form of biotechnology as they made use of fermentation processes that still are in use in modern biotechnology (IBAC, 1999). Moreover, from the advent of agriculture 10,000 years ago, humans have been selectively breeding plants and animals, thereby influencing their genetic development. In more recent times, New

Zealand has contributed significantly to biotechnological developments. This includes, amongst many others, the development of a technique to breed genetically superior sheep used worldwide in 1985, the first trial of human gene therapy in 1996, the first genetically engineered pine in 1998 and the development of a new vaccine for bovine and human tuberculosis in 1999 (IBAC, 1999, pp. 11, 17, 20f).

Today, the New Zealand biotechnology sector is one of the fastest growing in the world. It includes 23 research institutes, nine of which are government-funded Crown Research Institutes (CRIs) (Ross & Ward, 2005, p. 787). This sector plays a major role in New Zealand's agriculture-based economy and is an essential part of the country's 150-year history of trying to genetically improve both plants and animals. This includes more and more sophisticated methods including genetic modification (which as of yet finds no direct commercial application) in order to promote an efficient and productive sector (MORST, 2005).

Biotechnology is most relevant for the primary produce sector and hence crucial to the dairy industry. The technology can help make all steps of the production line more efficient in terms of quantity, quality, and cost-efficiency. It can help to improve pastures, for example, but can also contribute to making a high-quality product as well as processing milk in a more efficient way. Producing more in cheaper ways seems for many to be the way to proceed in order to maintain and strengthen the 'backbone' of New Zealand's economy (IBAC, 1999). The entire export value of New Zealand's biotechnology industry is estimated at a yearly average of \$250 million (NZBIO, 2003, p. 3). The specific strongholds in the country's efforts to promote technological development include large animal-based and plant-based biotechnology, biomedical science, bio-manufacturing, innovative foods and health products as well as bio-control and security (MORST, 2005). Organisations such as Fonterra, CRIs and universities aim at maintaining New Zealand's leadership in biotechnology, especially in the primary sector, and foster research and development capabilities to leverage the country into a position of global leadership in both research and application of agricultural biotechnology (Ross & Ward, 2005).

Possibilities for biotechnology in the dairy industry

Biotechnological solutions can offer a significant potential for the dairy sector. The main focus of biotechnology in New Zealand is on production, in particular primary production, where it is used to add value to what would otherwise be an area of high production with low returns. For example, instead of merely producing and selling

milk, technology makes possible the extraction of proteins from the milk for pharmaceutical use. Globally, agricultural biotechnology is the second most important technological sector and involves things like crop production using genetically modified plants, but also breeding techniques and technologies around cells and genomes aiming at enhancing productivity (MORST, 2005). Biotechnology in the dairy industry can be and is used in many different areas. I give brief examples of the most significant dairy applications in this section.

Breeding

One form of using biotechnology in breeding of both plants and animals is called “smart breeding” (MORST, 2005, p. 64). This refers to manipulated breeding aimed at reproducing advantageous traits of genes such as drought resistance or improved nutritional values for plants. This does not necessarily require genetic modification, although this can be applied too. There is also selective breeding of animals, which has traditionally been done for centuries by way of breeding livestock through selecting those animals with certain phenotypes (outer appearances) in order to improve the frequency of desired characteristics. This process can be enhanced through using genomics, meaning selection using genetic markers to determine advantageous traits in animal genes, which also allows for the genetic diversity within a herd to be retained. Genetic modification can lead to much faster results than what is traditionally achieved through cross-breeding (MORST, 2005). Furthermore, the industry will soon have access to sexed semen through breeding companies, which allows for the purchase of female sexed semen to produce high quality dairy cows. The semen can be purchased to stem from the best bulls, which leads to further control of the farmer over characteristics of cows and milk production (No author, 2010; *Farmer's Guardian*, 2010).

Manipulation of pastures

Pastures can be modified through biotechnology in order to make them, for example, more drought resistant or resistant to a certain bug. Furthermore, recent experiments have been conducted to genetically modify pastures in order to reduce the environmental impacts of farming. This includes efforts to make pastures bind more nitrates or, most recently, develop a genetically engineered type of clover to reduce

the methane emissions of a cow significantly thereby reducing the impact of the dairy industry on climate change (NZPA, 2010a).

Modified milk

Milk is already available heavily modified, as a quick browse through any supermarket cooler reveals. More calcium, less fat, more vitamins, less lactose – varied choices are available for those looking for their preferred type of milk. Milk producers, however, go even one step further than that. For example, Fonterra in cooperation with the University of Auckland is developing specific food products based on milk, as well as pharmaceuticals gained from milk and nutraceuticals (Ross & Ward). Nutraceuticals are made from a combination of a nutritious product (i.e. milk) and pharmaceutical characteristics, and can therefore be used as a consumer product that has pharmaceutical effects. It is also possible to extract different components, for example complex lipids, from milk for further use in food production and other industrial contexts (ibid.).

Pharmaceuticals, fertilisers, pesticides

Biotechnology can advance the development of pharmaceuticals for animal treatment, fertilisers for pastures and pesticides for controlling pests. While the application of all of these products is often associated with having a negative impact on the environment and both animal and human health (for example, through antibiotics that reach the food chain, through leaching of nutrients into the water or through chemicals on paddocks) (NZBLH, n. d.), some technologies can help alleviate those negative impacts. For example, research is underway on new kinds of biological pesticides that can make use of microbes (e.g. fungi) and their specific characteristics to destroy plant pests and deal with crop diseases, leading to fewer chemicals that contaminate the paddocks and therefore the entire environment (Twose, 2010).

Genetic modification

Genetic modification (GM) is a contentious issue worldwide. In New Zealand, public resistance has led to GM being regulated by the Environmental Risk Management Authority (Kurian & Munshi, 2006; Genus & Rogers-Hayden, 2005). Globally, six countries make up 99 percent of the genetically modified crops grown commercially

today: United States, Canada, Argentina, China, Brazil, and South Africa (MORST, 2005). Despite regulation, research on GM in New Zealand continues through a diverse array of projects (New Zealand Biotech, 2007).

In the dairy sector, GM is being used in experiments to improve the production of pastures, other feeds and milk. Research is also underway in applying GM to meet special consumer needs, for example by combining nutritional and pharmaceutical aspects to create therapeutic food (MORST, 2005; Barton, 2010). These and other experiments, including the mentioned genetically modified clover, are not likely to be commercially available at least in the short-term to medium-term given strong opposition from the public as well as some researchers (Ewen-Street, n. d.; Wreford, Kelly & Holland, 2001).

The overview of biotechnology in this section illustrates how the goal of economic profitability privileges specific types of research and development, as well as the use of new technologies in the dairy sector. Although there is a potential for biotechnology to become a remedy for environmental degradation (such as the reduction of green house gases), many biotechnological developments so far have shown a distinct lack of ecological concern. Nature has been manipulated and exploited, with the help of new technologies, for the sake of profit and efficiency of farming. Technological fixes rather than addressing root causes of problems have been the predominant approach in the sector. Policies on the dairy industry have tried, but often failed, to ensure a balanced approach to multi-faceted aspects of sustainability, as I show in the following section.

The Legislative Context

Policies are important to this research project because they are a point of connection between the aspects I try to integrate: sustainability, citizenship and biotechnology. They are also a point where changes can influence the dairy industry towards genuine sustainable development, and towards better representation of all stakeholders of the industry. The main policy text that guides the dairy industry in its operations is the Resource Management Act (1991). Other relevant policies include regional agreements between councils and the industry, and nation-wide regulations such as the Dairying and Cleans Streams Accord (2003). Specific applications such as genetic modification are regulated under the Hazardous Substances and New Organisms Act (1996). Genetic modification regulation was also influenced by recommendations of

the Royal Commission on Genetic Modification (2001). The key aspects of some of these laws, regulations, and accords on the dairy industry are discussed in this section.

The Resource Management Act (1991)

The 1991 Resource Management Act (RMA) is the major legislation on the management of the environment and the country's natural resources. It is aimed at the sustainable management of the environment, providing an umbrella framework for maintaining New Zealand's 'clean and green' image. It thus seeks to move away from destructive, depletive actions that cause damage to soil, air and water quality (Ministry for the Environment, 2009). The Act replaced the fragmented policies around environmental management of the environment and was part of the broader neo-liberal economic reforms that started in 1984 (Bührs & Bartlett, 1993). The state focused merely on economic development and policies around, for example, land development led to extensive deforestation, which in turn led to soil erosion. Furthermore, policies promoted destruction through hydro dams, the excessive use of fertilisers and pesticides in agriculture and more generally an inefficient use of energy resources (ibid.). While nature was exploited for its resources to promote economic gain, little attention was paid to environmental damage; in fact, the state even can be seen as the major cause of this happening (ibid.).

The development of the RMA was one step of changing this general policy approach into a more sensitive management of the environment. Its purpose was "to promote the sustainable management of natural and physical resources" (Bührs & Bartlett, 1993, p. 125). The RMA, as the most significant reform in relation to environmental management in New Zealand, included more social aspects, as well as a market-led resource management approach and the attempt to move away from "state sponsored vandalism" (Bührs & Bartlett, 1993, p. 95). Governance moved towards the acknowledgement of environmental problems, and tried to develop a type of management that used economic incentives and voluntary agreements for environmental protection (Bührs, 2009).

While in the general reform of the state governmental influence on business was to be reduced, the approach to the environment was yet made more business-like, for example through introducing economic incentives for environmentally friendly behaviour. This approach, however, was only mildly successful. Often, environmental policy in New Zealand is dominated by economic interests. Even with the RMA, the economy is given priority over the environment (Bührs, 2008). Private

development is encouraged, and any controls imposed only lead to the prevention of some destructive effects; the protection and restoration of the environment is not actively fostered (Birdsong, 1998).

Therefore, although it was a step in the right direction, the RMA is more symbolic than substantive because it is deficient in enforcing compliance with its statements, and does not address the complexity of environmental issues. Being based on the philosophy of sustainable management, as opposed to sustainable development, it mainly wants to make sure that activities have less of an effect on the environment, not so much change the activities that take place (MfE, 2009). Environmental problems are hence not tackled at their roots; only symptoms are addressed, which means that any changes only occur at the surface, failing to ensure true environmental sustainability to be established (Bührs, 2008; Bührs & Bartlett, 1993).

Institutional implications of the RMA

With the Act, all aspects of the New Zealand environment are controlled. While central government is the source of direction through legislation, governing takes place mostly through regional councils and district councils. For the Waikato region, the main work of regulation and checking compliance is done by Environment Waikato, a regional council that manages all land, soil, air, water, coastal and also geothermal resources in the central North Island, including eight local districts. The region has important waterways such as the Waikato River, and numerous lakes such as Lake Taupo, that need attention in terms of environmental protection. The dairy industry here is seen as one of the major polluters of the waters through excessive fertiliser use and cow effluent running off paddocks into the water (EW, 2010a; EW, 2010b). One example that illustrates the RMA being put into action on a regional level is the Lake Taupo Catchment (2005), an attempt to clean up the lake which is significantly polluted by surrounding farming activity. Environment Waikato works together with farmers, the Taupo District Council and other stakeholders in order to ameliorate the environmental situation and reduce pollution of the lake (EW, 2010a).

The RMA can hence be interpreted as a first step towards a more environmentally conscious approach in New Zealand: it sends a right signal in that it put environmental issues on the agenda, but it fails to promote an in-depth approach focused on effective sustainable development. Rather, it aims at economic growth with consideration of the environment. Therefore, although its principles are the

protection of the environment in all its valuable forms (Ministry of the Environment, 1991), the Act does not offer strict control over how natural resources are made use of in the country (see Freeman, 2004; Bührs & Christoff, 2006). Environmental policy in New Zealand has been strongly influenced by both European colonisation and later globalisation, as well as the fact that its economy is highly reliant on exporting primary resources (Bührs & Christoff, 2006), of which the dairy industry is a big part. This has had an influence on the strength of environmental policy and the characteristics of resource management in New Zealand. Environmental concerns are only slowly gaining weight in political decision making.

With regards to the dairy industry, much has still to be done in order to reduce its environmental impact, in order to preserve and restore pristine natural surroundings, and in order to live up to its much-appraised ‘clean green’ standard (Greenpeace, 2009). One major problem is the fact that farming activity itself is a permitted activity, not a consentable activity, under the Resource Management Act, which means that impacts of dairying such as pollution caused by farming operations in rivers through run off from farmland, is technically unregulated (New Zealand House of Representatives, 2010). With parts of dairy farming being unregulated by the main environmental policy framework, and the framework itself being focused on economic growth as much as environmental protection (or, arguably, even more concerned with the former rather than the latter), the dairy industry will continue in its negative impact on the environment. Until there is a change towards sustainability brought about either voluntarily or through changes in the regulatory and legislative requirements, the dairy industry will remain a major factor that threatens the environment through, for example, deforestation of native bush, destruction of native habitats for many endangered species, pollution of waterways through effluents (Mortlock & Hunt, 2008), and threat to the climate through excessive methane emissions contributing to the global process of climate change (Ministry of Agriculture and Forestry, 2011). More regulations that are committed to environmental values are required in order to reduce the impact dairy farming has on New Zealand’s environment, as well as – through climate change – on the world’s environment.

