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NEW ZEALAND FARMERS AND ENVIRONMENTAL LEGISLATION

A thesis presented in partial fulfilment of the
requirements for the degree of
Master in AgriCommerce
at Massey University, Palmerston North, New Zealand.

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2015

ABSTRACT

Agriculture is critical to feeding the world's ever-increasing population but in doing so it uses the planet's natural resources. Therefore, to remain viable and safeguard our natural resources, agriculture needs to be environmentally sustainable. Governments worldwide have introduced various methods to protect the environment under farming regimes, ranging from voluntary approaches to regulation.

This thesis firstly compares two methods of legislation, that of the European Union and of New Zealand. Secondly it explores the views on environmental legislation of six farmers from the lower South Island of New Zealand. The literature review covers the subjects of the natural environment with respect to agriculture, environmental legislation in the European Union and New Zealand, the decision making process of farmers, and the impacts the legislation has on farmers.

The legislation comparison was embedded in a study by the European Commission Directorate for Agriculture and Rural Development to which the author contributed. The results showed that there were limited differences between the European Union and New Zealand with respect to dairy and sheep environmental compliance costs with no country studied being disadvantaged.

The research for understanding the views of six farmers used a multi-case embedded exploratory method of research with qualitative data obtained from semi-structured interviews. The impact of environmental legislation on the farmers resulted in a number of outcomes including financial, environmental, risk to property rights, the influence of environmental groups and the public, and different interpretations and enforcement by those who administer the RMA. These outcomes affected the farmers by causing satisfaction, uncertainty and stress.

ACKNOWLEDGEMENTS

I would like to acknowledge and thank the six farmers who agreed to be interviewed. They gave their time and thoughts willingly and conscientiously and it is much appreciated. This thesis could not have been completed without their input.

Thank you to my supervisor, Professor Nicola Shadbolt, for her guidance and patience. The writing of the thesis has been enjoyable and interesting.

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CHAPTER I

INTRODUCTION

1.1 Introduction

Agriculture is vitally important to New Zealand but over recent years farmers have had increased and changing legislation with which to comply. It is imperative that we understand the issues that they face.

“Effective resource management is critically important to New Zealand’s economic, environmental, cultural and social well-being.” However “the Government continues to hear concerns that resource management processes are cumbersome, costly and time-consuming, and that the system is uncertain, difficult to predict and highly litigious.”

(Ministry for the Environment, 2013, p. 6)

In relation to farming specifically, this view is supported by New Zealand Federated Farmers who maintain that “if there is one thing that raises the ire of farmers it is bureaucracy and compliance” (Federated Farmers of New Zealand, 2012, p. 1). Federated Farmers report that they get complaints every day from farmers about legislation which increases on-farm costs or impairs property rights.

New Zealand has over 750 primary Acts and over 3,000 statutory regulations with the Government creating and amending about 100 Acts and 400 regulations each year. Then there are the local government plans, policies and bylaws which are also subject to change (Federated Farmers of New Zealand, 2012). To many people, including farmers, this can become bewildering and invasive.

“At the heart of most farmers is an ethic of land stewardship. The sustainable management ethic of the Resource Management Act has morphed into a process and an industry that seeks to micro manage farm activities, protect every living piece of native vegetation and lock up the potential of well managed farming

landscapes. The Act is failing to recognize or enable landowners' key role in managing our natural resources and conservation values on farm land.”

(Harcombe, 2007, p. 1)

1.2 Background and Research Context

Agriculture is critical to feeding the world's ever-increasing population. It is also a major New Zealand industry and an essential part of the national economy, earning foreign exchange and generating employment. Agriculture generated \$18,926 million in gross revenue for the year ended March 2008 and made a direct contribution to GDP of over \$8,230 million (five percent of total GDP), and over 15% of total GDP including downstream processing (Federated Farmers, n.d.). A further \$2,219 million was paid to employees as wages and salaries (Federated Farmers, n.d.). Geographically, New Zealand is dominated by rural land with over 50% farmland, including pasture, production forest and horticulture (Statistics NZ, 2008). However agriculture is a high-risk business, subject to changes in resource availability (scarcity or deterioration), market conditions, government policies along with on-farm issues such as pests and weather (Russillo & Pintér, 2009).

The planet and all of society depend upon healthy biological and physical systems. As our population increases, more natural resources are consumed. Agriculture has always been a major user of natural resources, the land and water. For example, in OECD countries, agriculture accounts for approximately 40% of total land use and almost 45% of water use (OECD, 2004). In New Zealand in 2009, agriculture used 114,870 square hectares of land, 43.6% of the total land area and 74% of the 4.8 billion cubic metres of total freshwater withdrawn (World Bank, 2012). In using these resources the air, biodiversity and landscape are also affected along with the land and water (OECD, 2004). Several trends have increased the use of our natural resources. During the last century, especially the latter half, agriculture has had the benefit of many new technologies and chemicals (University of California, nd; New Zealand Sustainable Agriculture, 2011). In many OECD countries, Government assistance has incentivized

farmers to increase the intensity of production and to expand, often onto environmentally sensitive land (OECD, 2003). Also there has been a trend to intensification, producing more from the same piece of land using more materials and energy (Parliamentary Commissioner for the Environment, 2004). As a result, there have been more impacts on the environment, both positive and negative.

For agriculture to remain viable the natural resources on which it is based need to be maintained. It needs to be environmentally sustainable, it needs to “maintain and enhance the natural capital on which farming depends as well as other ecosystems influenced by farming” (Parliamentary Commissioner for the Environment, 2004, p. 4). Sustainability has three dimensions: economic, environmental and social. Traditionally farmers have balanced physical, commercial and environmental factors in their farming practices (Lemon & Park, 1993). However there is often a conflict between increasing economic returns and using the natural resources sustainably (Herzon & Mikk, 2005). Farmers are influenced in their decisions, their balancing of economic and environmental factors, by their values and attitudes towards the environment (Beedell & Rehman, 1999, Gasson & Potter, 1988; Willock et al., 1999; Ahnström et al., 2008) and their understanding of biodiversity (Herzon & Mikk, 2005).

Agriculture is not the only industry, particularly in New Zealand, that relies on natural resources. Tourism and export products are often promoted on a ‘clean and green’ imagery. “Our environmental image is a key driver of the value of goods and services in the international market place” (Ministry for the Environment, 2001, p.3). Overseas buyers are concerned not only about the nature of the product but how it is produced (Parliamentary Commissioner for the Environment, 2004). If the environmental realities do not meet expectations, New Zealand’s export industry will suffer. For most residents of New Zealand the benefits of living in a healthy and sustainable environment are important. (Growth and Innovation Advisory Board, 2004 in Ministry for the Environment, 2007). These concerns have drawn people’s attention to the impacts of agriculture and the need to mitigate any adverse impacts from farming, which is perceived as problematic, so that the environment, society and the economy are not harmed for the

future. In recent years farming has increasingly been blamed for environmental damage (Hughey et al., 2010).

In order to safeguard the environment under agricultural regimes, Governments worldwide have introduced various methods. They range from voluntary approaches to regulation. The extent of these methods depends on the country's assimilative capacity, in their environment's physical ability to absorb waste and on society's toleration of pollutants (Bhagwati, 1996 in Cassels & Meister, 2001). All methods aim to influence human behavior (Botha, 2009). In a study of five countries (European Union, United States of America, Canada, Australia and New Zealand) Brouwer et al. (2000) found that although each country had a general framework of legislation, there were 'varying degrees of delegation of power', a 'diversity of policy instruments' and a 'varying role of formal legislation in setting standards' which made comparisons between the countries very difficult. One of the main differences between countries is that in the European Union (EU) and America public funding is more widespread, rewarding farmers financially in return for generating public benefits (Brouwer et al., 2000). While New Zealand's farming focus is more on productivity and profitability resulting from the removal of government intervention in the 1980s, the focus of the European Union farmers tends towards conservation practices to maximize profits from financial incentives (Waugh, 2011).

In contrast to the prescriptive regulation imposed in the European Union, New Zealand is governed by an effects-based approach to environmental regulation – the Resource Management Act 1991. Its purpose is “to promote the sustainable management of natural and physical resources” and it “places a responsibility on all New Zealanders to act in an environmentally responsible way” (Ministry for the Environment, 2011). The Act is administered by regional councils, district councils and unitary authorities. As a result, although the RMA legislation is set, each council may interpret it differently.

1.3 Industry Significance

Little research has been published about the impact of environmental legislation on New Zealand farmers. Jarvis & Wilkinson conducted a compliance cost survey for the Ministry of Agriculture and Fisheries (now the Ministry for Primary Industries) in 1998; Research New Zealand surveyed 900 farmers in 2007 on behalf of Federated Farmers, again a compliance cost survey; and the ANZ surveyed 750 farmers in 2012. There appears to be no in-depth investigation to discover and understand the impacts on farmers, apart from financial impacts, with most of the previous survey questions being about costs. The published literature is mainly negative as shown in the quote below.

“Despite all the rhetoric compliance costs continue to climb as both local government and central government agencies invent problems and then create expensive solutions to resolve them. We make it hard for development even when little development is occurring. We stop people doing things with little or no understanding of the implications to our communities or society in general. The resource consent process was meant to be enabling but in fact it has become a powerful tool for those who dislike progress or success.” (Walker, 2012, p.1).

There appears to be little or no literature on any positive impacts the New Zealand environmental legislation may have on farmers.

The LECG Limited (Burrell et. al. 2006) report for the Ministry of Economic Development and Ministry for the Environment, ‘Impacts on the business environment of the Resource Management Act’, comments that although the RMA has significant impacts on businesses there is limited literature on the subject. The report recommends further study could add to the understanding of the business impacts of the RMA. One of their suggestions is to “focus on a particular industry in detail” (Burrell et. al., 2006, p. 76).

1.4 Research Aim and Objectives

The purpose of the thesis is to explore how and why environmental legislation impacts on New Zealand farmers. There were two stages to the research. The first was to examine New Zealand legislation in comparison with European Union legislation so as to provide a wider context to the local debate. The second was to focus specifically on farmers within a specific catchment.

The main questions of this thesis are:

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?
2. What effect does New Zealand's environmental legislation have on farmers?

1.5 Thesis Structure

The subject of each chapter of this thesis is shown below.

Chapter 1	Introduction
Chapter 2	Literature Review
	This includes sections on the Natural Environment and Agriculture (2.1), Legislation (2.2), Farm Decision Making and Farmers (2.3) and New Zealand's Environmental Legislation (2.4).
Chapter 3	Methodology
Chapter 4	Results
Chapter 5	Discussion and Conclusions

CHAPTER 2

LITERATURE REVIEW

2.1 THE NATURAL ENVIRONMENT AND AGRICULTURE

2.1.1 Introduction

This section is the first of four literature review sections and presents the impact agriculture has on the environment.