Dairying and Clean Streams Accord

Apart from the RMA as major political framework, there are a few local initiatives by the dairy industry and policy makers to improve the environmental footprint of the

sector, including the Taupo Catchment discussed above. A further example is the Dairying and Clean Streams Accord, a voluntary agreement signed by Fonterra, regional councils, the Ministry for the Environment and the Ministry of Agriculture and Forestry in 2003 (MfE, 2003). The agreement is an attempt to make the dairy industry more environmentally sustainable; however, even more so than the RMA, it is merely a signifier that the industry intends to move in the right direction. It is literally “a statement of intent and framework for actions to promote sustainable dairy farming in New Zealand” (MfE, 2003, p. 1). The goal is to restore the quality of water polluted by dairying activities, so as to make it suitable again for swimming, fish and drinking by stock. It mainly involves fencing off waterways to keep stock out of streams and reduce the run-off of nutrients and waste from farmland into the water. This is intended to be controlled by surveying nutrient losses and effective management of effluents on farm. Although targets are aimed at improving water quality, the agreement is voluntary and it is hard to monitor compliance. In some cases water quality has even deteriorated since the introduction of the Accord, and the industry does not seem to fulfil its duties of meeting the set targets (Hackwell, 2008). Oftentimes, Fonterra insists on dealing with issues and excludes external controls. Therefore, the Accord is often publicly perceived as a mere symbolic act to appease the public and the authorities.

Biotechnology politics in New Zealand

As stated above, the New Zealand government encourages biotechnology research and development. This is in line with the government’s goal of developing a ‘knowledge economy’ and its desire to foster biotechnology as a part of this (Henderson et al., 2007, p. 11; Wright & Kurian, 2010). However, due to the strong public opposition to GM, this does not hold true for the development of GM processes. Apart from GM research being slowed down by legislation to cope with public pressure, biotechnology has a strong political backing and extensive funds go into its research and development (Ross & Ward, 2005).

In this regard, more effort has to be made in order to involve citizens in decision making on these issues. Existing processes for public participation in issues of science, research and development remain inadequate (Kurian & Wright, 2010). In the case of genetic modification, public participation is managed by the Environmental Risk and Management Authority (ERMA), an agency founded under the Hazardous Substances and New Organisms Act (1996) that regulates issues of

genetic modification. Public perspectives opposed to the research into genetic modification on cultural, moral, safety or other reasons are not sufficiently heard, and often ignored on the basis that they are deemed not to have scientific legitimacy (Kurian & Wright, 2010). With regards to research on biotechnology in the dairy sector, greater citizen involvement would mean that voices against genetic modification are likely to be heard more strongly.

Public Perception and Media Representation of the Dairy Sector

Both public perception and media representation – interlinked aspects that inform each other – are important for the analysis of citizenship and sustainability in the dairy sector (see Iyengar & Kinder, 1987, for a discussion of the interrelation between public views and media reporting). Because the dairy industry is the biggest economic player in New Zealand, it is seen as the ‘backbone’ of the economy, and sometimes of the entire country. On the one hand, this means that a lot of people are either farmers, related to someone who is a farmer, or work within the wider field of the dairy industry. On the other hand, there is a big rural-urban divide in which farmers live their lives in a rural surrounding, going about their farming business quite remote from the urban environments and vice versa (Ministry of Agriculture and Forestry, 2009; NZPA, 2009).

A lot of the media representation is quite negative on agriculture, and especially so when reporting on the dairy industry. Be it reporting on planned cow cubicles (Gorman, 2009), animal welfare (Lone, 2010), pollution through dairy farming (Daniels, 2010; Underhill, 2010; Sachdeva, 2010 amongst many others), or genetic engineering (Gibson, 2010), a lot of newspaper articles dealing with issues relating to dairy farming represent and express negative rather than positive views. In relation to reporting on GM issues, it is also notable that reporting seems to have a tendency of simplifying the matter by reporting on various opinions, rather than in-depth meaning of arguments raised (Rupar, 2007). This contributes to the exclusion of the public from forming sophisticated opinions and participating in in-depth dialogue.

A notable exception to the tendency of negative reporting on dairy industry issues is the reporting on economic performance of the sector: when it comes to business success, growth and money generated by dairy farming, newspaper articles shed a more positive light and depict the success of the industry on a global market

(e.g., NZPA, 2010b). Discussion of public perception of dairying and the industry is continued in chapter six.

Conclusion

From the discussion above it is obvious that the dairy industry is still far removed from living up to its 'clean and green' image that it is very keen to promote particularly on the global market. Its operations have contributed extensively to pollution and environmental degradation. Native bush and other land types have been converted into paddocks and farmland, stripping it off most vegetation and leading to soil erosion (Jay, 1999). Intensive farming leads to run-off of effluent and nutrients into waterways, and intensive use of the soil means it becomes increasingly depleted. Although the industry is a major contributor to the New Zealand economy, especially to its export sector, the public is increasingly frustrated with how the environment is destroyed by its activities, and seems to support a change in its methods that would make it more sustainable (Deans & Hackwell, 2008). This change will have to happen soon, if the industry wants to remain competitive, since the environmental destruction will mean in future that no farming can take place at all in the way it does at the moment. Sustainable development is crucial for the sector, and citizens will need to play a major role in this since they have a vested interest in the environment, but also in the economy. They are consumers, but also stakeholders and cannot be ignored. In the following chapters, I use the concept of sustainable citizenship as a starting point to analyse sustainability in the dairy sector, how to make it more sustainable, and whether and how to apply biotechnology approaches, to reach this goal.

Chapter Five

Discourse Analysis on Sustainability

Introduction

The polarised positions and priorities of different stakeholders in the dairy sector serve as barriers to making the sector sustainable. Environmentalists and other activist groups call for a holistic restructuring of the industry with the goal of sustainability. The industry, however, sees environmental sustainability as incompatible with its primary objective of economic growth and profitability.

In this chapter and the next, I evaluate notions of sustainability and citizenship through an analysis of the discourses around the dairy industry. I then explore the relevance and efficacy of sustainable citizenship in providing the groundwork for shaping policies for a sustainable dairy sector.

This chapter examines sustainability in its various facets through a study of interviews with dairy sector stakeholders, documents and newspaper reports as described in chapter three. The analysis reveals the potential of sustainability to transcend polarised views. The next chapter leads to a more nuanced understanding of sustainable citizenship. The two chapters, therefore, provide a broader approach to sustainability in the dairy sector.

Discourses of sustainability in the dairy sector have certain common threads running through them. Some of these are: sustainability as economic sustainability, the commitment of companies to sustainability versus greenwashing, the relevance of a ‘clean green’ image to the dairy industry, environmental conceptions of sustainability, sustainability as the ‘need to feed the world’, and lastly sustainability and the link to biotechnology.

Economic Perceptions of Sustainability

To begin with, every person I spoke to regardless of affiliation seemed to value sustainability very highly. Also obvious is the fact that sustainability is in vogue and everyone wants to be associated with it. A very good example of this is the World Dairy Summit (WDS) in Auckland in November 2010, which saw the coming together of representatives of the dairy industry from all over the world. Given the perception of the dairy industry as having questionable environmental, economic and

social practices, it was surprising to see sustainability as the main theme and headline of the summit. It featured various presentations and workshops on sustainability and gave prominence to this message of sustainability to the media (NZPA, 2010c; International Dairy Foundation, 2010).

The New Zealand dairy giant Fonterra published a sustainability report (Fonterra, 2010b) providing an overview of its environmental and social performance in the wake of the WDS that was also published on the WDS website. This report surveys achievements such as waste management and reduction of carbon footprint and depicts Fonterra as a company that is “environmentally sound, economically sustainable and socially responsible” (Fonterra, 2010b, p. 3). When analysing this closer, however, this statement seems to be more of a public relations exercise than depicting the truth. For example, it is noteworthy that agriculture in New Zealand is responsible for 48 percent of all Greenhouse gas (GHG) emissions – a fact also stated in this publication, which makes the dairy industry a very significant contributor to climate change in New Zealand. Furthermore, the Fonterra fact sheet (Fonterra, 2010b) reports on the compliance of farmers with the Dairying and Clean Streams Accord meant to reduce the pollution of waterways by farming activity. While the report claims the project was a success, a National Institute of Water & Atmospheric Research (NIWA) water quality report paints a more negative picture of New Zealand water quality, saying that about a third of the lakes are of poor water quality, with a trend of deterioration rather than improvement (Verburg et al., 2010). Still, in an open letter released just before the summit, Fonterra states its commitment to all aspects of sustainability, although emphasis remains on economic performance and the need to produce food (Fonterra, 2010a). Fonterra’s website also reports on campaigns of social sustainability, such as the “KickStart Breakfast”⁷ programme through which the company supports schools in providing breakfast to their students

However, the dairy industry’s conception of sustainability often prioritises economic sustainability over other aspects, and even seems to regard environmental responsibility as a burden or (un)necessary evil. The Federated Farmers, New Zealand’s biggest farmer advocacy body, defines sustainability as “unity of positive environmental management with economic reality” (Federated Farmers, 2008, p. 34). It goes on to say that “the concept of sustainability is increasingly skewed away from taking economic considerations into account,” and therefore illustrates a general

⁷ See <http://www.kickstartbreakfast.co.nz>.

perception of sustainability that is prevalent within the dairy industry: sustainability is thought of in economic terms first of all, while other issues such as the environment and social factors are viewed more like annoying flies they cannot get rid of.

It is not only big companies that place an emphasis on economic sustainability, as evident in the interviews I conducted. The scientific community, too, does so. Asked whether the dairy industry could keep operating the way it does today for the coming centuries, a scientist at AgResearch said:

I cannot see that it will disappear. We are always going to need food, so the dairy industry will be there. And there always seems to be a call for milk-based products. And the way the population is going, the world population, I can't see that there won't be any dairy industry here. The only way there might not be a dairy industry here is if the rest of the world is able to supply the products cheaper than New Zealand. (IP04)

Consideration of the environment and social issues hence often remains in the background. The same scientist sees sustainability as “high productivity with less environmental damage” (IP04). These quotes reveal the perception that the economy is the main focus. Even more striking is the comment that “this country needs to export as much product as possible to stay solvent” (IP04), stressing the economic importance of the sector and the fact that it will have to generate profit in order to sustain the entire country's economy. Economic success and sustainability are clearly crucial for both the industry and the working in the dairy sector.

Commitment to Sustainability or Greenwashing?

Instead of genuinely embracing all aspects of sustainability principles to ensure that the land is not over-exploited, the industry has largely adopted a strategy of presenting itself as environmentally aware to the public, although its actions more often than not speak a different language. Trying to rid themselves of that annoying sustainability fly buzzing around the industry, the dairy companies seem to have discovered the method of greenwashing. This concept was used, amongst others, by Tom Athanasiou (1996), in order to describe public relations strategies of companies that try to create a look of environmental and social concern that is favourable to them but is short on genuine commitment to those ideals. In a way, greenwashing can be seen as following a kind of fashion. In the last decades, environmental

problems have become increasingly visible and are widely discussed, with climate change as the hottest topic of them. Thus, concern with environmental issues has become very popular, and companies are trying to jump on a bandwagon of being perceived as protecting the environment; even oil companies such as BP and Shell have been using this kind of strategy of creating a 'green' image around their company. This idea was summed up by a statement of a representative of Environment Waikato who said the following about sustainability and environmental problems:

We have challenges with some of the political leadership in the industry; the dairy industry sees environment as a cost of production and so they see by putting limits on, whether it would be nutrient caps or changing the rules on effluent, they see that as a cost to the producers and so they are doing enough to be seen to be acting a kind of a greenwash, but they will always be slow on uptake because of the cost of production. (IP09)

This quote shows how policy makers are aware that action is taken going far enough to create an impression of being committed to the environment, but that they are by no means making a big impact. Greenwashing strategies are certainly recognised here, while action in terms of policies seems to happen only slowly. Similar views were expressed by a policy analyst saying that "in my less optimistic days [I think that] their [the dairy industry's] policies around sustainability tend to be providing lip service, rather than really acting on it" (IP08). This keeping up of appearances without true regard for the environment is also exemplified in a definition of sustainability offered by a politician in an interview, who related sustainability to

The [dairy] industry developing in a way that meets its objectives of enhancing wealth but also the need to maintain its branding, its clean green image (...) (IP02)

This 'clean green' image mentioned here seems one of the most important aspects of the dairy industry representing itself, particularly on a global stage (MfE, 2001), and is a recurring theme in interviews with stakeholders and in dairy sector documents. The dairy industry banks on the general image of New Zealand as a clean and green country, projected in tourism promotion and in the branding of New Zealand products sold overseas. Websites of dairy businesses like Agritech⁸ and Fonterra⁹ run parallel to those of the tourism industry in presenting a pristine image of nature,

⁸ www.agritech.org.nz/clean.shtml

⁹ www.anchorbutter.com/Fonterra.html

for example, through the 100% Pure New Zealand campaign and its depiction of the country's natural beauty.

Converting Sunlight into Milk: New Zealand's Clean Green Image

A popular perception of the dairy industry is that it converts sunlight into milk, or sometimes grass into milk. One of the politicians interviewed, for example, said the following about the New Zealand dairy sector:

The past 50 years our strength was on pasture utilisation, and the technology we have developed around that led us to be world leaders in converting grass into milk. (IP02)

This comment shows the belief that globally, New Zealand's dairy industry is rather unique in that it is pasture based. Even though this is a typical and beneficial feature, that does not quite mean all there is to dairy farming is grass and milk. Another participant from the public sector said that "one of the things the dairy industry does is [that] it converts sunlight into food" (IP08). Such simplifications, however benign in intention, contribute to the depiction of the industry as clean and green. Out of the 13 interview participants, nine specifically referred to the 'clean and green' image of New Zealand in one way or another. The usage of the concept of the 'clean and green' image, however, varies from interview to interview, with some people strongly believing it, and some people rejecting it outright.

As seen in the interviews, one set of views sees the 'clean green' as a given. Those opinions show that (some) people are convinced that New Zealand is an environmentally friendly country and that the dairy industry is green and clean. For example, a politician, when asked whether the sector was environmentally sustainable as it operates currently, replied: "Definitely. It is the cleanest greenest that you have got in the world" (IP02). Furthermore, a scientist at AgResearch said:

If we go for what I think to be the New Zealand model and that is the way the industry still wants to go, perhaps the market still wants [to go] that way, we keep our animals out in the open, fed on pasture as much as possible, housed for as little as possible, that sort of green image of New Zealand. (IP04)

Again, this statement reveals trust in the fact that the New Zealand dairy industry is actually favourable to the environment. Similarly positive was the opinion of another

AgResearch researcher, though in his reply he hinted subtly at the assumption that much of the 'clean green' image is more about representation than actual modes of operation. Asked whether the dairy industry will succeed in protecting the environment, this researcher replied:

I think that is in their interest, because that is how they sell the quality of their product, the 'clean green New Zealand', so they are very sensitive to anything that might hurt that. So they have to be very responsive. (IP03)

This comment shows how important it is for the industry to maintain a positive perception. Clearly, there are at least two ways of living up to this image: The industry can either introduce environment-friendly methods of operation and change its current systems or choose to strengthen its public relations in a way that the industry is portrayed as clean and green without making any radical changes to the way it operates. The owner of a dairy agreed with the perception that New Zealanders identify themselves with the 'clean and green' image of the country, and that this is:

huge in terms of the economic impact on the country and the psyche of the country too, ... and one of the things we are known for is our farming, our agriculture and our sheep and dairy. (IP13)

The clean green image can also be extended to the use of new technologies. New Zealand is, amongst other things, particular in this on a global scale in two aspects, one which is directly related to the dairy sector: so far, it has maintained that it is both nuclear and GM free. Both aspects are often seen as keeping New Zealand green and environmentally friendly through avoiding harm to environment and population by these two technologies (Green Party, 2002; Green Party, 2007). Addressing the aspect of GM, a conventional farmer said:

I guess probably the biggest problem is if it's a market perception thing, whether it affects our clean green [image] and therefore would we [be], in pure commercial terms, better not to entertain that thought at all? (IP06)

The farmer referred to the controversy of whether it would be economically better to refrain from the use of genetic modification and other means to push production, because that would mean prioritising market perception (New Zealand as a GM free, clean, environmentally friendly country) over potential financial gain that can be made by boosting production and developing new products through biotechnological approaches. In contrast to these views that confirm a perception (if not reality) of New Zealand as clean and green country, there are also more sceptical

views as discussed in the next section. This includes those who are not convinced by greenwashing or reported environmental success, and whose definition of sustainability is more concerned with the environment, not so much with economic goals.

Environmental Conceptions of Sustainability

There are many perspectives within the sustainability discourse that stress the environmental aspects of sustainability and either prioritise the environment over all other factors, or at least acknowledge the environment as a very important issue to become sustainable. For example, Professor Martin Manning, director of the New Zealand Climate Change Research Institute, said that:

To be sustainable, this sector needs to [adapt] in ways that are consistent with the increasing pressures on our environment and threats to its stability. (NZPA, 2010c)

This sceptical position is also echoed by a politics student who said:

If you look at some of the technologies available, sure they are clean and green but we also have to be realistic in the sense that the amount of energy that we need as consumers globally, [such technologies are not] ... a solution. (IP11)

This means that it is important for underlying attitudes towards both consumptions and nature have to change, in contrast to simply relying on technologies to solve problems. Similarly sceptical of the green image, an organic farmer commented on the environmental sustainability of the dairy industry:

We call ourselves clean and green but we have a fair way to go. (IP07)

Both interviewees express the view that environmental sustainability is not quite yet a given, and that change still has to come from production as much as consumption to live up to expectations. Scepticism about the dairy industry's green credentials is also expressed by environmental organisations such as Greenpeace. For example, in the course of the World Dairy Summit 2010, Greenpeace issued a number of press releases (see, e.g. Greenpeace, 2010a; Greenpeace 2010b) that strongly doubted the idea of dairying being sustainable, and instead accused, in particular, Fonterra of

using ‘greenwashing’ as a tactic. Greenpeace campaigner Nathan Argent (2010) writes in a blog on the perception of sustainability and biodiversity in the dairy sector:

[Fonterra CEO Andrew Ferrier’s] idea of sustainability means long term growth and profitability for his industry - not for the long term health and protection of our global environment. (...) It was all about ‘cost effective solutions’, ‘maintaining cost structure’, ‘sustainable intensification’, ‘profitability’, and did I mention costs? ... [I]n one session (...) a delegate asked where biodiversity was in this vision for the future, to which the NZ Federated Farmers’ Lachlan McKenzie replied that he had several species of clover in his paddock, so they’d got this one covered as well.

Argent has a point in criticising the attitudes of many dairy industry representatives when it comes to protecting the environment through sustainable farming. Many of them do not seem concerned at all with the environment, while others seem to just pretend they are. However, while such strong opinions of unwillingness to consider environmental or social problems dairying might cause have consequences for the sustainability of the sector, my overall view is still that most stakeholders at least appear to be committed to aims of sustainability, including environmental ones. Still, there seems to be a long way between concern voiced and responsibilities admitted, and actual change towards the incorporation of all aspects of sustainability into dairy practice.

A further critique of the dairy industry and its sustainability was expressed by the organisation Fish and Game¹⁰, which is concerned with issues around fishing and game hunting including environmental aspects. Fish and Game launched a public campaign called “Dirty Dairying” in the early 2000s (Roney, 2007). The campaign was created to publicise environmental problems caused by dairy operations, including the increasing pollution of waterways through effluent run-off from farms (Swann, 2009). Apart from getting the attention of the public and making known environmental problems that hitherto had often been conveniently ignored, the campaign led to the signing of the Dairying and Clean Streams Accord in 2003 (Roney, 2007; see discussion in chapter four).

The term “Dirty Dairying” is now a widespread perception of the dairy industry amongst parts of the public, and often used by media to depict the dairy sector in articles around pollution and other environmental problems linked mainly to the dairy industry (see, e.g., NZPA 2010d; NZPA 2010e). However, media

¹⁰ Fish and Game is an angler and gamebird hunter organisation with statutory mandate to manage New Zealand’s fresh water sport fish fisheries and gamebird hunting. (www.fishandgame.org.nz)

representation often picks on bad examples, without reporting much about positive ones, and is therefore likely to prefer reporting on Dirty Dairying rather than any particular successes of the sector¹¹. This representation might be welcomed by groups such as Greenpeace, since it supports the media in this depiction of the industry and might make people more likely to support Greenpeace if continuously exposed to bad news on dairying. However, such stark depictions tend to widen the gap between polarised views and do not foster collaborative action towards sustainability. Rather, media, industry stakeholders, government and the public all need to make a combined effort to support genuine assessment of all levels of sustainability in the dairy sector. To do so requires the consideration of the multiple layers and understandings of sustainability.

A further common thread of opinions became visible throughout the interviews, and in documents of the analysis such as Fonterra reports, DairyNZ publications, as well as for example the speech given by the Minister of Agriculture, Hon David Carter, during the opening ceremony of the World Dairy Summit 2010. This aspect is the ‘need to feed the world’, that is, the assumption that the New Zealand dairy industry has the possibility as much as the obligation to produce enough food, milk products in particular, to meet the increasing demand in particular in many Asian countries such as China where increasing populations coincide with an increasing popularity of dairy products.

The Need to Feed the World

A widespread assumption that New Zealand dairy farmers need to produce food in order to feed the world is commonly expressed throughout the industry and media publications (e.g. Wallace, 2010). This has implications for the sustainability of the industry as well as the sustainability – economic performance, environmental impacts and social issues – of the country in a wider sense. In my interviews with dairy industry stakeholders, six of the 13 participants referred to the need for the dairy industry to feed the world. This raises several questions for sustainability. For example, in terms of economic sustainability, would a sustained demand to feed the world mean the creation of a long-term market and, therefore, a secure future for the New Zealand industry? There is, clearly, no such guarantee of this. There may well be

¹¹ See McGregor (2002), for a discussion of the media’s tendency to focus on negative issues in reporting in order to entice the audience

countries which, due to their geographic or other advantages, may be able to produce more milk at cheaper prices than New Zealand in the future.

How much more intensification can the environment sustain? Are today's levels of production putting too much pressure on resources and animals already? How can more milk be produced without further eroding the land and polluting the environment? It might be that New Zealand in the end is not capable of producing enough milk cheap enough to meet global demands due to both economic and environmental limitations. In order to evaluate the issue, I analyse the use of the term 'feeding the world', exploring its relevance to the dairy industry and sustainability.

First of all, there is an economic perspective that regards the 'need to feed the world' as both an economic challenge and an opportunity. In this view, problems can only arise in the case of the industry being unable to meet the demand due to not producing enough milk. Otherwise, an increase in demand equals an increase in profit. This focus on economic interests is amongst others expressed by a politician by stating that "the dairy industry is doing well, we have got to feed China, that's where we make our money" (IP02), makes clear that he had no doubts that the industry could continue along its path of increasing volumes and pushing profit margins. A very similar view was expressed by the Minister of Agriculture, Hon David Carter, in his speech to address the World Dairy Summit. Carter (2010) referred to the global need for dairy products:

Worldwide, dairy is meeting unprecedented demand. Increasing populations and incomes, particularly in China and other Asian nations, together with the growing popularity of dairy products will see a steady upward trend in consumption over the next decade. In just over 40 years, the world population will grow from six billion to nine billion people. The demand for animal protein by then will be more than twice what the world is producing now.

He did refer to the need to be environmentally sustainable while increasing production, but an economic focus was palpable in his address. A more balanced view was expressed by a scientist at AgResearch. He said:

We are coming close to nine billion people in the world, we will in 25 years' time be at least 12 billion people in the world, unless we have a nuclear war or something. We have huge needs to feed... we already have enough food produced in the world, but not in the right places. We either need to produce more food and move it to places, or produce food where it is actually needed. (...) we need to feed the world's population. If we double the world's population, then you need to double the food production. At least to feed

them. And therefore we need to find ways of doing that in a sustainable way. The big issue we face is overloading the environment. And that is what research and development is about at present, it is about growing more basic feed for animals, having animals that are more productive per unit of input, so they are more feed-production efficient. (...) As we actually deal with producing more food to feed the people in the Pacific Rim, which is what New Zealand is going to feed, we have to be sustainable in terms of the environment for example, so we have to deal with things that were never a problem in the past, which would be rivers, nitrogen in land. (IP03)

This approach provides a more balanced view on the reality of dairy production. First of all, it is clear about the environmental problems that are caused by dairy intensification. Secondly, it shows awareness of the fact that there may be a problem in the location of production, not so much in the amount: there is enough food, but in some places there is too much food (and it is wasted) whereas in others there is a lack in production, as discussed in Patel's (2007) analysis of unequal food distribution and corporate food monopolies. Thirdly, it hints at the possibility of dealing with all those problems through research and the development of new technologies.

This last approach can also be found in other participants' statements. Another scientist proposed the application of new technologies as a remedy for reconciling increased production with environmental problems:

If we are to feed the world, we will have to produce more food. I am a bit scared by the fact that we are trying to increase productivity but also (...) reduce [our] environmental footprint. The alternative is to say OK we will scale back our production systems, produce less food, per unit of production, and you will also therefore have a smaller environmental footprint. If you want to continue increasing efficiency of production you have to use technologies. (IP04)

This focus on the role of technologies as a means to solve problems of intense dairying is very important to my analysis, and I discuss it in more detail in the following section on biotechnology and sustainability. It is interesting to see that the use of technologies is linked to the statement of world food provision. It is also important to note, however, that there are more critical voices. A dairy owner, for example, said:

You have got to have a balance, sure you have to feed the people but at the same time it's no use feeding one generation when there is not going to be another generation because we have not got enough trees to recycle carbon dioxide back into oxygen and we have to be conscious of the big picture. (IP13)

This is one example of a balanced approach, which recognises that the dairy industry is part of a larger framework encompassing the global economy and the global environment. It recognises the impacts the sector has on a global scale, with climate change as discussed in chapter four being the biggest issue for global sustainability at the moment.