New Zealand is abundant in natural resources: materials and components that can be found naturally within the environment. They may be biotic, resources that are obtained from the biosphere (e.g. forests and animals) or abiotic, resources that come from non-living, non-organic material (e.g. land, water, air and minerals) (Wikipedia, nd). New Zealand, as does the entire planet and all of society, depends upon healthy biological and physical systems. They benefit the economy, the quality of life, and the sense of identity as a nation. The uniqueness and pristine nature of the country is estimated to be worth \$80 million dollars per annum to the agriculture and tourism industries (Waugh, 2011). The natural environment is appreciated by many and a number of industries are reliant on it.

1. New Zealanders.

In a survey of New Zealanders by the Growth and Innovation Advisory Board in 2004, 87% confirmed that the environment was important or very important to them (Ministry for the Environment, 2007). They like living in a healthy and sustainable environment.

“The integrity of our environment and ecosystems are essential to New Zealand's productive economy and our social and cultural wellbeing.”
(Ministry for Primary Industries, 2012, p.1)

2. Tourism.

Tourism in New Zealand is often promoted on a 'clean and green' imagery. The Ministry for the Environment (2012) report that a key reason for 91% of tourists coming to New Zealand is the landscape.

3. Export Products

As with tourism, our export products are also often promoted on a 'clean and green' representation. "Our environmental image is a key driver of the value of goods and services in the international market place "(Ministry for the Environment, 2001). Overseas buyers are concerned not only about the nature of the product but how it is produced (Parliamentary Commissioner for the Environment, 2004).

4. Agriculture

"Agriculture by its very nature has a significant impact on the natural environment." (Russillo & Pintér, 2009, p.iv). It relies on the natural resources of land and water. In recent years there have been several trends that have increased this use.

- (a) During the last century, especially the latter half, agriculture has had the benefit of many new technologies and chemicals (University of California, nd; New Zealand Sustainable Agriculture, 2011).
- (b) In many OECD countries, Government assistance has incentivized farmers to increase the intensity of production and to expand, often onto environmentally sensitive land (OECD, 2003).
- (c) There has been a trend to intensification, producing more from the same piece of land using more materials and energy (Parliamentary Commissioner for the Environment, 2004). In New Zealand this has sometimes been as a result of competition from subsidized competitors.

As a result, there have been more impacts, both positive and negative.

2.1.2 Environmental Impacts of Agriculture

Agriculture is known as a significant resource user (Bennet et al., 1999).

“Agriculture has both harmful and beneficial effects on the environment, by changing the quality or quantity of soil, water, air, biodiversity and landscapes.” (OECD, 2004, p. 11); see figure 2.1 below.

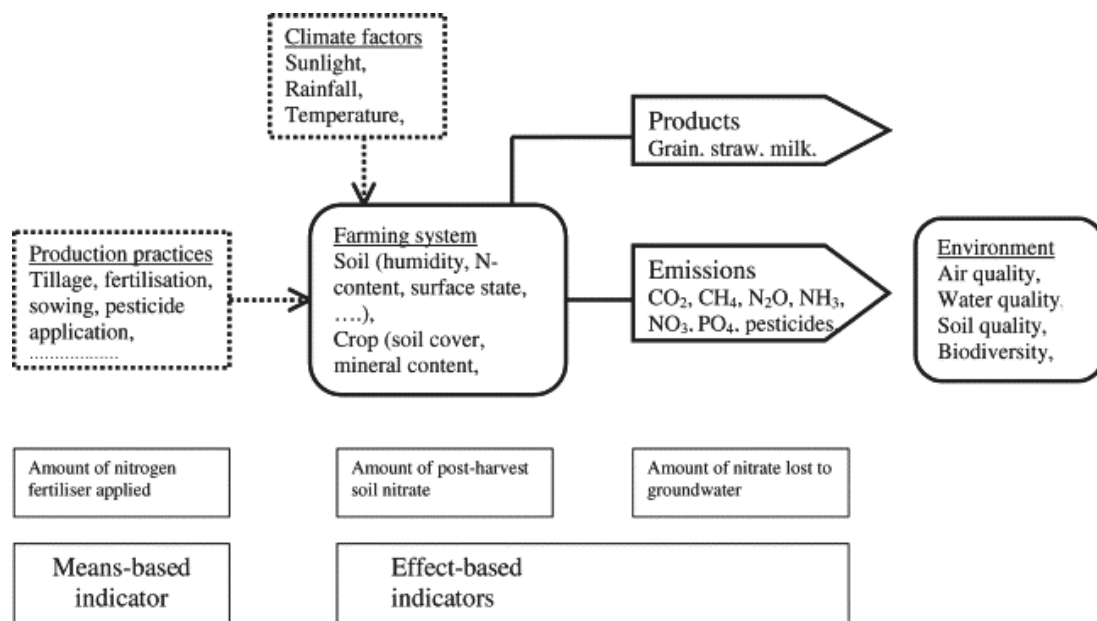


Figure 2.1 Environmental Impacts of Agriculture

“Representation of factors affecting the state of the farming system and of fluxes of products and emissions. Indicators of environmental impact may concern farmer production practices (means-based indicators), the state of the farming system or emissions to the environment (effect-based indicators).” (van der Werf & Pettit, 2002)

The OECD (2003, p. 5) expands on the above and suggests that agricultural practices affect “water, air and soil quality, influences eco-systems and biodiversity, and shapes rural landscapes.” The impacts may be beneficial or harmful (OECD, 2003).

2.1.2.1 Water

Water is the essence of life. Good quality water is vital for all living things on the planet. An environmental benefit from agriculture is ‘water accumulation and supply’ (OECD, 2003). However agriculture can affect water sources (both surface and groundwater) by contamination (OECD, 1999). Run-off from fertiliser applications, pesticides and animal effluent may pollute waterways with high amounts of nitrogen and phosphate (OECD, 2004). The down-stream effects of this are eutrophication (OECD, 2004) which is detrimental to humans, water-based wildlife (OECD, 2004), recreation use and fishing. In a survey by Hughey et al. (2010) which investigated New Zealanders’ perceptions of the state of the environment, the worst managed environmental problem was perceived to be the management of farm effluent and runoff. This is discussed further in the section on nitrate leaching (section 2.2.5.1).

2.1.2.2 Air

Air is also vital to the existence of all living things. Affects from agriculture include pollution (eg. from pesticides, dust, soil and livestock odour), climatic change (eg. greenhouse gases) and ozone depletion (eg. from use of ozone depleting chemicals) (OECD, 1999; University of California, n.d.). However carbon may be sequestered from trees and soil (OECD, 2003). There is some debate as to how large the impact agriculture has on climate change and this thesis does not explore the subject further.

2.1.2.3 Soil

Soil is “a precious non-renewable (in human time scales) limited resource, holding life-supporting minerals, water, air and countless organisms—all of which facilitate plant growth.” (Parliamentary Commissioner for the Environment, 2004).

Agriculture can be environmentally beneficial with respect to soil in that it may assist in nutrient recycling and fixation and soil formation (OECD, 2003). However it may also have negative impacts: erosion (water and wind), degradation (eg. pesticides and fertilizers), compaction and by the use of irrigation (DFID & Pretty, 2004; OECD, 1999).

1. Soil erosion occurs mainly when land is exposed to wind and rain because of lack of vegetative cover due to land-use changes, tilling and/or overgrazing (OECD, 2004). Through erosion the soil may lose fertility and integrity. New Zealand has one of the fastest rates of soil loss in the world, losing between 200 and 300 million tonnes of soil every year (Parliamentary Commissioner for the Environment, 2004).
2. Soil degradation results from using agricultural inputs (e.g. fertilisers, manure and pesticides) which increase the availability of plant-essential elements and thus increase the total yield and/or quality of crops. These inputs provide a direct source of nitrogen and carbon which can, at certain levels, have negative effects on soil organisms. Pesticides will also impair soil quality and the general biodiversity of the soil (National Pesticide Information Center, 2016).
3. Soil compaction reduces the pore space between soil particles which in turn reduces water infiltration and drainage, causes aeration problems and plant roots have difficulty in penetrating the soil. It may be caused by rainfall, tillage methods, wheel traffic (University of Minnesota, 2012) and pugging by livestock (Drewry et al, 2008).
4. Irrigation in some areas will reduce bare ground and therefore reduce wind erosion. However it may also deplete the soil of minerals and increase the risk of contamination through ground and surface water.

2.1.2.4 Biodiversity

Both wildlife and domesticated biodiversity may be impacted along with wildlife habitats and landscape features (OECD, 1999). These impacts can be positive and negative. Land-use changes in agriculture, particularly farming intensification, are often identified as a significant cause of habitat degeneration and the loss of any species affects the planet's ecosystems (OECD, 2004). Benefits may include wildlife and biodiversity protection (OECD, 2004). In some situations irrigation may provide the opportunity to enhance biodiversity values (Ministry of the Environment, 2013a).

2.1.2.5 Landscape

Although historically in New Zealand the preservation of rural landscapes has generally not been considered highly important (OECD, 2004) there are concerns that rural land is being subdivided and some areas (e.g. Mackenzie Basin, Canterbury) are losing their distinctive appearance. People's landscape preferences differ as a result of personal and subjective perceptions. For example some people consider that irrigation would adversely impact landscape values but others would consider that it would enhance the landscape. S. Batie suggests that agriculture "can provide appealing landscapes that in turn provide recreation and tourism opportunities" (OECD 1997, p. 81).

2.1.3 Sustainability

The planet and all of society depend upon healthy biological and physical systems. As the population increases, more natural resources are consumed. Therefore the natural resources must be protected in quantity and quality.

Sustainability has three dimensions: environmental, economic and social. These three dimensions are not separate but are intertwined as shown in figure 2.2 below.

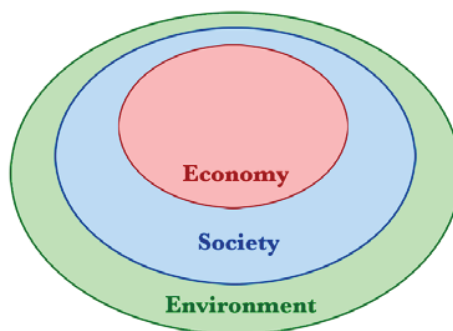


Figure 2.2 Sustainability

A representation of sustainability showing how both economy and society are constrained by environmental limits (Wikipedia, n.d.).

The most internationally accepted definition of sustainable development is:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Report, 1987).

It contains within it two key concepts:

1. "The concepts of needs, in particular the essential needs of the world's poor, to which overriding priority should be given," and:
2. "The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs." (Brundtland Report, 1987).