Another sceptical view is held by an organic farmer, who sees the future of New Zealand dairy farming in small scale, high quality production rather than the commercialised, industrialised approaches taken by large international companies. Being an organic farmer, he is particularly critical of genetic modification, but also the overall climate of economic of globalisation that disadvantages developing countries:

Look at what's happened with GM around the world, especially what's coming out of America, Monsanto and places like that, it's not all good. It's not about feeding the world and things, it's control, and profits. There has been some really ugly stuff with it. (...). I see our future as being the health food basket of the world. Not producing the most or trying to feed an overpopulated world but trying to be producing the best. And I think if we were to go GM free that would enhance that dimension, that branding we want to give ourselves. (...) Again I think the real power of organics versus commercial is actually to tell the Third World to feed itself. So villages make compost and use local products to be sustainable, whereas this globalisation is probably one of the most unsustainable things. (...) I think with (...) the right skills and the right leadership (...) the world could (...) feed itself very sustainably. (IP07)

Two aspects are noteworthy in particular in this point of view. The first is the notion that New Zealand should become the 'health food basket' of the world, producing very high quality products rather than targeting cheap mass production. Secondly, the fact that rather than using new technologies to produce more food, an approach taken by large international companies that dominate the industry, it might be more sustainable to take a more local approach, making sure that local communities are supported to feed themselves by basic means rather than providing them with expensive high technology products. This approach seems to make much more sense environmentally, since it uses low input systems that work along with nature and have a smaller environmental impact. The two points are somewhat contradictory in the sense that the argument proposes both that New Zealand should become the 'health food basket' for the world, and that the communities in the world should produce food locally. In reality, however, it seems still possible to promote both local food initiatives as well as healthy food production in New Zealand that can run in

parallel as the food market is unlikely to reverse globalisation to purely local production. The implications of this for global food production, but also aspects such as climate change and capitalism, are enormous and lie beyond the scope of this research project. Small scale production in its pure form may not provide for economic sustainability as the dairy industry relies on high levels of production being exported to overseas markets. Nevertheless, I come back to the idea of small scale, local production and the 'food health basket' in the conclusion.

Sustainability and Possible Implications of Biotechnology

Discourses around sustainability of the dairy industry widely mention biotechnology, both as a risk and as a chance to improve the sustainability of the sector. Interviews and industry publications (e.g., AgResearch, 2007; ViaLactia, 2007) as much as academic articles (e.g., Davison et al., 1997; DuPuis, 2000) explore a number of implications of biotechnology for sustainability, both negative and positive. A few examples are summed up in Table 1 below, showing possible effects of biotechnology on economic, environmental and social sustainability that have been anticipated or suggested. Perceived risks of biotechnology include a high cost for farmers to implement technologies and keep up with developments of the industry (IP06, IP07), increased soil erosion and destruction of biodiversity through the spreading of genetically modified material (IP01, IP07), as well as threats to general human health and food safety along with the control of farming by large international companies (DuPuis, 2000; GE Free New Zealand, n. d.).

Opportunities entail an expectancy of higher production levels (producing more milk) in order to meet an increasing global demand (IP03, IP04, IP05), as well as producing new products (IP10), and through all this achieving an increase in economic success. Furthermore, there are expectations to be able to use biotechnology to reduce GHG emissions (NZPA, 2010c), improve the management of pollution problems (IP04), and develop new, less environmentally degrading fertilisers (Twose, 2010). Lastly, biotechnology is expected to help with social sustainability in that it can improve production levels and therefore be a means to feed more people in the world and hence prevent social tensions (Carter, 2010; IP05).

	Risks	Opportunities
Economic sustainability	<ul style="list-style-type: none"> • High costs for farmers • Not profitable enough 	<ul style="list-style-type: none"> • Better economic performance • Higher production • New products • Meeting global demand
Environmental sustainability	<ul style="list-style-type: none"> • Destruction of biodiversity • Increased soil erosion • Spread of GM material 	<ul style="list-style-type: none"> • Reduction of GHG emissions • Alleviation of problems such as pollution • Management and development of new and safe fertilisers etc.
Social sustainability	<ul style="list-style-type: none"> • GM as threat to human health • Risk of few big companies controlling farmers through patents • Impact on traditional farming style 	<ul style="list-style-type: none"> • Ability to produce more food and in different places; potential to fight starvation • More profit, more wealth, raising overall wellbeing

Table 1: Possible Sustainability Implications of Biotechnology

The implications of biotechnology for social sustainability will be discussed in greater depth in the following chapter on sustainable citizenship. The economic effects are difficult to predict as there are references to both positive and negative implications for economic performance through the increasing application of biotechnology in the New Zealand dairy industry. Some scholars and research institutions state that using biotechnology will be a critical point for sustainability of the dairy industry and the New Zealand economy (e.g. Davison et al., 1997; AgResearch, 2007), and the Ministry of Research, Science and Technology reported on positive economic effects of biotechnology on the primary sector, of which the dairy industry is an important part (MORST, 2006). Negative effects in terms of economic sustainability have been mentioned in scholarly literature (e.g., Menrad, 2000) as well as some interviews, such as a farmer stating concerns about the cost incurred by new technologies versus the benefit they will bring for the farm, and the rush to develop more and more new technologies without considering their economic effects (IP06). Another negative effect of biotechnology can be through damaging the image of the New Zealand

industry as clean and green; this reputation is of considerable economic value and might be threatened by the increased use of technology and intensification, especially through the potential application of GM in the sector (MfE, 2001).

As discussed in the preceding chapter, the dairy industry of New Zealand has always been at the forefront of using biotechnological methods and new processes. This has helped the industry generate most of its profit through the application of biotechnologies such as new fertilisers, new breeding technology, new machines and possibly genetic modification of pasture and animals.

Lastly, there is the aspect of environmental sustainability. Legg and Viatte (2001) discuss two different approaches to environmental sustainability of farming, one of which uses technology whereas the other does not. The first approach they label “agroecology” and describe it as a method of farming enhancing biological activity, using biodiversity as a natural way of controlling pests, rotating crops and stock, conserving soils and their fertility – all this by trying to work along nature and natural cycles, without input of artificial fertiliser, pesticides and so on. The other approach is labelled “technological fix” and refers to the monoculture system often used today that is removed from natural processes and relies on technological solutions to solve problems such as pests, low soil fertility and other issues that reduce production (Legg & Viatte, 2001, p. 288).

There are many voices in the dairy industry promoting this ‘technological fix’ approach to the sector’s environmental issues. According to this view, biotechnology could be used in order to enhance environmental sustainability. One example given for this is the development of so-called cow cubicles in the New Zealand dairy sector. Cow cubicles confine stock to houses that can contain diverse new technological developments such as milking machines. They also are used to directly collect effluent before it leaks into the soil, and are therefore described by proponents as environmentally friendly in the control they allow (Markby, 2010). Of course, even if effluent is collected before getting into the soil, it is still being produced and the more so with the intensive farming that cow cubicles aim at. Moreover, it seems that opting for organic methods of farming rather than intensified ones would be the ultimate way of reducing environmental impact since it is made to work with nature and respect its principles, not exploit it.

On another level, research is being conducted in the area of GHG emissions (methane emitted by cows) and the development of GM pastures and animals that lead to a reduction in those emissions (AgResearch, 2007). This could have beneficial effects on the environment since the dairy industry is a major contributor to GHG

emissions in New Zealand, and about 85 percent of the emissions are being caused at the farm (Fonterra, 2010b).

It remains to be seen whether these benefits are realistic and will have a significant effect on protecting the environment. It seems more likely that these biotechnologies are seen as a technological fix for problems that are caused by the system of high intensity farming, which would mean that it is more effective to change the system, than to try to mediate its environmental effects by new technologies.

However, it must be possible to use technology, given it is there, towards more favourable ends than destroying nature and patching up its destruction, for example, using it to assist with a more sustainable lifestyle and promote more environmentally friendly processes in the industry. The tensions between organic farming, 'agroecology' or however the 'natural' approach is termed and a technological, production-focused approach cannot be fully resolved as there are some fundamental differences. However, as there are also common grounds to be found amongst these views, as discussed below, it is best to move beyond polarisation and extreme viewpoints, towards a compromise.

Compromises or a Happy Medium?

Can there be a middle path between extremes to go forward? Is there room for a compromise to the satisfaction of all involved parties? In an attempt to find a middle way, one interviewee introduced the idea of having a 'happy medium', saying:

For New Zealand, we need to accept for example around water, do we want pristine, absolutely clean water? That's fine if you want that, that's great, but you need to accept on the other hand that we are going to put farming back to the Dark Ages, we are about as uncompetitive and the style of life that we have in New Zealand will not be sustainable. We will go back to a Third World country. We could go to an American excessive life, and absolutely demolish the waterways and the pollution, all the rest of it, and I mean no-one wants to go there but it's finding that happy medium. (IP10)

This is a realistic approach to the problem that acknowledges technological development has already gone too far and our current standard of living and our requirements will not allow, for example, for exclusively organic farming to be able to meet market demands. Also, it is not realistic that the entire industry would be able to, let alone want to, convert to organic methods of farming.

The differences are clear, but where are common perceptions located? How can we start making the dairy industry truly sustainable, economically, environmentally and socially? In order to sum up the findings of this and preceding chapters, I summarise important aspects of sustainability for the dairy industry. They are critical points that need to be considered in evaluating how sustainable dairying is in New Zealand, and are also crucial for the analysis of sustainable citizenship in the next chapter. I arrange those aspects into seven different points of sustainability aspects. This list is not exhaustive and offers merely an overview of ideas.

(1) Time

The aspect of time is crucial to sustainability. Many sources refer to the long term as a crucial function for being sustainable (WCED, 1987). By definition, development is only sustainable when it is over the long term, and does not focus on myopic goals. But even though time is already implied in the definition of the term sustainability, it is important to keep this factor in mind, and further to ask what frame of time would be appropriate to set out sustainability – a decade, a century, a millennium?¹²

(2) Use of resources

Sustainability requires that resources which are used can also be replenished so as not to exhaust their supply. For example, soil cannot be used to an extent to which it is degraded so much that it is prohibitive of any recovery. The sustainable use of resources means nothing that is finite should be used to such an extent that it cannot be replaced at a rate that relates to the usage of the resource (Baker et al., 1997)

(3) Environment

The protection of the environment is crucial to sustainability. Without the environment, there will be no society, no economy, in

¹² For the purpose of my interviews, I asked interviewees to evaluate the sustainability of the dairy industry within the next 100-200 years.

fact nothing at all. Many views therefore put environmental sustainability first, like the concentric circle approach to sustainable development discussed in chapter two (Lozano, 2007) and approaches to ecological rationality that argue that the environment must necessarily come first because it provides for society and the economy to exist (Plumwood, 2005; Dryzek, 1997; Bartlett, 1986). The environment in this sense has priority over all other aspects of sustainability, because it is the most basic one providing a foundation for all others. As stated by Val Plumwood, “ecological well-being is not just another interest-group concern but ultimately a condition for most other interests” (2005, p. 618).

(4) Economy

Economic sustainability gets extensive attention in the dairy industry from industry bodies and the government. It refers to the economic performance, economic growth and maintaining a business or an industry that continuously creates profit. True sustainability cannot focus on economics only at the expense of the environment, since the former cannot function without the latter (Dryzek, 1997; Bartlett, 1986); this is especially true for the dairy sector as a primary industry. However, dairying is the second biggest economy in New Zealand and creates almost a third of the export revenue, hence economic sustainability is important to the sector as well as the country (Jay, 2007).

(5) Society and culture

Social or cultural sustainability ties in with both the economic and the environmental aspect. Social sustainability is important in order to ensure the wealth and welfare of a society. On an individual level, lifestyle and ways of living (including consumption) are crucial to sustainability. To have social sustainability, people need to be materially secure, live in a just and equitable society, and be part of a healthy environment (Plumwood, 2005, MacGregor, 2005). With social sustainability, questions of welfare, justice, public activism, education and gender arise, as discussed throughout this thesis.

(6) Technologies

In the opinion of many, technology is the pathway towards improving lifestyles and economic prosperity while also becoming environmentally and socially more sustainable. Technology is expected to fix problems such as climate change, starvation, lack of resources such as clean water, and many other problems that are anthropogenic and that threaten sustainability in the world. Whether technology will be able to perform all these tasks is yet to be established. Furthermore, advanced technology has often proven to make things even worse than before, and is moreover limited to those countries that can afford it. With regards to the dairy industry, technology provides big hopes for reducing environmental impacts while increasing economic profit, though again it remains to be seen whether there will be a silver sustainability bullet or not. Approaches have been developed, such as biological fertilisers that can replace chemical ones and have no negative impact on the environment, but many ideas are still in a phase of experimentation and their effects are not yet proven (Twose, 2010; DuPuis, 2000).