In the analysis of sustainability, figure 2.3 depicts the cause and effect chain of such.

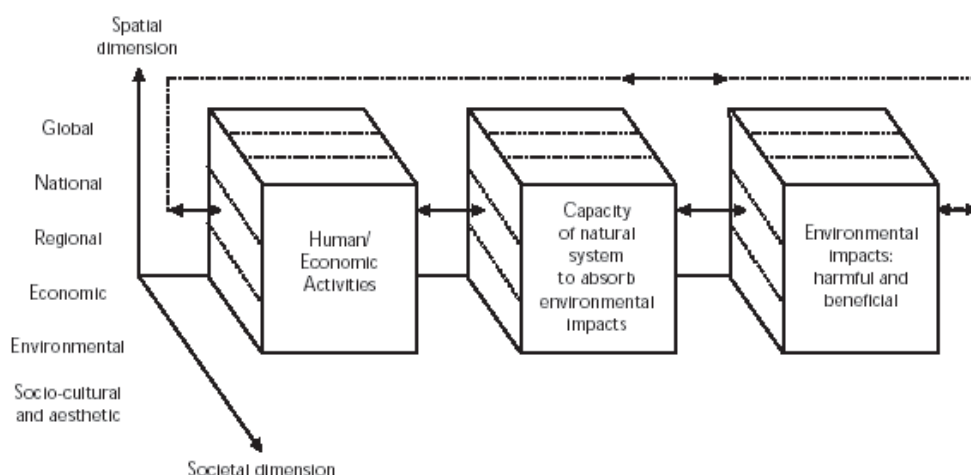


Figure 2.3 Analysis of Sustainability

A simplified view of the main components and linkages in the analysis of sustainability. (OECD, 1999, p. 12)

This figure "illustrates how human activities are linked to the capacity of natural systems to absorb the effects of human activities on the environment, and determine the environmental impacts, both harmful and beneficial, and the long term sustainability of the ecosystem." (OECD, 1999, p.12).

The New Zealand government view, as summarised from "Sustainable Land Management: A Strategy for New Zealand" (1996), is more directed at achieving environmental responsibility. The outcomes sought here are to:

- Maintain the potential for NZ soils
- Maintain or enhance water quality
- Avoid, mitigate and remedy impacts of land-related hazards
- Maintain catchments for downstream and coastal users
- Maintain cultural values, including Maori.
- Maintain aesthetic, ecological and conservation values related to land and water
- (Achieve) adoption of skills and technologies to provide for social and economic well-being

(Mulcock & Ensor, 1998)

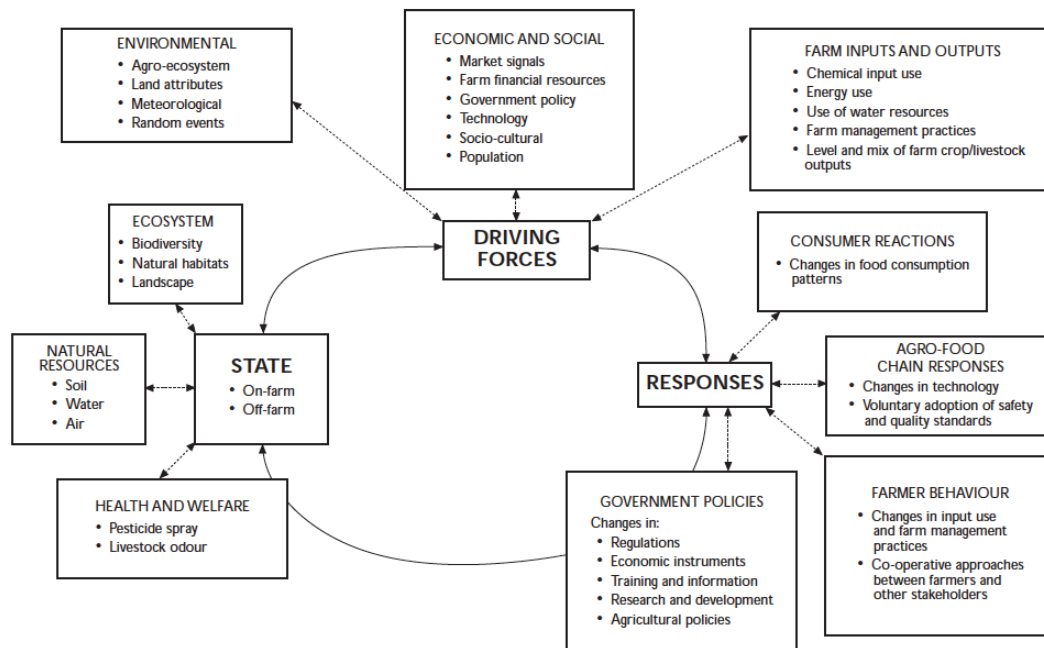
The view of New Zealand's Ministry of Agriculture and Forestry (now the Ministry for Primary Industries) is that sustainability requires that:

1. it is "profitable,"
2. "the quality and safety of the food, fibre and other agricultural products are maintained," and
3. "people and communities are able to provide for their social and cultural well-being".

(Parliamentary Commissioner for the Environment, 2004, p. 26)

2.1.4 Agri-environmental Linkages

The OECD (1999) has produced a conceptual framework (figure 2.4) to show the linkages and feedbacks between the causes and effects of agriculture's impact on the environment. It describes the environmental conditions in agriculture to change ('Driving Force'), what effect these changes have on the environment in agriculture ('State') and what actions are taken to respond to these changes ('Response').



(OECD, 1999, p. 13)

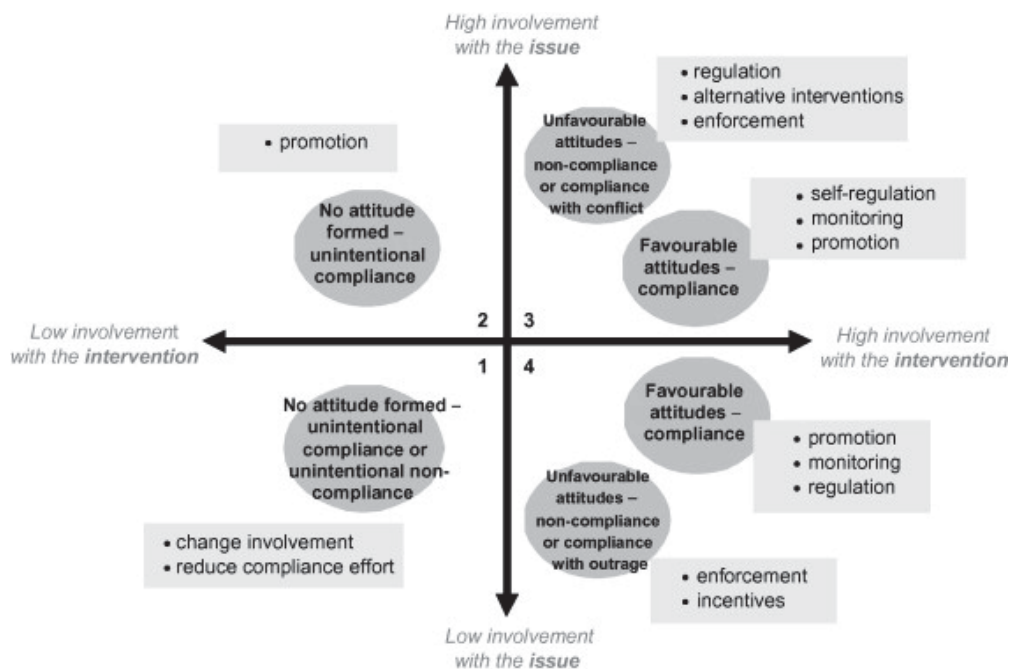
Figure 2.4 The Driving Force-State-Response (DSR) Framework to address agri-environmental linkages and sustainable agriculture.

Driving Forces are “those elements which cause changes in the state of the environment” (OECD, 1999, p. 14) including natural environmental processes and factors, biophysical inputs and outputs at farm level, and economic and societal driving forces (OECD, 1999). The State refers to “changes in environmental conditions that may arise from various driving forces” (OECD, 1999, p. 14) and include the state of natural resources, the composition, structure and functioning of the ecosystem, and the state of human health and environmentally related welfare (OECD, 1999).

Responses refer to “the reaction of groups in society and policy makers to the actual and perceived changes in the state of the environment in agriculture, the sustainability of agriculture and to market signals (OECD, 1999, p. 14) including farmer behavior, consumer reactions, responses by the agro-food chain, and government actions (OECD, 1999).

“Analysing agri-environmental linkages in the DSR framework highlights the need to develop knowledge not only of the physical, chemical and biological factors that relate variations in agricultural practices, input use and production to changes in environmental quality, but also to improve knowledge of the economic, socio-cultural and policy factors that determine and influence the effects of agricultural activities on the environment.” (OECD, 1999, p. 15)

With respect to the connection between ‘response’ and ‘farmer behaviour’, Kaine et al. (2010) have proposed a framework (figure 2.5) for “understanding and predicting the motivation of individuals to behave in a way that aligns with the obligations of a regulation” (Kaine et al., 2010, p. 531). They suggest that there are two dimensions involved in an individual’s behavior in complying with regulations – the issue and the intervention. They define an issue as “the policy objective the regulation is intended to address” (Kaine et al., 2010 p.532). An intervention is defined as “the obligation imposed by the regulation that requires individuals to act in a prescribed way in order to address the policy issue” (Kaine et al., 2010, p. 532). Thus the issue involvement is “the degree to which the policy objective itself is a source of motivation irrespective of the regulation” (Kaine et al., 2010, p. 533) and the intervention involvement is “the degree to which the regulation is a source of motivation irrespective of the issue” (Kaine et al., 2010, p. 533). Figure 2.5 below illustrates the relationship between the two dimensions with the extent of involvement with the issue on the vertical axis and the extent of involvement with the intervention on the horizontal axis.



(Kaine et al. 2010, p. 533)

Figure 2.5 Response Framework

Quadrant 1 of the Response Framework above represents “individuals who have low involvement with both the issue and the intervention”. These individuals are “largely unaware of the details of the issue and any related intervention obligations” (Kaine et al., 2010, p. 533).

Quadrant 2 represents “individuals who have high involvement with the issue but low involvement with the intervention”. These individuals consider the issue to be “relevant and important” to them and are likely to comply with the intervention even though they may have either favourable or unfavourable attitudes to the issue (Kaine et al., 2010, p. 533).

Quadrant 3 represents “individuals who have high involvement with both the issue and the intervention” (Kaine et al., 2010, p.534). Those who believe that the benefits of the intervention outweigh the costs or that any obligations align with their views will have favourable attitudes to the intervention and will therefore comply with regulations. When

individuals think that the costs and obligations of the intervention are greater than the benefits they will have an unfavourable attitude to the intervention and will “intentionally choose not to comply with the intervention or comply with the intervention reluctantly” (Kaine et al., 2010, p. 534).

Quadrant 4 represents “individuals who have low involvement with the issue and high involvement with the intervention” (Kaine et al. 2010, p. 534). Individuals will behave in a similar manner to those in quadrant 3 – if they have a favourable attitude they will comply but if they have a unfavourable attitude they may choose not to comply or comply reluctantly. They may also exhibit outrage. (Kaine et al., 2010).

2.1.5 Section Summary

This section has shown that agriculture has an impact on the environment. For agriculture to remain viable the natural resources on which it is based need to be maintained. Agriculture needs to be environmentally sustainable and it needs to “maintain and enhance the natural capital on which farming depends as well as other ecosystems influenced by farming” (Parliamentary Commissioner for the Environment, 2004, p. 4). A framework for the linkages, causes and effects of agriculture on the environment has been included.

In most countries some form of legislation is used to safeguard the environment. Section 2.2 looks at the different methods of legislating, with particular emphasis on the legislation of New Zealand and the European Union legislation.

2.2 ENVIRONMENTAL LEGISLATION

2.2.1 Introduction

Legislation is enacted to protect people, from themselves and others. Environmental legislation is enacted to regulate the interaction of people and the natural environment for the purpose of reducing the impacts of human activity.

There are a number of methods used by the governments of different countries to manage the impacts on the natural environment, ie. regulations, incentives and policies. Waugh (2011) postulated that there had to be significant financial benefits, penalties or imminent regulation for 97.6% of the population to change their on-farm practices. “The development of regulation is required to drive change” (Waugh, 2011, p. 17). New Zealand relies mainly on regulatory requirements.

2.2.2 International Legislation

Internationally there are several methods that governments use to legislate and manage environmental issues from agriculture - environmental standards, environmental taxes, agri-environmental payments and tradeable permit schemes (OECD, 2010). Some OECD countries' governments also assist farmers by funding education, research and development, and by providing technical assistance and extension services at the farm level. This encourages voluntary adoption of environmentally friendly farming practices and technologies (OECD, 2010).

Table 2.1 indicates how different OECD countries address environmental issues in agriculture.

Table 2.1 Measures addressing environmental issues in agriculture in OECD

Countries

Measure/Country	AUS	CAN	EU	JPN	KOR	MEX	NZL	NOR	CHE	TUR	US
Regulatory Requirements	XXX	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Environmental cross-compliance	NA	NA	XXX	X	X	NA	NA	XX	XXX	NA	XXX
Payments based on farming practices	X	X	XXX	X	X	X	X	XX	XXX	X	XX
Payments based on land retirement	NA	NA	X	NA	NA	X	NA	NA	X	NA	XXX
Payment based on farm fixed assets	X	X	X	X	X	X	X	X	X	X	X
Environmental taxes/charges	NA	NA	X	NA	NA	NA	NA	X	NA	NA	X
Tradeable rights/permits	X	NA	X	NA	NA	NA	NA	NA	NA	NA	X
Technical assistance/extension	XX	XX	X	X	X	X	XX	X	X	X	XX
Community-based measures	X	X	NA	NA	NA	NA	X	NA	NA	NA	NA

NA: not applied or marginal; X: low importance; XX: medium importance; XXX: high importance.

AUS – Australia; CAN – Canada; EU – European Union; JPN – Japan; KOR – Korea; MEX – Mexico; NZL – New Zealand; NOR – Norway; CHE - Switzerland; TUR – Turkey; US – United States

Note: The importance of the policy instruments in this table is related to the mix in the specific country. It is not designed to compare the importance of specific measures across countries.

(OECD, 2010)

It should be noted that the above table shows that New Zealand's tradeable rights/permit measures are NA (not applied or marginal). They are marginal in that this measure is only used in the Lake Taupo catchment.

Environmental cross compliance is “the linking of environmental conditions to the receipt of agricultural support payments” (Baldock and Mitchell, 1995, in Webster & Williams, 2002, p. 2). It is used in the United States of America, United Kingdom, Switzerland, Norway, and Korea. Countries in the EU introduced cross-compliance in 2013. EU countries have developed a wide range of voluntary programmes which provide payments to farmers when they adopt “specific farming practices with positive environmental effects and/or providing public goods (such as landscape, biodiversity, etc.)” (OECD, 2010, p. 73). Payments for retiring agricultural land from production, especially if converted to wetlands or forest are popular in the United States of America. Environmental taxes and charges are applied to the sale of products that potentially have an adverse impact on the natural environment, e.g. fertilisers and pesticides. Countries which use these measures include Denmark, France, Italy, Norway, Sweden, and some states in America (OECD, 2010). Tradeable permits and quotas “are based on the principle that any increase in emission from a given source must be offset by a decrease in emissions of an equivalent, and sometimes greater, quantity” (University of Woollongong, nd., p. 1). They are used in the United States of America and Australia in relation to water rights. (OECD, 2010).

Brouwer et al. (2000) expands on the methods of legislation and regulations (the first two lines of table 2.1 above and suggests the main categories of policy instruments include:

1. “legislation and regulations imposing standards *directly* on farms, for example minimum standards for hygiene, animal welfare, the disposal of pesticides, et cetera;
2. legislation and regulations affecting the *availability* of certain products to the producer, such as pesticides, which will have cost implications;
3. legislation and regulations, which impose obligations on farmers by affecting their practices *indirectly* (e.g. minimum standards for water quality which can be respected only by adhering to a limited range of farming activities);
4. legislation establishing *procedures* such as controls on land use and the construction of buildings, consent procedures for removing landscape features,

et cetera. The operation of these procedures imposes direct constraints upon producers but to a certain extent, each case is treated individually, making overall assessment of impacts very difficult;

5. *codes of practice*, which may be entirely voluntary (e.g. organic production), quasi legalistic or, in a few cases, binding. Such codes may not be mandatory in themselves but failure to comply with them may expose a producer to prosecution if pollution occurs, for example;
6. *cross-compliance* measures which apply only to those producers receiving benefits under a public programme. Penalties for environmental infringements may be introduced through a reduction of direct payments;
7. voluntary standards initiated by public agencies and promoted widely to producers; and
8. voluntary standards developed by processors, retailers or other downstream markets, which may affect a large proportion of producers and in some cases be 'quasi-obligatory', given market structures.”

(Brouwer et al., 2000, p 28)

The method of legislation used in the EU would be mainly ‘legislation and regulations imposing standards directly on farms’ (number 1. above) and the method for New Zealand would be ‘legislation and regulations which impose obligations on farmers by affecting their practices indirectly’ (number 3. above). However the administration of the New Zealand legislation sometimes falls into ‘legislation and regulations imposing standards directly on farms’ (number 1. above). Section 2.2.4.2.1 reviews the administration of the New Zealand legislation.

As discussed earlier in this section (section 2.1), there are a number of environmental impacts from agriculture. Table 2.2 below shows how seriously some countries considered these impacts in 2000 and table 2.3 highlights the policies and constraints across the same countries.

Table 2.2 Issues of Concern

Issue	European Union	USA	Canada	Australia	New Zealand
Nutrient enrichment by nitrates and phosphates	***	***	*	*	*
Sediments in water	*	***	*	*	**
Pesticides (including drift and applicator safety)	***	***	*	**	*
Irrigation	**	**	*	***	**
Salinisation	*	*	*	***	-
Soil contamination	*	*	*	*	*
Soil erosion	**	***	*	***	***
Ammonia	**	-	*	-	-
Odour and nuisance	***	**	***	-	-
Crop burning	*	*	-	-	-
Biodiversity, landscape	***	**	*	***	***

- No issue;

* Issue identified as a problem, but not of major concern;

** Issue identified as a problem, and of significant concern;

*** Major issue with high priority in policy.

(Brouwer et al., 2000)

Table 2.3 Constraints upon farming which internalise external costs to environment and health

Issue	European Union	USA	Canada	Australia	New Zealand
Nutrient enrichment by nitrates and phosphates	***	**	*	*	*
Pesticides	***	***	***	**	*
Sediments	-	**	-	**	**
Irrigation	*	*	*	**	**
Salinisation	-	-	-	**	-
Soil contamination	**	**	**	*	-
Soil erosion	*	-	-	**	**
Odour, nuisance, ammonia	***	**	**	*	*
Crop burning	*	*	-	-	-
Biodiversity, landscape	***	*	*	*	*

- No apparent constraint upon farming and no obvious policy in place in relation to agricultural practices;

* Policy in place, but not considered to imply a real constraint for farming;

** Policy identified as a constraint upon farming but unlikely to be a major cost to the sector as a whole (e.g. limited geographical coverage or low-cost implications);

*** Policy indicated as a major constraint upon farming which implies significant on-farm costs.

(Brouwer et al., 2000)

2.2.3 European Union (EU) Legislation

The European Union is made up of 28 Member States who negotiate and agree treaties which include the EU objectives, the rules for EU institutions, how decisions are made and the relationship between the EU and its Member States. Each Member State then ratifies those treaties with their own parliament or by referendum. The institutions that are involved in the decision-making include:

- * the European Parliament, which represents the EU's citizens and is directly elected by them;
- * the European Council, which consists of the Heads of State or Government of the EU Member States;
- * the Council, which represents the governments of the EU Member States; and
- * the European Commission, which represents the interests of the EU as a whole.

“The European Council defines the general political direction and priorities of the EU but it does not exercise legislative functions. Generally, it is the European Commission that proposes new laws and it is the European Parliament and Council that adopt them. The Member States and the Commission then implement them.” (European Commission, 2013, p. 5).

The legislation includes:

- * Regulations

“A regulation is a law that is applicable and binding in all Member States directly. It does not need to be passed into national law by the Member States although national laws may need to be changed to avoid conflicting with the regulation.”
- * Directives

“A directive is a law that binds the Member States, or a group of Member States, to achieve a particular objective. Usually, directives must be transposed into national law to become effective. Significantly, a directive specifies the result to be achieved: it is up to the Member States individually to decide how this is done.”
- * Decisions

“A decision can be addressed to Member States, groups of people, or even individuals. It is binding in its entirety. Decisions are used, for example, to rule on proposed mergers between companies.”

* Recommendations

“Recommendations and opinions have no binding force.”

(European Commission, 2013, p. 5).

The underlying aim of EU environmental legislation is to “improve the quality of the environment, protect human health, achieve prudent and rational use of natural resources, and promote international measures to address global or regional environmental problems.”