(7) Politics

While politics should steer a country towards sustainability, policy making has its own limitations and is influenced by the aim to sustain itself (i.e. to get enough votes in the next elections) as well as external influences, global relations, lobbies and so forth. Short term economic gain is hence often given priority over environmental sustainability by many governments that are concerned with market mechanisms, technological fixes for environmental problems and can be seen to follow principles of economic rationalism rather than ecological rationality. Economic rationalism is defined by Dryzek (1997) as “commitment to the intelligent deployment of market mechanisms to achieve public ends” (p. 102). This can be seen in many aspects of government dealing with the environment, including the New Zealand Resource Management Act. While the government is intending to protect the environment, it seems often to leave it up

to industry to implement this, and appears to promote economic principles rather than environmental ones (see chapter four).

All these aspects need to be kept in mind when tackling sustainability of the dairy industry. The following table (Table 2 on page 83) provides a summary of those seven aspects, and what differences and commonalities the two main opposing views have on them. Commonalities also function as basis to establish the common ground working towards sustainability, and the compromise on which policies that promote sustainability of the dairy sector can be based. I use these aspects and the results of chapter six in order to show how the interviews and analysed documents can be used in order to establish this common ground.

In order to formulate a conclusion as to how true sustainable development can be implemented in the dairy sector, and what needs to be incorporated in order to do so, the last step of my thesis is to apply the theoretical conception of sustainable citizenship to the dairy sector. Since sustainable citizenship asks for a broader conception of sustainability, it allows for compromises and searches for a common ground that is shared by all sides. In order to do so, it requires the fundamental change of an entire system, not merely of individual parts. Citizenship functions as the key to sustainable development through establishing a common ground, thereby going beyond rigid positions within a debate and developing ways to promote systematic change and sound compromises.

Aspect of sustainability	Primary focus on economic sustainability	Primary focus on environmental sustainability
Time	<ul style="list-style-type: none"> • Initial focus on short term gain, but • acknowledgement and dependence on long term sustainability 	<ul style="list-style-type: none"> • Acknowledgement of need to be sustainable in the long term
Use of resources	<ul style="list-style-type: none"> • Short term focus leads to exploitation of resources, but • recognition of dependence on sustainability and with this continued supply of resources means sustainable use has to take place 	<ul style="list-style-type: none"> • Acknowledgement that resources need to be used at a pace that allows for continued replenishment and supply
Environment	<ul style="list-style-type: none"> • Environmental protection is often seen as unnecessary cost, however • dependence on environment for operation means importance of environmental sustainability cannot be ignored 	<ul style="list-style-type: none"> • Acknowledgement of crucial role of environment to provide for farming activities; sustainability of environment is given priority
Economy	<ul style="list-style-type: none"> • Main focus on economic sustainability, but • recognition that economy is dependent on the environment as foundation for industry 	<ul style="list-style-type: none"> • Recognition of economic sustainability, but • acknowledgement of dependence of economy on the environment as foundation for industry
Society and culture	<ul style="list-style-type: none"> • Acknowledgement of need for social sustainability to some extent 	<ul style="list-style-type: none"> • Acknowledgement of need for social sustainability to some extent, possibly more than of views with primarily economic focus
Technologies	<ul style="list-style-type: none"> • Technology recognised as important means towards sustainability (technology as silver bullet) 	<ul style="list-style-type: none"> • Understanding that technology cannot fix all problems of sustainability, but • acknowledgement that it can be used for both economic and environmental sustainability
Politics	<ul style="list-style-type: none"> • Lobbying of politics towards encouragement of economic development, but • recognition that politics also need to promote environmental and social sustainability 	<ul style="list-style-type: none"> • Lobbying of politics towards encouragement of environmental and social sustainability, but • recognition that politics also need to promote economic sustainability

Table 2: Summary of differences and commonalities of two major perspectives on sustainability with regards to the seven aspects of sustainability

Chapter Six

Discourse Analysis on Citizenship

Citizenship in the Dairy Industry and Sustainable Citizenship

Conceptions of citizenship are implicit in the discourses of the dairy industry in New Zealand. Citizens have a stake in the sector in many ways. As consumers, they wish to consume high quality, healthy dairy products that are affordable, if not cheap. As inhabitants of the country, they do not want the industry to damage the environment they live in. In terms of economics, they want to have meaningful work and employment. They also want the overall economy to do well for a better standard of living. The dairy industry also has a cultural role because farming is part of the country's identity and most people are directly or indirectly connected with the sector or know someone who is. Hence social, environmental and economic aspects of sustainability are also shaped by citizenship.

Perceptions of Citizenship

Citizenship is perceived in diverse ways by people in New Zealand. Interview participants for my research had a range of views on what citizenship means to them, and how this relates to the dairy industry. A prominent aspect of citizenship is the theme of responsibility. Acting responsibly is to many an essential ingredient of citizenship. One scientist defines citizenship in the following manner:

A citizen is somebody who actually takes responsibility for their actions. And their own actions are to consider everyone else around them, and [in] particular the coming generations. And therefore sustainability [is related to this conception]. (...) There are some citizens [which are the people that take responsibility] but (...) it's quite easy to say no [there are no citizens] because otherwise we wouldn't actually have people throw all these McDonald's wrappers out of their car then they drive on Morrinsville Road! (...) If you have to eat McDonald's, at least take the wrappers home and put them into recycling. That's what being a citizen is. (IP05)

For this scientist, consideration of the environment is an equally important part of citizenship. He voices concern about how far today's New Zealanders still are citizens on those terms. Similar doubts are expressed by a representative of

Environment Waikato, who states that the term citizenship really is outdated today because people are selfish and only concerned with their personal rights, but do not want to face the fact that with rights also come responsibilities (IP08). The notion of personal rights and freedom without acknowledging responsibilities is linked to a liberal view on citizenship, and environmental citizenship in this case. It refers to the assumption that citizens have a right to enjoy nature and a clean environment, for example, rather than that they should take on any responsibility to achieve this end (Dobson, 2003). This approach can be applied to nature and the environment by stating that whoever pollutes it, limits the rights of others to enjoy it in its pure state. For example, people who throw rubbish onto the road reduce other people's enjoyment of an environment free from litter (see quote from IP05 above). A question that has not been addressed by interviewees is in how far nature has an intrinsic value that deserves protection.

Beyond responsibilities of citizens to protect the environment, live sustainably or contribute to the country's well-being, other aspects of citizenship are also evident in the interviews. There is, for example, the acceptance of the culture, values and ethical norms of a society that is compatible with, and reflective of sustainability. Such values can include environmental values - protecting nature and keeping the environment clean - which are an important part of the concept of sustainable citizenship discussed in this thesis. Furthermore, citizenship can mean looking after others, or working towards the common good of the community by giving freely of oneself. Citizenship can provide the checks and balances for a society: diverse opinions and critical examination can ensure that the state is fair, and policies are directed at the overall wellbeing of society.

Citizenship can also reach beyond the borders of a country, as discussed by Dobson (2003). He argues that environmental problems, such as climate change, stretch across countries and therefore require a trans-national approach to citizenship (see chapter two). Besides, in the globalised world people live in today, actions such as the purchase of a product in one part of the world affects the lives of people in another part of the world. For example, there is vast destruction of forests in countries like Brazil in order to create cropland for soya production. This deforestation has destructive effects both in terms of environmental and social sustainability, since it leads to the destruction of places to live for both humans and animals, and further contributes to soil erosion and climate change (Morton, 2006). Buying soya products in a Western country, for example, therefore has dramatic effects on people living in Brazil, as well as the global population as a whole. From a

perspective of social justice, and hence social sustainability, citizenship cannot be confined to a specific country, but will need to take a global approach considering links between nations, economies and their people.

A different definition of citizenship is the view of a good corporate citizen provided by one participant. Good corporate citizenship refers to the social or environmental responsibility of a company. It requires the company to act in certain ways that enhance the wellbeing of the society, for example by being protective of the environment or treating its employees respectfully and well (Munshi & Kurian, 2005; Knight, 2007; Livesey & Graham, 2007). This is an interesting view on citizenship since it moves the focus from individuals to a company or in this case the dairy industry. When analysing sustainable citizenship, this aspect is important because in some way it contributes to the idea of shifting parts of the responsibility from individuals to the bigger system of industry and state.

Perceptions of Sustainability and Citizenship

In relation to sustainability and citizenship, the requirement of taking responsibility can also be extended to sustainability. The interviews provided an insight into how people perceive sustainability to be linked to citizenship in a broader sense. Sustainable citizenship can hence mean the responsibility to be sustainable, to use resources sustainably. It can also mean to be a responsible consumer, and reflect on one's own choices. It can furthermore refer to putting back into the system what one is taking, because otherwise one can be seen as stealing from future generations. Closely linked is a general conception of stewardship, as well as educating children as much as adults about the impacts their actions have on the environment, and teach them to look after it better.

A very important factor here that is prominent in many interviews is the aspect of waste, recycling and consumption. Many participants criticised the fact that people's hyperconsuming lifestyle in today's affluent society creates too much waste, with inadequate efforts to 'reduce, reuse or recycle', resulting in an unsustainable overuse of resources. This was closely related to citizenship. One participant said about general problems of sustainability that "Lifestyle is a big problem. The way the capitalist system works to some extent and consumerism – that usually drives a lot of it" (IP11). Similarly, another interviewee analysed the sustainability of our society to be dependent on recycling and awareness of waste:

The biggest challenge (...) is meeting [the requirements of] what it means [to be] living in a consumer society that would be sustainable. Because it seems the last three or four decades have not been sustainable, and (...) now we are doing things like much more recycling, being aware of what our waste does, more aware of the things that we are using [which] aren't renewable (...) The idea that actually something had more than one use and you wouldn't just dump it in the corner and make a mess and ignore it again, you re-use things and if you are using it you use it with a certain responsibility. (IP06)

This view reveals first of all recognition that, in the past, sustainability has not been given sufficient attention, and secondly that sustainable behaviour is linked to personal attitudes, for example, towards waste as much as a recognition of what consequences actions can have. Another participant described this aspect of waste as more drastic, and in more detail:

There was a report not so long ago, rating different countries as to how much of food they produce and sell in shops is actually used to feed people. And in some countries it's no more than 50 percent of the food, the waste from the point of producing food to actually feeding people is more than 50 percent. Look at an average restaurant and see how much food is left on the plate, and then how much is wasted from the time somebody takes some potatoes and peels them, to the producing it into chips, and put them on your plate, the wastages through kitchen etc, you can see, that is before you even start growing them, and you can see what insect damage does, what rat damage does, what the wastage of machinery and drop catchment does.... Our efficiency in all food production and utilisation is a disgrace as far as the human population is concerned. And that's what you are trying to do in dairy production. We try to get that food utilisation to be as high as possible. To get efficiency in the system. (IP05)

This opinion is not only very strongly opposed to the consumerism of modern societies, but is also aware that it is not only individuals who need to change in order to be sustainable; it is a bigger problem that also affects industry and government, and all this needs to change in order to make some progress in terms of waste reduction, recycling and efficient use of resources. This participant also demanded that policies would have to put "pressure onto society to reduce its demand and be more efficient and effective" (IP05). All these views share a focus on wanting to change an ignorant, consumerist society that wastes a large part of the available resources, be it food, water or other things.

This view, however, is not very common in many approaches – from news reporting to interviews to the more general views prevalent in the public sphere – to sustainability, including the aspect of recycling. Recycling is generally seen in

academic literature and aforementioned sources as the responsibility of individuals, but rarely are attitudes and behaviour of society as a whole put under scrutiny. Hence the aspect of waste and recycling is yet another example of the individualisation of environmental and sustainability responsibilities (see, e.g., Maniates, 2002). A systems-based approach to solve these problems is rarely taken and, instead, individuals are blamed for their unsustainable behaviour. However, what is really needed is a change of the system. Recycling, waste management and waste reduction have to be integrated in the economy and also have to be promoted and exhibited by the government. Policies cannot be simply ‘dumped’ on the individual citizen; they have to be lived by the state and adhered to by companies and organisations. Sustainable citizenship can be used as a theoretical approach that comprises all these aspects. It can also be used to re-think the conception of corporate social responsibility. In the sustainable citizenship sense, the term would be used less as a propaganda tool, but much more as genuine change and commitment to environmental protection as a function of companies and institutions. Before applying the sustainable citizenship concept to the dairy industry, I analyse the public perceptions of both dairy farming and biotechnology in the sector, as well as the role of farmers as stewards for the environment, to then conclude how all the various perspectives can come together under one set of shared values, and how sustainable citizenship can be used as a tool to do so and to promote sustainable development.

Public Perceptions of the Dairy Industry

The public perceptions of the dairy industry are an important part of the discourses around citizenship and the industry. Public perception is at least partially shaped by media reporting – studies of media agenda setting reveal that although the media may not influence the people on what to think, they do influence them on what to think about (Cohen, 1963). In general, people tend to be influenced by what they read in newspapers or see on TV, and in turn media tend to report along the lines of what the general audience wants to read, or at least read about (Iyengar & Kinder, 1987).