(European Commission, 2004, p.3)

The European Union’s agricultural policy, the Common Agricultural Policy (CAP), was introduced in 1962. It implements a system of agricultural subsidies and programmes. Its main objective, as per the Treaty of the European Union, article 39, is “to ensure that agriculture can be maintained over the long term at the heart of a living countryside.” Its aims are:

- * “an increase in agricultural productivity by means of technical progress and the rational development of agricultural production,
- * a fair standard of living for the agricultural community,
- * the stabilisation of markets for farm products,
- * food security (i.e. ensuring that there is always a supply of food), and
- * food affordability (i.e. that the price of food is at a level that people can afford).”

(European Commission, 2014c, p. 7)

The CAP has been reformed over the years and the 2013 reforms focus on the three long-term objectives of viable food production, sustainable management of natural resources and climate action, and balanced territorial development (European Commission, 2013a).

The CAP consists of two ‘pillars’. The first pillar is support to farmers’ incomes in the form of direct payments (e.g. the Base Payment Scheme originally the single payment scheme) and market measures. It is fully financed by the EU from the European Agricultural Guarantee Fund and accounts for more than 70% of the CAP budget. The second pillar is the support

provided for the development of rural areas and intends to “make the agriculture sector and forestry more competitive, strengthen links between the primary activity and the environment, improve the quality of life in rural areas, boost cooperation and innovation and promote diversification of the economy in rural communities” (European Parliament, 2014, p.1). It is jointly financed by the EU from the European Agricultural Fund for Rural Development and the Member States.

Table 2.4 Actions targeted under Pillars I and II

PILLAR I	TARGETED ACTION	PILLAR II*
Green payment	ENVIRONMENT	Agri-environment-climate Organic, Natura 2000
Top-up payment	YOUNG FARMER	Business development grants Higher investment aid
Top-up payment	AREAS WITH NATURAL CONSTRAINTS	Area payments
Alternative simplified scheme	SMALL FARMER	Business development grants
Improved legal framework	PRODUCER COOPERATION	Aid for setting up producer groups Cooperation and short supply chain

*Only main measures that target the specific issue under Pillar 2 are mentioned.
(European Commission, 2013b, p. 9)

Environmental protection was introduced into European Union legislation in 1972 with the European Environmental Action Plans. In the 1990s sustainable development became a main objective for the EU. The EU has a diverse range of methods to manage environmental issues but the majority are in the form of binding legislation including Regulations and Directives (Brouwer et al., 2000) as mentioned above. Although objectives are set down in the

Directives, Member States have some discretion on their implementation. In addition some Member States have introduced their own national legislation while others have introduced Codes of Practice.

One method of financially incentivising farmers to be more environmentally friendly was the Rural Environment Protection Scheme (REPS), introduced in 1994 which paid farmers an annual premium per hectare in return for the farmer protecting and maintaining flora and fauna habitats and improving their farm management in relation to environmental impacts.

Additional payments were made if other conditions were met such as allowing public access to their land and setting aside land for 20 years. Several European Union countries would buy farms and manage them for biodiversity purposes, maintaining and restoring species and habitats (Henle et al., 2008). This scheme ended in 2013 and has been replaced with the Agri-environment Options Scheme (AEOS). While the whole farm is not involved, the AEOS builds on the REPS to promote biodiversity and water quality and aims to combat climate change.

Through the EU schemes the EU farm sector is heavily subsidised. Annually, the EU spends over €55 billion (approximately 40% of their budget) on the common agricultural policy (CAP) with the primary goal of supporting farmers' income and alleviating the environmental impact of agricultural production. (European Commission, 2014). On average each farm receives a subsidy of approximately €12,200 which provides nearly half of the EU farmers' income (BBC, 2013).

With regard to dairy farming, the EU in 1984 introduced milk quotas when too much milk was being produced. During the 31 years it was in existence EU dairy farmers were guaranteed a price for their milk, regardless of demand, and higher than the world market. However they were fined if they exceeded their quota. This stopped on 31 March 2015.

2.2.4 New Zealand Legislation

New Zealand has over 750 primary Acts and over 3,000 statutory regulations with the Government creating and amending about 100 Acts and 400 regulations each year.

2.2.4.1 History

New Zealand's environmental legislation was based on the common law of Britain. The first environmental Act passed in New Zealand was the Protection of Certain Animals Act in 1861 followed in 1864 by the Wild Birds Protection Act and the Trout and Salmon Protection Act in 1867. Both overseas and in New Zealand in the 1960s people became more environmentally aware (wikipedia, n.d.). In 1980 an audit of New Zealand's environmental management by the Organisation for Economic Co-operation and Development (OECD) highlighted the need to improve environmental management locally. By the late 1980s several conservation acts were needing to be reviewed and the government decided that it was an opportune time to reform New Zealand's environmental management regime. By 1991 when the RMA was passed, there were more than 20 major statutes and 50 other laws relating to the environment, of which 69 Acts and amended Acts were repealed. It brought many of these regulations under one 'over-arching' piece of legislation (Oram, 2007). Thus the RMA 1991 created a more streamlined, integrated and comprehensive approach to environmental management. It was also New Zealand's first statutory planning regime to incorporate the principle of sustainability (wikipedia, n.d.).

The RMA (1991) under section 30 (1) (a) requires regional councils to establish, implement, and review objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region.

2.2.4.2 Resource Management Act 1991

“The Resource Management Act 1991 is the cornerstone of New Zealand's environmental legislation. It sets out how we manage our environment, including air, water, soil, biodiversity, the coastal environment, noise, subdivision and land use planning in general.” (Ministry for the Environment, 2011, p.1).

The purpose of the RMA is “to promote the sustainable management of natural and physical resources” and it “places a responsibility on all New Zealanders to act in an environmentally responsible way” (Ministry for the Environment, 2011). In section 6 of the Act it states that:

“all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
- (b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
- (c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
- (d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
- (f) the protection of historic heritage from inappropriate subdivision, use, and development:
- (g) the protection of protected customary rights.”

(Parliamentary Counsel Office)

The RMA, in Section 5, describes “*sustainable management*” as

“managing the use, development and protection of natural and physical resources in a way, or at a rate which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while-

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystem; and
- (c) Avoiding, remedying or mitigating any adverse effects of activities on the environment.”

2.2.4.2.1 Administration

The Act delegates to regional and local councils the interpretation and application of its contents. Issues under the Act are adjudicated by the Environment Court of New Zealand.

Figure 2.6 below diagrammatically shows the delegation of authority.



(Ministry for the Environment, 2009)

Figure 2.6 Delegation of Authority

Regional policy statements provide an overview of the resource management issues of the region and establish policies and methods to achieve integrated management of the natural and physical resources of the whole region. Regional and District plans assist territorial authorities to carry out their functions in order to achieve the purpose of the Act. (Ministry for the Environment, 2009). The plans set out how the councils will manage the environment and contain rules that control what can be done in the environment. Regional plans mainly concentrate on particular parts of the environment (e.g. soil, waterways) and the District plans state the objectives, policies and rules that the council use to manage the use of land in the area. Plan changes go through a democratic process requiring all changes and variations to be publicly notified. The plans state whether an activity is permitted (it can be done of right) or whether it requires a resource consent (Ministry of the Environment, 2009).

There are three different types of councils with day-to-day responsibility for looking after the environment under the RMA – regional councils, city and district councils and unitary authorities.

- (a) New Zealand has 11 regional councils. Among other things they manage the rivers, the air, the coast and soil – resources that are not generally owned by individuals.
- (b) There are 67 city and district councils. Their responsibilities under the Local Government Act are wide-ranging but the RMA requires them to look at the ways local people use land and how those uses can affect the environment.
- (c) There are six unitary authorities which do the jobs of both regional and district councils.

As can be seen in figure 2.6 (Delegation of Authority), the Ministry for the Environment and the Department of Conservation also play a part in environmental management. With some larger or ‘nationally significant’ projects, the Environmental Protection Agency, boards of inquiry or the Environment Court will sometimes get involved (Ministry for the Environment, 2009).

2.2.4.3 Other Environmental Legislation

There are a number of other New Zealand acts that are associated with conservation and agriculture, see table 2.5 below. A full list of acts associated with conservation is shown in Appendix I.

Table 2.5 Act and Purpose

ACT	PURPOSE
Agricultural Compounds and Veterinary Medicines Act	to prevent or manage risks associated with the use of agricultural compounds
Building Act 1991	to provide for: (a) the necessary controls relating to building work and the use of buildings, and for ensuring that the buildings are safe and sanitary and have means of escape from fire; (b) the co-ordination of those controls with other controls relating to building use and the management of natural and physical resources
Climate Change Response Act 2002	to: (a) enable New Zealand to meet its international obligations; (b) provide for the implementation, operation and administration of a greenhouse gas emissions trading scheme in New Zealand
Conservation Act 1987	to promote the conservation of New Zealand's natural and historic resources
Crown Minerals Act 1991	to restate and reform the law relating to the management of Crown owned minerals
Crown Pastoral Land Act	it establishes a system to review the tenure of Crown land, how it should be dealt with, and administer it.
Environment Act	to ensure that, in the management of natural and physical resources, full and balanced account is taken of: the intrinsic values of ecosystems; all values which are placed by individuals and groups on the quality of the environment; the principles of the Treaty of Waitangi; the sustainability of natural and physical resources; and the needs of future generations.
Fisheries Act 1996	to provide for the utilisation of fisheries resources while ensuring sustainability
Forestry Encouragement Act 1962	to authorise the making of loans, out of money appropriated by Parliament for the purpose, for the establishment and maintenance of woodlots and forest plantations
Hazardous Substances and New Organisms Act	to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.
Ozone Layer Protection Act	to: (a) help protect human health and the environment from adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer; (b) phase out ozone depleting substances as soon as possible except for essential uses; (c) give effect to New Zealand's obligations under the Convention and the Protocol.
Plants Act 1970	to consolidate and amend the law relating to plants and plant diseases
Soil Conservation and Rivers Control Act	to make provision for the conservation of soil resources, the prevention of damage by erosion and to make provision for the protection of property from damage by floods.
The Biosecurity Act	to manage or eradicate unwanted pests or organisms.
Walking Access Act 2008	to provide the New Zealand public with free, certain, enduring, and practical walking access to the outdoors
Waste Minimisation Act 2008	to encourage waste minimisation and a decrease in waste disposal in order to: (a) protect the environment from harm; (b) provide environmental, social, economic and cultural benefits
Wildlife Act 1953	to consolidate and amend the law relating to the protection and control of wild animals and birds

An example of how several Acts can cover a single issue, in this case fertiliser application, follows:

Fertiliser application on farms is regulated by various regulatory and other industry or quality assurance requirements, the main legislation being the Resource Management Act (1991), the Agricultural Compounds and Veterinary Medicines Act (1997) (ACVM), Agricultural Compounds and Veterinary Medicines Regulations (2001), the Hazardous Substances and New Organisms Act 1996 (HSNO), the Transport Act 1985, the Transport Law Reform Act 1990 and the Health and Safety in Employment Act 1992 (HSE).

a. Resource Management Act 1991

Under the RMA (1991), fertilizer is considered to be a contaminant and is defined as “any substance (including gases, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat –

- (a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of the water; or
- (b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.” The duties and restrictions under the RMA (1991) are as follows:

“(1) No person may discharge any

- (a) contaminant or water into water; or

- (b) contaminant onto or into

contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

- (c) contaminant from

- (d) contaminant from any in

unless the discharge is expressly allowed by a national environmental standard or other regulations, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.

- (2) No person

may discharge a contaminant into the air, or into or onto land, from

a place or any other source, whether moveable or not, in a manner that contravenes a national environmental standard unless the discharge—

- (a) is expressly allowed by other regulations; or
- (b) is expressly allowed by a resource consent; or
- (c) is an activity allowed by

(2A) No person discharge a contaminant into the air, or into or onto land, from a place or any other source, whether moveable or not, in a manner that contravenes a regional rule unless the discharge—

- (a) is expressly
- or (b) is expressly allowed by a resource consent; or
- (c) is an activity allowed by
- (3) This section shall not apply to anything to

applies.”

b. Agricultural Compounds and Veterinary Medicines Act 1997

The Agricultural Compounds and Veterinary Medicines Act 1997 (ACVM) legislation “covers the requirements for the fertiliser group of agricultural compounds. Fertilisers are broadly defined as substances or products that are used to encourage plant growth but are further classed as either:

- Fertilisers – used to provide nutrients to encourage plant health and growth.
- Fertiliser additives – used to adjust the chemical or biological characteristics of soil to facilitate uptake and use of nutrients.
- Soil conditioners – used to adjust the physical characteristics of soil.”

All products that are either fertilisers or fertiliser additives are exempt from registration under the ACVM Regulation 9 as long as the requirements of the ACVM Regulations that cover the import, manufacture and trade in fertilisers and fertiliser additives are met. This means that the fertiliser must be fit for the purpose specified in the directions for use and include a label at the point of sale detailing information such as trade name, nutrient content, modifying pH, details of any precautions to be taken to prevent or manage risk and directions for use. The Fertmark Code is a compliant Code under ACVM.

c. The Hazardous Substances and New Organisms Act 1996 (HSNO)

The Minimum Degrees of Hazard Regulations 2001 and Hazardous Substances Regulations 2001 determine and describe the hazardous properties of substances. Some fertilisers may be hazardous substances under these regulations, in which case any controls applied under the HSNO regulations must be complied with. The controls may relate to any stage of the life cycle of the substance including manufacturing, transport, storage, use or disposal.

Most fertilisers fit into an Environmental Risk Management Authority (ERMA) group standard called 'subsidiary'. ERMA administers HSNO. Provisions around this group standard relate to labeling, signage, safety data sheets, advertising, storage and health and safety and transport. In general these provisions only affect the fertiliser companies. However, if the fertiliser is classified under the oxidiser group standard (e.g. nitrate products such as ammonium nitrate and potassium nitrate) then there are additional restrictions applied to the land manager (who must be an approved handler) and quantities stored on the property.

d. Transport Act 1987

Under the Transport Act 1987 and Transport Law Reform Act 1991, users must comply with the requirements of the Transport Act and Transport Regulations when transporting fertiliser by road. Under these Acts it is the driver's responsibility to ensure:

- "All freight is correctly restrained,
- All hazardous substances are segregated correctly,
- The drivers license has the appropriate endorsements, and
- The safety equipment required, which is provided by the carrier is used."

The carrier is responsible for ensuring that this is achieved. All carriers shall be aware of the Operators Handbook for the Transport of Hazardous Substances by Road (Land Transport Safety Authority).

e. Health and Safety in Employment Act 1992

All employers and self-employed people must also comply with the Health and Safety in Employment Act (1992). The key focus of this Act requires that people must:

- a) As employers, identify hazards to employees at work and manage these so that people are

not harmed. Note that a driver's place of work includes the vehicle being driven.

b) As employees, ensure personal safety and the safety of others, including using safety equipment as instructed.

Staff on the area being treated must know about the fertiliser application. Employees have a duty to comply with safety directives (including using safety equipment as instructed) to ensure their personal safety and the safety of others. Fertiliser users should seek information about their products from the supplier or a qualified consultant.”

2.2.5 Comparison of Legislation – New Zealand and the European Union

The European Union uses prescriptive regulations categorised by Brouwer et al. (2000) as legislation and regulations that impose standards directly on farms. New Zealand is governed by an effects-based approach to environmental regulation categorised by Brouwer et al. (2000) as legislation and regulations which impose obligations on farmers by affecting their practices indirectly. Section 2.2.5.1 looks at the difference between New Zealand and the European Union methods with regards to nitrate leaching.

Salmon et al. (2005) describes nine differences between New Zealand's environmental management institutions and those of Finland and Sweden, both members of the European Union.

1. The EU provides funding for the implementation of agri-environmental policies whereas New Zealand does not.
2. New Zealand has no structure of agreed, time-bound, national environmental objectives whereas both Sweden and Finland do.
3. The EU's environmental legislation is prescriptive while New Zealand is effects-based.
4. In New Zealand measures taken to protect the environment do not generally give rise to compensation whereas in Sweden in particular they do and to some extent also in Finland.
5. Finland and Sweden use economic instruments much more than New Zealand does, eg. green taxes and charges, liability for all losses caused by environmental

pollution etc (in New Zealand liability extends only to restoring any damage), and subsidies used to change environmental practices.

6. New Zealand is unique in its regime for conservation land.
7. Sweden and Finland are more governed by national programmes to reduce the environmental impacts of agricultural activities whereas New Zealand is more directed by regional councils.
8. New Zealand and Finland operate their national and regional environmental institutions on the lines of a traditional 'environmental sector while Sweden organises most of its scientific and technical expertise on a sectoral basis.
9. New Zealand's regional councils are elected and funded by regional electorates and apart from a few exceptions (eg national standards) they are not accountable to national level policies whereas Finland's regional institutions are part of the Ministry for the Environment (and therefore funded and accountable to such) and Sweden's regional institutions are appointed by, funded and accountable to their national government.

With respect to funding for the implementation of agri-environmental policies (number 1. above), Anders Crofoot, Federated Farmers vice-President, states that New Zealand has the lowest level of agricultural support for industrialised countries in the OECD, representing only one percent of farming income. This support is mainly government funding for agricultural research or in assistance payments such as hardship from drought. (Federated Farmers of New Zealand, 2014c).

2.2.5.1 Nitrate Leaching

Nitrate (NO₃) is a naturally occurring form of nitrogen, a colourless, odourless and tasteless compound that is essential in the growth of plants. The nitrogen in fertilisers, manures and other organic residues is converted by bacteria and microorganisms to nitrate. In farming nitrate is essential as a nutrient for plant growth. In natural ecosystems nutrients are returned to the soil when plants and animals die and compost. However in the farming system plants and animals are harvested and those nutrients are not returned to the soil. Therefore for further plant growth more nutrients must be supplied (May, 2005).

The more intensive the farming system, the more nitrate is needed. It is soluble and can become an environmental issue when it gets into aquifers facilitated by soil type, rainfall and/or irrigation. It moves laterally into surface water. In New Zealand nitrate loss occurs mainly from animal urine (Ledgard et al., 2000) but can also occur from excess nitrogen that plants don't take up.

“Leached nitrate can carry with it alkaline elements (such as calcium, potassium and magnesium) from topsoil, lowering soil pH and resulting in acidified soils.”

Parliamentary Commissioner for the Environment, 2004, p. 86).

Nitrate in aquifers impacts on human consumption, animal consumption, aesthetics, recreational use and fisheries. Environmentally nitrate in aquifers may change their ecological balance. The growth of water plants is also encouraged by nitrate. This can lead to the narrowing of rivers and lakes and the instability of banks. For the recreational fishermen or boaties, the growth of underwater plants can cause machinery damage and loss of tackle. However the main environmental problem is the increase of algae. Although they can look unaesthetic when in bloom, they are more of a problem when they die. During decomposition bacteria use oxygen and thus deprive fish, aquatic animals and other desirable organisms.

Management options for farmers to contain or reduce nitrate are:

1. reduction of annual input of N in fertilizer and in imported feed sources
2. dairy effluent processed through land treatment before discharge
3. reduced stocking rate
4. increased N efficiency
5. non-dairying on nitrate sensitive areas
6. riparian zones
7. timing of application
8. restriction of grazing time in autumn. de Klein & Ledgard (2001) found that
“compared with a conventionally grazed system, restricting the grazing time of cows in the autumn in Southland led to a 35% -50% reduction in nitrate leaching” (Christensen et al., 2012)
9. nitrification inhibitors
 - they retain nitrogen for longer in the soil so plants have longer to take it up

- they slow down the production and concentration of nitrate

To reduce nitrate leaching on farms, different countries have come up with different solutions. In the European Union a 'Nitrate Directive' was introduced in 1991 and in New Zealand the RMA (1991) governs the effects of nitrate leaching.

European Union

Nitrate leaching is a high priority issue in the European Union as some countries (Belgium, Denmark, France, Germany, northern Italy, the Netherlands, coastal Spain, UK) have problems with contamination of surface and ground waters and soils. On about 20% of agricultural land the maximum admissible concentration of nitrates in potable water (50 mg per litre) are exceeded. The 'Nitrate Directive' places significant constraints on farmers in 'Nitrate Vulnerable Zones' (Brouwer et al., 2000).

“The Nitrates Directive (1991) aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices” (European Commission, 2012, p. 1).

Implementation regimes include:

1. “Identification of water polluted, or at risk of pollution, such as:
 - * surface freshwaters, in particular those used or intended for the abstraction of drinking water, containing or that could contain (if no action is taken to reverse the trend) a concentration of more than 50 mg/l of nitrates
 - * groundwater containing or that could contain (if no action is taken to reverse the trend) more than 50 mg/l of nitrates
 - * freshwater bodies, estuaries, coastal waters and marine waters, found to be eutrophic or that could become eutrophic (if no action is taken to reverse the trend)
2. Designation as "Nitrate Vulnerable Zones"(NVZs) of:
 - * areas of land which drain into polluted waters or waters at risk of pollution and which contribute to nitrate pollution; or
 - * Member States can also choose to apply measures (see below) to the whole

territory (instead of designating NVZs).