As I analyse in chapter four, media often show the dairy industry in a poor light by focusing on the environmental damage caused by dairy operations. Such negative perceptions are also reflected in the interviews. Some of the issues discussed include the reckless exploitation of the environment and animals through, for example, premature induction of calves and planned housing of cubicles (see also

Gorman, 2009; Markby, 2010; Waikato Times, 2010), greed of farmers to make more and more money, and lobbying of the government to influence policies affecting the economic performance of the sector. Much of the criticism is targeted more at the overall industry and not so much at individual farmers. I analyse the aspect of individual farmers' attitudes in the ensuing discussion of farmer stewardship and its relation to sustainable citizenship.

The criticism has to be seen in perspective; while it is true as I have established in the preceding chapters that the dairy industry has had a huge impact on New Zealand's environment, criticism seems to focus on the industry while there are many other influences that destroy the country's environment. One has to only consider the personal attitude of many New Zealanders when it comes to extensive usage of the car, an ailment prevalent in most industrialised countries. Interestingly, one farmer touched upon this comparison in the following way:

On the one hand we like the V8 races, drawing everyone in and I am not down that at all, but when you actually look at it, they burned more fuel in a dozen cars than were burned on a farm in the whole year, yet farms are being told to be careful about the use of fuel, and here [you] have them just blowing it away. (IP06)

This opinion illustrates how hypocritical some of the criticism targeted at the dairy industry can be. It is often the first player to be blamed when problems occur, and often this is rightly so; dairying however is not the only cause of environmental problems. In addition, there are also some positive articles that are mainly centred on economic performance, like the annual payout that has been bringing big profits for the industry over the last years (e.g. NZPA 2010b; Hall, 2010). When it comes to economics, there is indeed an ambivalence in public perception: on the one hand, there is widespread critique of the environmental behaviour of the industry and the damage it causes, but on the other hand, the sector is just as widely perceived as the 'backbone' of the country's economy, as frequently articulated in the interviews, but also in newspaper articles or publications of the industry itself (e.g., Federated Farmers, 2008; Hembry, 2010). The dairy industry is thus also seen as the main source of the country's wealth, and dairy farming as something very typical for New Zealand, and also a source of pride and national identity.

Public Perceptions of Biotechnology within the Dairy Industry

Even more strongly felt than the negative view of the dairy sector in many eyes is the opposition to the application of technology within it. In general, public opinion sees biotechnology as a threat, which could be because it is mainly associated with genetic engineering of both plants and animals, to which many are opposed based on a wide range of reasons from ethical and religious concerns to a rejection for health and environmental risk reasons (GE Free New Zealand, n. d.; DuPuis, 2000; Thompson, 2007; Lyman, 2000; Kurian and Wright, 2010). The assessment of genetic engineering and its public perception, however, lies beyond the scope of my thesis despite being a field of importance on the issue of sustainability.

Limiting the analysis to a general review of the discourses around the topic, it is interesting to see that the general public often seems opposed to the use of biotechnology (Kurian and Munshi, 2006), and as seen in the establishment of interest groups such as GE Free New Zealand, support for the claims by Greenpeace when it comes to issues of the dairy industry, and sceptical reports of the media related to technological developments (e.g. Gibson, 2010; Neems, 2010). In contrast, opinions voiced in interviews from an inside perspective are less critical. Many participants support the use of biotechnology, while many again see its research and application as crucial to the survival of the industry. This may be because insiders have a slightly better understanding of the goings-on in terms of what the risk of technology is, for example. This is also a common perception of many participants in the interviews, with statements often agreeing on views such as the following (commenting on protest movements against biotechnology):

I think they are well meaning, but I don't think they really understand, or choose not to understand, what the technology actually is about and what the issues are with it. I think they take a dogmatic stance that it's bad, it's labelled bad right from the start and nothing can change that. (IP03)

Another view on biotechnology supported this view that popular fear is often based on ignorance and only made worse by media representation that follows these views:

I think the popularity of those movements is based on poor understanding. I have a poor understanding of genetics, I don't understand the risks, although there are a lot of leaders in those movements who do understand the risks and I'm quite willing to listen to them, I'm also willing to listen to those who can explain a different perspective on it. For me, the popularity of the

movement has not much to do with reality, it just is to do with the way the media manages it. (IP08)

These interviewees argue that there seems to be a tendency to reject things that we do not have enough knowledge of, or to be afraid of the unknown, which is only a natural reaction. It also has to be remembered that just as often as technology has solved a problem, it has created one. This was summed up nicely by the same participant who formulated a sceptical view based on prior backfiring of technology in this way:

And if you look at the introduction of possums and rabbits into New Zealand as an example, here's a biotechnology for making us all rich. We will be able to grow fur and meat. And oopsy, we didn't think about the future implications of that, so let's introduce ferrets to get rid of those rabbits. And we didn't think about the implications of that. And then... umm let's introduce rabbit calcivirus disease. (IP08)

This shows that not only is it hard to understand and judge technologies such as genetic modification, but also that technological fixes for problems created by humans often go wrong, and there is no guarantee that new technologies will not also backfire. Biotechnology is therefore closely related to citizenship, since it is one major issue of citizen concern, and also very important when it comes to the assessment of sustainability; as discussed above, biotechnology can have both positive and negative effects on sustainability through its ways of influencing the environment, society and the economy. I now look at the last aspect of discourses around citizenship in the dairy industry, which is an analysis of where citizenship is located.

The Location of Citizenship in the Dairy Sector

The location of citizenship in the dairy industry focuses on where citizens have a voice in the sector, and where they can influence what is happening in it, at least in all relations that affect them. This includes the environment that they have to live in, the social climate the industry creates and the ways in which it influences society. It is also linked to the economic performance in so far as the industry influences the overall wellbeing of the people and the material wellbeing of the country.

The discussion of environmental citizenship literature in chapter two showed that the aspect of gender is often disregarded. Gender does not seem to be an issue

worth discussing in most approaches, but it has some important implications for citizenship and also sustainability that should be taken into consideration. It is also an important aspect worth analysing with regards to the dairy industry. Be it by coincidence or not, all participants of my interviews apart from one were male. This is not because I specifically selected them based on gender, but rather because there were simply almost no female contacts; some were available from the side of the farmers, but none from the side of scientists for example. Some female politicians were contacted, but did not respond. While more female representation might have thus been possible in some circumstances, I find that the fact of male predominance fits in well with a general impression I got from the dairy industry: that of the presence of strong masculine values and principles. Masculine values are by social construction, for example, those of power, success, autonomy and control, whereas traditionally feminine values are often linked, for example, to a concern with nature (Shiva, 1988; Kurian, 2000). In the dairy industry, values of power, success and control seem all too prevalent, while care for nature and animals is present, but not nearly as much. This is illustrated in the way farmers report on the pressures that they are under to produce more milk than their neighbours or friends. For example, a farmer said:

You often compare yourself to your neighbours, and we would never be the top in terms of production. But although we don't actually use financial figures I suspect we would be very close to the top. (IP06)

The ideal seems not to make more money, but rather to have higher production levels than the competition. A similar view was expressed by policy maker:

It hasn't quite got to the point that would really make the paradigm shift that is needed, which is more and more profit for the farmer from their production, and that would push some farmers into their lower production model, because they will make more money that way. But industry has a huge investment in stainless steel that they want to keep milk running through. And they don't want to keep that running at 90%, it wants to be 100% full. (IP08)

The paradigm shift mentioned in the quote can be interpreted as a general move away from pushing production at any cost for the sake of producing as much milk as possible, towards following paths that lead to overall success of the industry, such as profits for individual farmers. This and many other aspects speak of a strongly male-dominated tradition that is prevalent in the industry until now. This aspect definitely

has implications for all levels of sustainability, and requires more research for a full understanding of citizenship and sustainability relations in the dairy industry.

Citizens or Consumers?

More often than not, citizens are merely seen as consumers. In modern societies, consumerism and capitalism seem to turn everyone into shopping baskets with wallets, not citizens who have a stake in the wider picture of production and consumption. Commercialisation and advertisements in all kinds of disguise suggest as much. As pointed out before, even environmental impact reduction was turned into a product and consumers are given the possibility to opt for 'green' products - without reducing overall consumption (see Princen et al., 2002). Of course, the choices people can make will always be limited by what is offered to them; not only social factors, norms and the given infrastructure (as discussed in Seyfang, 2009), but also by what is available on the supermarket shelf. When it comes to the dairy industry, a quick look at exactly that shelf seems to show that there is a lot of choice; the average New Zealand supermarket offers various kinds of milk, cheap and expensive ranges, and different amounts of fat content from no fat to full cream; further added calcium, added vitamins, and so forth.

However, a second look shows that most dairy products stem from the same company (Fonterra) with only a small number of other competitors on the market. In addition, while there are lots of choices in the area just described, it is a challenge to purchase organic milk, for example, with most supermarkets featuring only one kind of organic milk (if any), maybe an organic yoghurt, and rarely any organic cheese. Of course, choice is always dependent on the location and type of the supermarket, which usually offers what people demand. Still, choice seems often as a monoculture in disguise, and especially when it comes to Fonterra's products, it seems hard to avoid the brand as it has so many different labels and product ranges, its scale barely allowing any competition from smaller producers (for a discussion of dairy product choices and its public perception, see, for example, Rushworth, 2010).

Having said that, there is also the aspect that, because citizens are often seen as consumers, there are ways in which citizen-consumers can voice their opinions and concerns on exactly that basis. Interviews referred to influential instances of ethical consumerism, such as the public protest when Cadbury wanted to switch to palm oil in its chocolate (Fox, 2009), the public outrage about animal welfare in pig

farming (Pepperell, 2009), or the introduction of clear labelling in eggs (RNZ, 2006). Of course, the successes are only partial and there will always be many people who only look at the price tag, not at how their bacon was farmed or their eggs produced. Still, public opinion can influence the way companies produce their products. One participant stated while talking about the influence of consumers:

Consumer power is huge. If they don't like a certain behaviour of a company or product, they can work on it. Money is power, money speaks and if a company thinks people are going to boycott because of a certain way they are behaving or a product they are making, they will pretty soon change. In fact we don't use our power as consumers enough. In the big economies that power would be incredible. (IP07)

Furthermore, many participants agreed that it is possible to be both a consumer and a citizen, as long as there is awareness of issues that affect us and the willingness to take responsibilities for actions and speak up in public. My review of how people could have a say on the dairy industry showed that there are means through which citizenship can prevail and bring about change. Ways of influence for citizens identified in interviews include usage of the media, networking, use of organisations such as Greenpeace and many others, voting in elections, demonstrations and market mechanisms through consumption, or the refusal to consume a certain product to show rejection of the way it is produced, the effects that it has, or similar issues (see discussion of ethical consumerism above).

It is clear that citizenship is a complex term and can mean many things. People are not simply citizens or consumers but are both and in that way they should be encouraged to pay more attention to the consequences of their actions in a very broad sense. Coming back to the dairy industry, in the end, everyone is of course a citizen, which is an important thing to bear in mind. All stakeholders of the dairy industry – scientists, policy makers, shareholders and farmers – are citizens and therefore share some interest in the country, and in its welfare. Shareholders have an important say in the industry because they have a financial stake, especially in a big co-operative, such as Fonterra. The company, as pointed out in various interviews, functions very democratically and allows everyone involved to voice her or his opinion. It also grants its shareholders major influence in how things are to be done. I come back to this aspect of everyone being a citizen in my final analysis, but now finish the discourse analysis with the aspect of farmer stewardship, which is an important piece in the puzzle of discourses around both sustainability and citizenship in the dairy industry.

Dairy Farmers and the Importance of Stewardship

The conception of stewardship for dairy farmers is important both in its relation to sustainability and to citizenship. Farmer stewardship means that farmers see themselves as responsible for looking after the land they own, care for the animals they farm, and leave the farm in a better state than they received it in – to pass on to their children, or someone else. The perception of farmers as stewards (*kaitiaki*, meaning caregivers or guardians) has been pointed out by Mortlock and Hunt (2008) to be one of the shared values amongst farmers and very important to their identity and sense of work. The sense of stewardship, if indeed prevalent amongst all farmers, would mean that they meet both aspects of citizenship and sustainability. Citizenship in terms of taking responsibility, of looking after the country, contributing in some way, and thinking about future generations; sustainability in terms of wanting to preserve the land they own for the future, treating it well and making sure farming activity is sustainable.

Indeed, the sense of stewardship was also often mentioned in the interviews I conducted. Acknowledging that there may be exceptions but generally speaking in favour of *kaitiaki* as an important aspect of the farming community, one farmer said:

It may be true that one particular farmer or group of farmers is being very selfish and purely extracting and thinking about his own good and not about the environment, but as a whole, we know that we want to go on farming for generations, and we want to feed people, we want to make money out of feeding them and that is all a part of life. (IP06)

Also, this farmer's idea of sustainability was about "leaving the farm in a better state [...] than it was before". Another example, a representative of Environment Waikato working closely with farmers, used the term stewardship in relation to farmers' responsibilities, and went further to say that in those cases where farmers do not look after the environment as they should, this can be because they are not aware of the impacts their actions have, more than deliberately exploiting the land and destroying the environment for economic gain:

Most of what farmers do would identify them as being stewards (...) but a lot of them don't know what impact they are having. Same as urban dwellers often, the rubbish goes out every week and it's gone, people don't think what they do has a wider impact, they don't think about energy use, they leave the tap running too long, they don't see that their actions have consequences. You can draw an analogy from the urban scene out there into the rural

environment too. People often don't make those connections, so a lot of our work is educating and looking at behaviour change around some of those things but citizenship is entwined in community. (IP09)

Education and the creation of more awareness around environmental and sustainability problems seems to be a key to true sustainable development. I elaborate on this in the following section, where I apply the indicators of sustainable citizenship to the findings of the discourse analysis of the dairy sector.