3. Establishment of Codes of Good Agricultural Practice to be implemented by farmers on a voluntary basis. Codes should include:
 - * measures limiting the periods when nitrogen fertilizers can be applied on land in order to target application to periods when crops require nitrogen and prevent nutrient losses to waters;
 - * measures limiting the conditions for fertilizer application (on steeply sloping ground, frozen or snow covered ground, near water courses, etc.) to prevent nitrate losses from leaching and run-off;
 - * requirement for a minimum storage capacity for livestock manure; and
 - * crop rotations, soil winter cover, and catch crops to prevent nitrate leaching and run-off during wet seasons.
4. Establishment of action programmes to be implemented by farmers within NVZs on a compulsory basis. These programmes must include:
 - * measures already included in Codes of Good Agricultural Practice, which become mandatory in NVZs; and
 - * other measures, such as limitation of fertilizer application (mineral and organic), taking into account crop needs, all nitrogen inputs and soil nitrogen supply, maximum amount of livestock manure to be applied (corresponding to 170 kg nitrogen /hectare/year).
5. National monitoring and reporting. Every four years Member States are required to report on:
 - * Nitrates concentrations in groundwaters and surface waters;
 - * Eutrophication of surface waters;
 - * Assessment of the impact of action programme(s) on water quality and agricultural practices;
 - * Revision of NVZs and action programme(s)
 - * Estimation of future trends in water quality.”

(European Commission, 2012, p. 1)

The prescriptive nature of the nitrate directive is demonstrated in that it bans fertilizer

(including manure left behind by the cows) on any mountain slope with a gradient of more than 15%. This would be on half the cultivated land in Bavaria and if Bavarian farmers were to breach the directive they could lose their agricultural subsidies and would be forced out of their farming businesses. (Waterfield, 2014).

New Zealand

The Resource Management Act 1991 legislates for the sustainable management of natural and physical resources. With respect to water and therefore the issue of nitrate leaching the RMA delegates its authority through the National Policy Statement for Freshwater Management 2014. This statement in turn directs councils to maintain or improve the overall quality of fresh water within a region. The councils are required to set water objectives and water quality limits (the maximum amount of contaminants or nutrients that may be discharged into the water) and quantity limits (maximum amount of water that can be taken from a water body) in their regional plans. (Ministry for the Environment, 2014).

The maximum acceptable value for nitrate in New Zealand's drinking water is 50gm per litre. (New Zealand Ministry of Health, 2008; Brouwer et al., 2000).

The legislation does not tell farmers how to run their farms nor what they can and cannot do on their farms. As explained earlier, it is the regional and local councils that interpret and administer the legislation. An example of a regional council's rules regarding nitrate leaching is the Otago Regional Council rules as shown in Appendix II.

2.2.5.2 Comparison of Interpretation and Administration of Legislation in New Zealand

Regional plans mainly concentrate on particular parts of the environment (e.g. soil, waterways) and the District plans state the objectives, policies and rules that the council use to manage the use of land in the area. Therefore in administering the legislation different councils may come up with different interpretations.

“In the absence of much guidance from central government, there is considerable variability in the quality and focus of regional and district planning.” (Parliamentary Commissioner for the Environment, 2004, p. 70).

There are several reasons suggested by Baker-Galloway (2013) why council plans vary:

1. Different interpretation.
2. Different circumstances. When circumstances differ so do the outcomes. An example would be dealing with different standards of water quality in an area. How this is dealt with and in what time frame can differ between councils.
3. Different focus. “Some councils focus primarily on controlling land use, others focus primarily on controlling discharge and some use a combination of both.” (Baker-Galloway, 2013, p. 1)
4. Different classifications. Catchments may be classified by land use, soil, or water quality standards.
5. Different abilities of staff.

So although the RMA is effects based the enforcement by councils can become prescriptive. By controlling the type of farming activity (landuse) the council is telling farmers how to farm by controlling for instance stock numbers. In comparison a council that focuses on the outputs of the farm allows the farmer to make their own decisions. The prescriptive method can result in limited options for the farmer to use to minimize any adverse affects of farming. With the effects based method both the council and the farmer have more methods from which to choose. (Baker-Galloway, 2013).

In the following table (table 2.6), the Survey of Regional Council River Water Quality Monitoring shows differences in the approaches councils take to monitoring water quality. Although each council objective is similar, the approaches vary, especially their approaches to and frequency of monitoring.

Table 2.6 Number and Type of Sites, Approaches, and Frequency of Monitoring.

Council	Number of sites	Approach to Monitoring	Frequency of Monitoring	Type of Sites
NRC	13	All sites all the time An additional 6 sites are monitored as part of a specific catchment investigation.	Monthly	Relatively undisturbed Predominantly rural development Urban and rural development
ARC	16	All sites all the time	Monthly	Native forest site (reference site) Urban sites Exotic forest site Market garden site Mixed landuse sites
EW	109	All sites all the time	Monthly	The region's sites are divided into 7 zones based on river catchments and broad ecological features including geology, climate (altitude, winter temperatures), vegetation cover and land use. There is a wide range of sites subject to different land use pressures but the sites have not been set up as control verses impact. Do have reference sites, characterised as natural sites.
EBOP	13 reference sites (New structure)	Three areas of rolling sites (eastern and central, Rotorua lakes and Tauranga Harbour) sampled monthly for a year, every third year.	Monthly – 3 year rotation of 3 areas	Native forest sites Agricultural sites Urban sites Industrial discharges
GDC	45	All sites monthly or bi-monthly	Monthly – river and stream sites Bi-monthly – drain sites	River and stream sites Drain sites
HBRC	55	All sites all the time In addition a	Quarterly – 55 sites Detailed catchment	Undisturbed native Low intensive pasture High intensive pasture
		detailed investigation of one catchment occurs annually.	investigation monitored 15 times during the year.	• Intensive horticulture
TRC	10	All sites all the time	Monthly	Sites are positioned strategically within representative land-use catchments in the region e.g. unimpacted, industrial, intensive farming.

HORIZONS.MW	55	<p>25 annual sites</p> <p>30 rolling sites measured 1 year in 3</p>	Monthly	<p>“Natural” – pristine headwater sites.</p> <p>“Standard” - Diffuse source sites as a result of agricultural land use.</p> <p>“Impact” - cumulative effect of specific point sources.</p> <p>“Contact Recreation” (CR) - high-use recreational sites (Regional Policy Statement requires that they have all rivers available for contact recreation)</p>
WRC	50	All sites all the time	Monthly	<p>Large Rural</p> <p>Small Rural</p> <p>Large Urban</p> <p>Small Urban</p> <p>Forest Park</p> <p>Have tried to establish impacted verses unimpacted sites for each water body type in the region.</p> <p>Have classified sites into the potential land use impact that is likely for the various sites.</p>
MDC	48	There are 5 major catchments rotated annually, within which 7 or 8 sites are measured monthly for that year. Each catchment is measured intensively once every 5 years.	Monthly	No information
NCC	40	All sites all the time	Quarterly	<p>Reference sites</p> <p>Forest Catchments</p> <p>Native forest Catchments</p> <p>Urban Catchments</p> <p>Rural Catchments</p>
TDC	43	All sites quarterly plus several monthly	Quarterly – 43 sites as part of the regional survey	<p>Rural</p> <p>Mining and forestry</p> <p>Urban</p>
		In addition TDC conduct a synoptic survey of a different river every 1 to 2 years on a rotational basis.	Monthly – 16 (of 43) sites measured as part of Integrated Catchment Management project	

ECAN	71	<p>All sites all the time.</p> <p>In addition a more intensive survey of 12 catchments is conducted on a rotational basis (every 9 years).</p>	<p>Quarterly – 71 physical / chemical sites</p> <p>Intensive survey monitored 12-15 times for one year.</p>	No information
WCRC	30	Sites measured dependant on landuse type.	<p>Quarterly for most sites</p> <p>4 times / year during summer</p> <p>Contact Recreation sites</p> <p>Impact monitoring as and when required</p>	<p>Exotic Forestry sites</p> <p>Sewage and Dairy Farm sites.</p> <p>Mining sites</p> <p>Urban sites</p> <p>Contact Recreation sites.</p> <p>Impact Monitoring sites.</p> <p>Reference sites</p>
ORC	79		Bi-monthly – 62 of the 79 sites	No information
ESTH	42	33 long-term sites measured monthly and 9 rolling sites measured monthly for a year every four years.	<p>Monthly – 33 sites</p> <p>9 rolling sites measured monthly for 1 year on a rotational basis.</p>	

(Wilson, 2001, p. 8)

Abbreviations:

ARC	Auckland Regional Council
EBOP	Environment Bay of Plenty
ECAN	Environment Canterbury
ESTH	Environment Southland
EW	Environment Waikato
GDC	Gisborne District Council
HBRC	Hawke's Bay Regional Council
HORIZONS.MW	Horizons.mw (Manawatu / Wanganui Regional Council)
MDC	Marlborough District Council
NCC	Nelson City Council
NRC	Northland Regional Council
ORC	Otago Regional Council
SOE	State of the Environment
TDC	Tasman District Council
TRC	Taranaki Regional Council
WCRC	West Coast Regional Council
WRC	Wellington Regional Council

2.2.6 Section Summary

This section has examined the environmental legislation in New Zealand, compared it to the European Union and looked at how it is interpreted within New Zealand. It has shown that there are differences in the methods of the regulations:

1. the European Union legislation is prescriptive while New Zealand is governed by an effects-based approach to environmental regulation – the Resource Management Act.
2. The European Union provides for subsidies for farmers whereas New Zealand does not.

Within the New Zealand context this section has shown that there are differences in the interpretation and enactment of the RMA between councils.

The next section looks at how legislation has an impact on a farmer's decision making process.

2.3 FARMER DECISION MAKING

2.3.1 Introduction

Decision making is “the mental process which results in the selection of a course of action among several alternative scenarios” (Wikipedia, n.d.). Decisions may be made consciously or unconsciously and are influenced by our experience, current knowledge and new information (Mulcock & Ensor, 1998).

A study prepared for the Parliamentary Commissioner for the Environment covering the period from 1990 to 2010 and involving 12 in-depth case studies concluded:

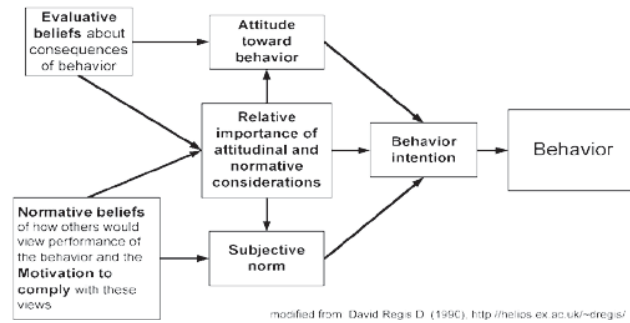
“Research suggests that New Zealand farmers’ decision making is largely dominated by financial factors. This work found that, for all case study farms, investment in new infrastructure and technology is dominated by the need to intensify and lift profitability.” (Parliamentary Commissioner for the Environment, 2004, p. 4).