A Common Ground through Sustainable Citizenship

As I conclude in chapter two, sustainable citizenship criteria relate citizenship and sustainable behaviour to both the private and the public sphere, require a broad approach to sustainability as well as initiatives to educate citizens and mobilise them, acknowledging that not everyone will be an ideal citizen; furthermore, it requires change of the entire system including companies, organisations and government in order to fundamentally rethink sustainability and make sustainable development happen. Applied to the discourses analysed in the preceding chapters, sustainable citizenship allows for the exploration of common ground amongst polarised visions on citizenship, the dairy industry, its sustainability and the use of biotechnology. The shared values that form the common ground of diverse positions are derived from the literature on environmental citizenship, sustainability, technology and the dairy industry, as well as the interviews that I conducted. Despite having a range of different opinions and positions in interviews, certain aspects were common to most of them and hence the shared values are the interpretation of those aspects that were common. Shared values identified in this research project are summarised in Table 3 below and elaborated on in the following sections. They are derived both from the findings of chapter five (see Table 2) and the results of this chapter.

Shared Values	Primary focus on economic sustainability	Primary focus on environmental sustainability
Sustainability	<ul style="list-style-type: none"> • Sustainability is crucial • Economic sustainability requires environmental sustainability as basis in the long term • Economic, environmental and social sustainability are interlinked 	<ul style="list-style-type: none"> • Sustainability is crucial • Environmental and social sustainability have priority, but economic sustainability is also required • Economic, environmental and social sustainability are interlinked
Citizenship	<ul style="list-style-type: none"> • Interest in wellbeing of the country • Responsibility to enhance all aspects of sustainability for health, welfare, etc 	<ul style="list-style-type: none"> • Interest in wellbeing of the country • Responsibility to enhance all aspects of sustainability for health, welfare, etc
Stewardship	<ul style="list-style-type: none"> • Obligation to look after the land, protect the environment, pass it on to the next generation, to ensure long term viability of farming operations 	<ul style="list-style-type: none"> • Responsibility to treat environment with respect, not exploit it, to make it sustainable long term

Table 3: Shared Values of two major perspectives

Shared Values: Sustainability Issues

In terms of sustainability, I first of all note that on a very basic level, all parties involved with the dairy industry have an interest in being sustainable, particularly in environmental terms. This is because all stakeholders in the end rely on the environment to provide for farming activities; without that, there is no dairy industry, and no money to be made from it. Hence, to protect the environment to an extent that it continuously allows for dairying will be something everyone involved in it will need to aspire to. Sustainability was agreed to be important furthermore by all participants of the interviews, regardless of their personal definition of sustainability.

One representative of the dairy industry related this to the problem of finite resources and claimed that there is no way for the industry but to make sure that it is sustainable:

Well it [sustainability] is inevitable, at the end of the day if you look at the New Zealand dairy industry, we have some very good practices, world-leading in places, but within that we also have areas where we are importing imports, whether it would be fertilisers, probably a good example, phosphate, it's a finite reserve, likewise oil, things like that they are finite things, as they start to become shorter the price goes up, long-term there is going to have to be another solution. (IP10)

Another participant described the importance of sustainability to the industry as a balance of different aspects of sustainability:

[Sustainability is] very important, because if we don't try and balance those, things could go horribly wrong in a few years time. Be it with environmental protection, say if we really push production and damage the environment, that would affect the environment. If you were near the lines of low production, that might then affect the economy and people's jobs. So it is important to get that balance right. (IP04)

Across positions, be it a scientist, politician, farmer, business manager or citizen, participants agreed on the fact that sustainability and its establishment within the dairy sector is a crucial factor. As established through the concept of sustainable citizenship, sustainability has to be approached in a broad sense, and on multiple levels. In terms of the dairy industry, this has to mean that not only do individuals have to change their behaviour – this could be individual farmers taking care of the environment better, or maybe individuals as consumers demanding more sustainable products – but also, the system of dairy farming has to change. This can begin with government making stricter decisions and creating stricter policies on the sustainability of dairy farming, for example, through introducing a mandatory policy on the protection of waterways from effluent run-off. It could also mean that government in general starts to operate according to principles of sustainability: for example, it could start integrating principles of sustainability, especially environmental ones, in how it operates, in terms of resource use, and in its entire decision making.

Moreover, the industry with all companies and organisations would have to change as well. If they recognise the importance of becoming more sustainable, which they at least claim to at the moment, they will have to change the way they view things, and move away from pure economic aims towards a holistic conception

of sustainability. This does not, of course, mean that they have to abandon the idea of profit-making; it means that they should consider all aspects of sustainability always, not only economic ones. In places where the industry does not seem to recognise the importance of becoming environmentally and socially sustainable, policies as well as financial incentives will have to enforce that action is taken.

Shared Values: Citizenship and its Conceptions

A key to this change of the system, as it is based on sustainable citizenship, lies within common conceptions of citizenship, and more so within the fact that citizenship is a very basic common denominator of all dairy industry stakeholders. Assuming that all stakeholders from shareholders to farmers to scientists are citizens, we would also assume that there are some shared values that unite them as citizens. Taking citizenship as a further common ground, all stakeholders are part of the same country, and they want the country to do well, its economy to thrive, and its people to have a certain standard of wellbeing. While all citizens differ in their views and values, have diverse interests and support different political parties, for example, they still have a common ground. Their basic interests, as pointed out in chapter one, are shared: all citizens have an interest in their own health and safety, as much as overall economic progress, environmental sustainability, innovation and fairness to some extent.

Next to these basic common sense values, interviews showed that citizenship means a basic identification with the country citizens live in. Living up to the values that a country has, living within a community and taking responsibilities such as caring for others and respecting the environment, as well as being part of promoting the overall well-being of the country are aspects of common grounds within citizenship that were basic features of the interviews. Obviously, people have different feelings when it comes to commitment to their country, and a sense of belonging and responsibility. However, even a small identification with New Zealand as a country means that citizens share common values when it comes to their country's performance and welfare; while there will always be exceptions also in this case, the majority of the population would take a share in a minimum amount of identification with the country they live in. Hence it will be in the interest of most stakeholders to promote this through the means they can.

The common ground between all citizens is identifiable through the interviews, most of which named taking responsibility, caring and respect for others, actively taking part in the community, contributing to the well-being of the country even through the smallest actions and protecting the environment they live in as basic aspects of citizenship. These aspects are also applicable to the sustainability of the dairy sector.

The dairy industry was already identified as an important factor in New Zealand's economy, as much as its general social and cultural structure. Many interviews yielded similar findings and assumptions about the social importance of the dairy industry were made. This was summarised by the owner of a dairy saying:

I have got quite a few friends that work in the dairy industry, it's something that's probably as Kiwi as the All Blacks or rugby, farming is one of the biggest... the second biggest dairy company in the world, which is quite significant considering we are only a small isolated country in the middle of the Pacific ocean, so it's huge in terms of the economic impact on the country and the psyche of the country too, because the clean green NZ, and one of the things we are known for is our farming, our agriculture and our sheep and dairy. (IP12)

In this sense, the sustainability of the dairy industry is linked to the sustainability of the country. Based on the common ground between all diverse citizens, and taking citizenship as one common denominator of all stakeholders of the dairy sector, the interests of citizens and the interests of stakeholders inevitably touch upon principles of sustainability, and the enhancement thereof, and in this lies the common ground.

Furthermore, citizenship is the nexus of industry, government and individual interests on another layer, as I have stated in chapter two. The common interests of citizens – including health, safety, wellbeing, fairness and a healthy environment – are also the interests of both government and entities in the economic sector. The government needs to provide for all these aspects, and companies and others should comply with this in order to retain employees as well as consumers of their products or services. This is the second reason why citizenship functions as a common ground between different opinions.

By introducing sustainable citizenship, the common ground is given because sustainable citizenship also bears reference to economy and politics, and therefore addresses not only individuals, but a whole range of organisations, companies and institutions. It places responsibility upon all these players, and functions as an umbrella for diverse viewpoints. As a tool, it is used to tackle a change of the entire systems, through a holistic view on how different parts are interlinked. As a conclusion, sustainable citizenship means that sustainability cannot be reached

through narrow focus on individuals as citizens, but uses the responsibilities that come with citizenship and applied them to the bigger players.

Shared Values: The of Aspect Farmer Stewardship and Farming Methods

A third position where shared values can be identified in the dairy industry is on a basic level: it is located at the level of the dairy farmers, and the farming methods of the industry. Although again it is not possible to make universal claims, farmers have values that can be identified as shared grounds. As a way of perceiving their work, interviews have indicated that farmers enjoy experimenting with, for example, different types of pastures or animals, and observe how the land develops as much as how production levels are affected. This observation is confirmed by Mortlock and Hunt (2008) in their survey of New Zealand farmers.

Mortlock and Hunt also pointed out a second aspect of commonality amongst many farmers, which is the enjoyment of being autonomous in their work, and being able to make their own decisions about their farm. Thirdly, the aspect of stewardship becomes important again in relation to shared values: probably not all farmers, but many perceivably value their role as stewards for the land, which again was observed by Mortlock and Hunt (2008) as well as during my own interviews (see discussion of stewardship in the preceding section). In interviews, stewardship was mentioned in relation to citizenship and sustainability. For example, one participant relates sustainable citizenship as stewardship to fulfilling a role within a community, being respectful and not causing harm neither to the environment nor within society:

Thinking about what is sustainable citizenship... that sounds very similar to stewardship for me. It's about knowing what you are doing on farm, if we are talking about the farming sector, isn't having an impact on your wider community. Being able to turn up and drop your kids off at school, knowing that what you are doing at home on your farm isn't impacting water quality, ground water, where the school well is, or some of those things. (IP09)

The aspect of stewardship has direct implications for sustainability, and is also linked to citizenship in the sense that it relates to the taking up of responsibilities, and taking care of others. A farmer as a steward means that he or she will treat the land, the animals and the environment with respect, and try to ensure the wellbeing of these. Even though he or she might not be aware of what best practice would be, the intention is right – and can be complemented by raising awareness through education.

A relevant aspect of this is the size of farms; since there is a tendency of having bigger and bigger farms and herds that are putting more pressure onto the land and that are often owned by corporations (DairyNZ, 2010), policies could try to mitigate this by encouraging smaller scale farms and family businesses. One interviewee describes the issues of sustainability and farm size in this way:

I would like a picture where there were more smaller moderate farms rather than very large ones, because then people would be aware of the need to be sustainable. (IP06)

Similar concerns about the size of farms and their negative impact on the environment through lack of stewardship were expressed by other participants (IP07, IP08). Stewardship also holds for the industry and citizens in a similar way, assuming that both the dairy industry and citizens have some responsibility to treat the environment with respect and look after it so as not to destroy or exploit it. That can be based on either rights (the right to a clean environment) or responsibilities, and of course in practice this is often a problematic issue. Especially big corporations often are hesitant to take on responsibilities.

Overall, even though there were many differences in the interviews and documents analysed regarding the meaning of citizenship and its implications for the sustainability of the dairy industry, the commonalities that were prevalent in most interviews and opinions allow for the establishment of commonalities that can be used as shared values that are meaningful to the approaching of sustainability. This common ground is based on the shared opinions towards sustainability as summarised in Table 2, as well as the shared values as illustrated in Table 3, which have been derived from common elements in opinions both from interviews conducted and documents analysed.

Sustainability as the first, and possibly most important, common ground, shows that although the various parties seem to disagree on what sustainability means, a closer look at their views and interests reveals that, eventually, there is agreement that sustainability of the dairy industry lies in a combination of environmental, economic and social sustainability that focuses on long term developments rather than any short term issues. While the dairy industry does not always appear to act that way, it often acknowledges the need of this focus, and also some within the industry have started to act accordingly. Change may be slow to come about, but it seems that on a fundamental level, all stakeholders agree on this

principle, and proof of this can be found both in interviews as well as documents published by the diverse dairy sector stakeholders.

The common ground of citizenship as the most basic aspect of the shared values is derived from the fact that, again, despite differences in the polarised views that were analysed, some commonalities are recognisable. As stated in this chapter, responsibility is a major factor that is acknowledged by most views that were expressed in the interviews. Common interests are recognised, and a general willingness to act according to the citizenship principles and interests outlined above was discernable in most interviews conducted.

Lastly, the special role of farmers as stewards is an important aspect of the common ground because it is located at a fundamental level. Diverse views derived from interviews and documents showed that while all farmers have different opinions, and different approaches to sustainability, most regard themselves as stewards for the land they work on, and have an interest in being able to pass it on to future generations in a good or better state. The work of the farmers is crucial to the way the dairy industry functions, and the impact it has on all levels. All three aspects together form a broad conception of shared values that can be used in order to formulate a compromise around how to establish a more sustainable dairy sector. I explain the implications of this compromise in the concluding chapter.

Conclusion

You can make a lot of speeches, but the real thing is when you dig a hole, plant a tree, give it water, and make it survive. That's what makes the difference.

Wangari Maathai

In my thesis, I have shown first of all what sustainable citizenship can mean, and why it is important to move beyond narrow conceptions of green citizenship and similar concepts in order to commit not only individuals but also institutions, corporations, and the state to the protection of the environment. I have provided an overview of the development of the dairy industry over time, as well as the environmental and economic challenges it faces today. I have analysed how biotechnology might be a solution for the problems, but also the critical issues it poses, and the possible alternatives to it. Lastly, I have analysed discourses of sustainability and citizenship with regards to the dairy industry.

The research has shown that despite the polarised discussions that surround the dairy industry with regards to sustainability and biotechnology, through the use of sustainable citizenship as an analytical tool it is possible to establish a set of shared values that all parties have in common. These shared values centre around three different aspects: sustainability, citizenship and stewardship of farmers. In terms of sustainability, the shared value is the agreement of all stakeholders on the importance of sustainability for the sector, the acknowledgement at least on a fundamental level that sustainability has to be a combination of economic, environmental and social aspects, and that sustainability necessarily needs to be concerned with long term perspectives. While there is rhetorical acknowledgement, sustainability still needs to be translated into action in this regard. In terms of citizenship, the common ground means that all parties recognise basic principles of citizenship, most importantly the responsibility to look after others, the environment and the country as a whole. All sides also acknowledge that we need to act according to these principles. Lastly, the shared values of farmers lie within the conception of stewardship. Although farmers may have diverse perspectives, a common ground is their willingness to be stewards for the land, and look after farms in order to leave them in a better state. Even though most farmers share this value, it is important to ensure that they are aware of the impacts of their actions on the land, and educate them in terms of broad conceptions of sustainability.

In terms of the seven aspects used in chapter five, the common ground between all diverse stakeholders means an approach to sustainability that is: focused on the long term; tries to use resources in a sustainable manner; maintains a healthy foundation for dairying activities while also ensuring economic sustainability; allows for social sustainability; makes use of new technologies in a way that is environmentally, economically and socially viable; and, lastly, works within a democratic political context that aims at a holistic promotion of sustainability.

Theoretical Contribution to the Scholarship

This research has made a contribution to the scholarship on sustainability studies and environmental politics through its theoretical exploration of the concept of sustainable citizenship, and its application to the case study of the dairy industry. Sustainable citizenship is a valuable addition to the existing literature on environmental citizenship because it provides a much broader approach to sustainability. Sustainable citizenship is a holistic concept that encompasses many aspects that are relevant to sustainability, including environmental, social and economic issues. It furthermore allows the citizenship concept to be extended to traditionally excluded bodies such as government, institutions and companies. This is important for the goal of fostering sustainable development, because the narrow focus on individuals and their change of behaviour is not powerful enough to make a real change to the sustainability of today's society. As pointed out, sustainable citizenship as a theoretical approach addresses a gap in existing literature by adding a much broader concept to the scholarship.

Due to its holistic character, this concept can be used to analyse controversies and negotiate a compromise between diverse opinions. In its application to the dairy industry as my case study, sustainable citizenship proved to be a valuable key to finding a common ground, and therefore a compromise, amongst diverse opinions whose commonalities have hitherto not been given sufficient attention. By determining shared values amongst different stakeholders, it is possible to draw the focus away from differences and towards a ground on which change of the industry towards sustainable development can be based.

Sustainability in the Dairy Industry

In more practical terms, the thesis demonstrates an urgent need to change the system of dairy farming that can only be done successfully via a holistic approach. For decades, the farming activities of the dairy sector have steadily and dramatically intensified as more and more milk is produced and exported. The industry is profitable and makes up a large part of New Zealand's revenue. However, at the same time, the environment has been over-exploited for decades. There are claims that the industry already reached its ecological limit in the 1970s (King, 2007). Too much fertiliser has been used, too much run-off has been going into waterways, too much forest has been cut down to make room for paddocks, too many cows have been grazing from depleted soils, and too much GHG has been emitted. These issues are on-going processes with a very long list of problems that are created by high-intensity farming methods.

An alternative can be less intense farming systems, and as those are generally related to lower input, they are also able to generate considerable profit (Bauer-Eden, 2001). Of course, the New Zealand dairy industry will not all at once switch to small scale and organic methods of farming; this is not wanted, it is not possible, and it would presumably not provide the economic profit that is expected from the sector. Nevertheless, it will be necessary to look at what makes organic farming so profitable for a single farmer. Through working with nature, not against or around it, high levels of sustainability can be achieved, and farming can again become an activity sustainable in the long term. Low-input systems that work within natural rhythms and requirements can be complemented by technological solutions in order to provide for progress and innovation without compromising environmental sustainability. This relates to the middle way discussed in chapters five and six: a happy medium between going back to the rudimentary farming and high-intensity large scale farming systems that work completely outside of natural processes and try to overcome its limitations by ever more use of technology without considering alternative methods. The happy medium can mean projecting New Zealand as what one interviewee described as the "health food basket of the world" (IP07): the dairy industry could use its global competitive position and vast resources to market itself as producer of truly sustainable, healthy dairy products instead of relying on cheap mass production. As I have shown, New Zealand still profits from its clean green image, and it might be time to live up to it and turn it into something that can also provide economic success. It can market both locally produced, high quality and

environmentally-oriented dairy products on the domestic market and ensure global excellence of healthy food produced through environmentally-conscious farming methods.

In this, the dairy industry is limited by the political environment it works in shaped by a government and institutional framework that is dependent upon the revenue generated by the industry, and which strongly encourages ongoing large scale development and an increase in economic success. Furthermore, the influence of the sector on political decisions is large because it is well represented amongst policy makers and because of its economic importance for the country. Important industry people have close ties with politics (*The Listener*, 2008) and the sector often strongly expresses its views when it comes to governmental decisions influencing their trade (NZPA, 2006). Things move ever so slowly towards sustainability, but it is crucial to focus less on economic gain, but more on a broad approach to long term sustainability. Of course, economic principles and goals do not have to disappear; they will always be essential. But they should be complemented with a stronger emphasis on the environment; environmental principles have to be adopted and integrated firmly into the systems. There should be no more half-hearted commitment to change in line with the attempts to 'greenwash' as discussed in chapter five.

In order to achieve true sustainability, there has to be change in the entire systems of farming, from the ways the farmer works to the way products are marketed, political decisions are made and economic analyses are conducted. The environment is not an externality or a production cost: it is a reality, and one that needs protection and sustained care. The dairy industry needs to start thinking in both broader and longer terms, and more in terms of how it can work with nature to meet its targets rather than against it. Only then can it continue to exist, and continue to create a profit for its shareholders. Without a change of this approach, very soon current farming practices will not be able to continue because the land will have been depleted to an extent that it may be neither possible nor profitable to recover it fully.

Sustainable citizenship, hence, has been a useful tool to approach the controversies of biotechnology and sustainability, as well as the role of citizenship, in New Zealand's dairy sector. Through its holistic and broad character, sustainable citizenship was ideal as a theoretical concept in order to analyse the discourses of the dairy industry, and in order to develop a compromise between all diverse stakeholders by finding a common ground of shared values that can be used as a basis for sustainable development. One weakness of the concept is that in its breadth,

it becomes a complex notion with many facets. Furthermore, to a certain extent it has to remain a theoretical framework that analyses a theoretical common ground, which, while of course based on reality, sound opinions and sources, it is not a complete representation of the opinions that exist. This means that the theoretical findings of this research need to be combined with future investigation into more practical aspects of sustainability and biotechnology.

Another limit of this research is its scope. Constraints of time meant that there was a smaller pool of interviewees than would have been ideal, which in turn means that a full range of perspectives may not have been identified.

Possibilities for Future Research

In order to translate the common ground amongst stakeholders into implementable policies, more research has to be done. While all stakeholders of the dairy sector have economic, environmental and social sustainability as their core interest, as explored in this thesis, articulating specific policies that are amenable to them all calls for further research. For example, more research into stakeholder interests on a wider level is needed, as is research into economic calculations of sustainability. Such research could aim at facilitating deliberative processes around the use of new technologies, as envisaged in the larger research project that this thesis is a part of (Kurian and Munshi, 2009). In addition, there is scope for further inquiry into the gender implications of sustainable citizenship as both theory and practice, as well as in the specific case of the dairy sector.

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Appendix 1: Information Sheet for Participants

Sustainable citizenship as a key to sustainable development: Establishing a common ground between the use of new technologies and alternative methods in New Zealand's dairy sector

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This project, funded by the Royal Society of New Zealand's Marsden Fund, aims to identify shared values among stakeholders in the dairy sector in New Zealand on the use of new and emerging technologies. Although there are very diverse views held by different stakeholders, it is my belief that there are also shared interests, attitudes and expectations regarding the long-term sustainability of the dairy sector.

The purpose of this project is to identify perspectives on various methods in dairy farming, on sustainable development and on the role of citizens, including positions that are often not entirely presented to or understood by the public. The aim is to develop a framework to better understand the beliefs and values that underpin diverse stakeholders' views on these issues and help develop ideas on new policies for the industry sector that promote sustainable development.

You are invited to participate in an interview for approximately 30-60 minutes, at a mutually agreeable place and time. I will, with your approval, use a tape-recorder to record the information and transcribe it.

Confidentiality and your rights as a participant

The interview does not require any personal information and your anonymity is guaranteed. The data gathered will be kept on a password protected computer which I and my supervisors will have access to. The data will be used as part of my Master's thesis and for articles, book chapters, published and unpublished work and presentations. The completed thesis will be freely available on the internet in the University's digital archive.

All information derived will be held securely and retained for at least five years by my supervisors. Your confidentiality and anonymity is assured throughout and your identity will not be disclosed at any point, unless you consent to on this form.

You have the right to

- Refuse to answer any particular question, and to withdraw your participation up to 2 weeks after the interview
- Ask any further questions about the research at any time during the course of your participation.

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

Appendix 2: Consent Form for Participants

Sustainable citizenship as a key to sustainable development: Establishing a common ground between the use of new technologies and alternative methods in New Zealand's dairy sector

I have read and understood the Information Sheet for Participants for this research project. I have had the chance to ask questions, have these questions answered to my satisfaction and discuss my participation with other people.

I consent to participate in this research and agree that information be included in an academic research project. I understand that I am able to request that all or part of the information provided be amended or withdrawn within two weeks of the interview. I am free to conclude the participation at any time and can refuse to answer any questions. I agree to my interview being audio-recorded under the conditions of confidentiality set out on the Information Sheet.

I consent to the use of the information collected in academic reports and publishable articles. If I have any concerns about this project, I may contact the convenor of the Faculty of Arts and Social Sciences Human Research and Ethics Committee of the University of Waikato. (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)

Please circle yes or no for each of the following

I consent to having my interview audio recorded yes/no

I wish to remain anonymous yes/no

Signed: _____ (Participant)

Name: _____

Date: _____

Contact Information:

Signed: _____ (Researcher)

Researcher's name and contact information:

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Appendix 3: Sample questions for interviews

- How would you define sustainable development?
- How would you view sustainable development with regards to the dairy sector?
- What roles do new technologies play in your conception of (sustainable) development?
- Can there be sustainable consumption?
- What are pros and cons of the use of biotechnology in dairy farming?
- Are new technologies a political, social, cultural or economic issue (or all of these)? Why?
- What is your attitude towards the use of genetic engineering approaches in dairy farming?
- What is your view on alternative methods, e.g. organic farming?
- How do you expect the industry to develop within the next decades, with regards to the use of new technologies? What may be the consequences for economy and society of these developments?
- Where do you see the role of citizens in shaping policies on the dairy sector?
- What are aspects of sustainable citizenship from your perspective?
- Follow-up questions based on interviewee responses

Appendix 4: Coding for Interview Participants

Code Name	Position/Occupation	Affiliation	Gender	Date
IP01	Politician	Greens	M	02/09/2010
IP02	Politician	National	M	13/08/2010
IP03	Scientist	AgResearch	M	04/08/2010
IP04	Scientist	AgResearch	M	16/07/2010
IP05	Scientist	DairyNZ	M	08/07/2010
IP06	Farmer	None	M	28/06/2010
IP07	Farmer	Fonterra	M	11/06/2010
IP08	Sustainability Manager	EW	M	10/08/2010
IP09	Sustainability Manager	EW	M	10/08/2010
IP10	Business Development	Fonterra	M	23/07/2010
IP11	Citizen	University	M	09/11/2010
IP12	Citizen	Fonterra	F	12/11/2010
IP13	Citizen	Corner Dairy shop owner	M	09/11/2010