However McGregor et al. (1996) found that farmers valued the maintenance of their land resource, the environment and their way of life ahead of profit maximization.

2.3.2 Decision Making Process

A number of authors have studied decision making processes in farming. It was originally thought that farmers’ decisions were based solely on maximizing profit (Willock et al., 1999). However literature now suggests that farmers’ decision-making behaviours are also influenced by socio-economic and psychological variables (Willock et al., 1999).

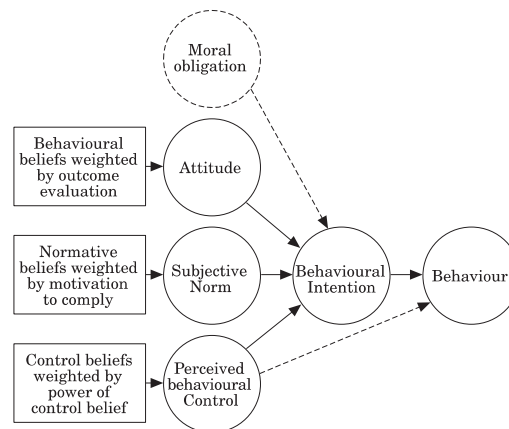
In 1975 Fishbein and Ajzen argued that decision making behaviours were best predicted by a person’s intentions which were in turn affected by that person’s attitudes and influenced by others. Their model of the ‘Theory of Reasoned Action’ (TRA) can be expressed as shown in figure 2.7 below.



(Kollmuss & Agyeman, 2002)

Figure 2.7 Theory of Reasoned Action

Ajzen progressed the TRA to arrive at the ‘Theory of Planned Behaviour’ (TPB) as shown in 2.8 below.

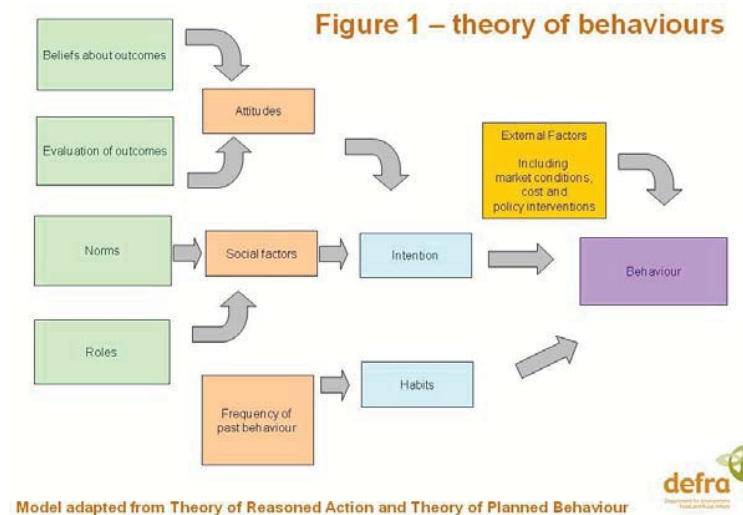


(Beedell & Rehman, 1999)

Figure 2.8 Theory of Planned Behaviour

The TPB adds ‘perceived behavioral control’ which takes into consideration the perceived ease or difficulty of performing the behaviour, given past experience and anticipated external constraints. Although this model overlooks emotional variables, it has been used as a basis to understand farmers’ decision making (Edwards –Jones, 2006).

Defra suggest in their ‘Theory of Behaviours’ (figure 2.9 below) that the intention to adopt a particular behaviour is a function of attitudes, social factors (the extent to which the views of others matter) and past behaviours. Their fourth component is external factors which includes market conditions, cost and policy interventions.



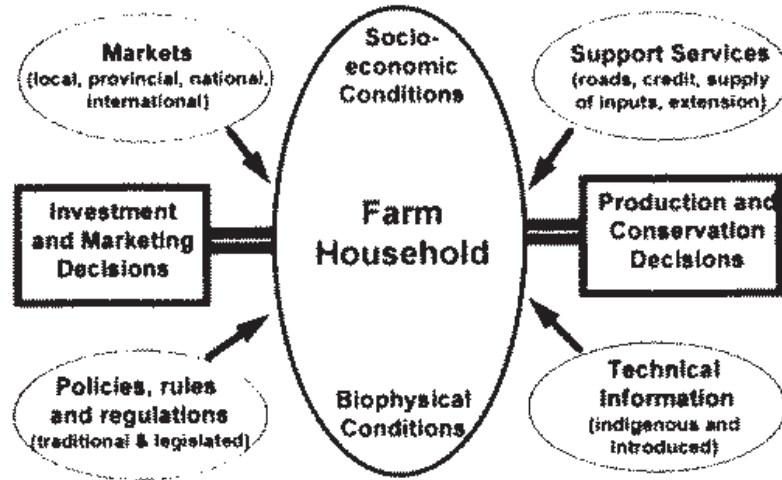
(Defra, 2008, p. 5)

Figure 2.9 Theory of Behaviours

Rogers (1983) looked at the decision making process of adopting a new innovation or technology. His ‘Innovation Decision Process’ consists of five stages – knowledge, persuasion, decision, implementation and confirmation (Chand et al., 2011).

Ohlmer et al. (1998) suggest farmers’ decision making processes include four phases and four subprocesses. The four phases are problem detection, problem definition, analysis and choice, and implementation. The four subprocesses are searching and paying attention, planning, evaluating and choosing, and checking the choice.

French, 1995 suggests that farm household decisions are made by on-farm factors and off-farm factors (markets, support services, technical information, and policies, rules and regulations), as shown in figure 2.10 below.



Interaction Between All Factors Influencing Household Decisions

Figure 2.10 Farm Household Decisions

Bennet et al. (1999) in 'Sustainable soil management in New Zealand: Farmer beliefs, attitudes and motivations' used an integrated model of behavior, combining Ajzen's (1988) approach with Cary and Wilkinson's (1997) interpretation of the multistage model where behaviour is a function of beliefs, attitudes, subjective norm and behavioural constraints:

$$B = f\{bi, AB, SNB, CB\}$$

Where

$$A_B = \sum_{i=1}^n b_i e_i$$

$$SN_B = \sum_{j=1}^n b_j m_j$$

$$C_B = c_b + c_d$$

[AB: attitude toward the behavior; SNB: subjective norm toward the behavior;

bi: behavioural belief with respect to attribute I; ei: subjective evaluation of attribute I;

bj: normative belief concerning referent j; mj: motivation to comply with referen tj;

cb: control belief with respect to behaviour B; cd: direct control perceived over behaviour B]

Behaviour is linked to one's 'locus of control', a personality predisposition which "describes an individual's perception of their ability to change a situation" (Kaine et al., 2004, p. 791). A belief in "external control means a person believes an event is largely the product of forces beyond their control while a belief in internal control means a person believes an event is contingent upon their behavior or actions" (Kaine et al., 2004, p. 791). In their research, Kaine et al. (2004) found there was a significant relationship between producers' 'locus of control' and their farm business performance.

In going through any of the above processes, certain characteristics and variables influence and impact on the decision to be made by a farmer. McGregor et al. (1996) states the following:

"The literature indicates that farmers' decisions are influenced by a variety of factors such as their objectives and goals in farming, their attitudes towards the traditional/ethical approach to farming, stress and the ability to cope with stress, satisfaction with and optimism about farming, attitudes to legislation, risk taking, autonomy, management attitudes, conservation attitudes, the quantity and quality of their information, who is involved in the decision making process, the individual's problem solving ability and aspects of their personality." (McGregor et al., 1996)

In summary, the factors that influence a farmer in his or her decision making include financial (Guerin & Guerin, 1994; Chand et al., 2011; Schoon & Te Grotenhuis, 2000), farmer characteristics (Edwards-Jones, 2006; Mathijs, 2003; Schoon & Te Grotenhuis, 2000; Kaine et al., 2004), household characteristics (Edwards-Jones, 2006; French, 1995; Guerin & Guerin, 1994), farm structure (Edwards-Jones, 2006; Mathijs, 2003), the characteristics of the innovation to be adopted (Edwards-Jones, 2006; Guerin & Guerin, 1994) and the wider social milieu (Edwards-Jones, 2006; Mulcock & Ensor, 1998; Mathijs, 2003; Schoon & Te Grotenhuis, 2000). Farmer characteristics include age, education level and their attitude and previous experience (Vanslebrouck et al., 2002). Social milieu variables include "the level of extension, information flows, local culture, social capital, attitude of trusted friends, the policy environment and the structure and impact of a range of institutions" (Edwards-Jones, 2006).

2.3.3 Agri-environmental decision making

Farmers are influenced in their decisions, their balancing of economic and environmental factors, by their values and attitudes towards the environment (Beedell & Rehman, 1999; Gasson & Potter, 1988; Willock et al., 1999; Ahnström et al., 2008) and their understanding of biodiversity (Herzon & Mikk, 2005).

Attitudes are defined by Willock et al. (1999, p. 287) as “a positive or negative response towards an attitude-object (where the attitude-object may be a person, idea, concept, or physical object)” and they play an important part in farmers’ decision making (Edward-Jones, 2006).

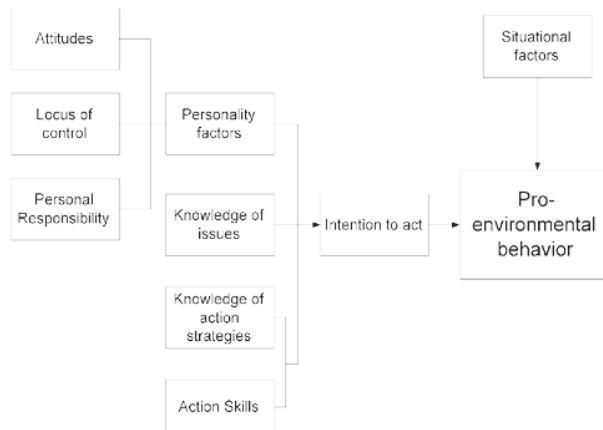
“Attitudes are formed by what an individual perceives to be true about the attitude-object. This perception may or may not be based upon information and knowledge and/or an emotional reaction towards the object. Many beliefs and values may underpin an attitude” (Willock et al., 1999, p.287).

Thus one farmer may have a positive attitude to conservation because he values his farm as a way of life and wants future generations to enjoy it in the same way whereas another farmer may view his farm only as a money-making business and may therefore see conservation as a hinderance (Willock et al., 1999).

Falconer (2000, p. 381) suggests that in the context of agri-environmental decision making there are two aspects of attitudes that should be considered:

1. attitude to “the environment per se and willingness to undertake conservation management” and
2. attitude to “agri-environmental schemes and their implementation”

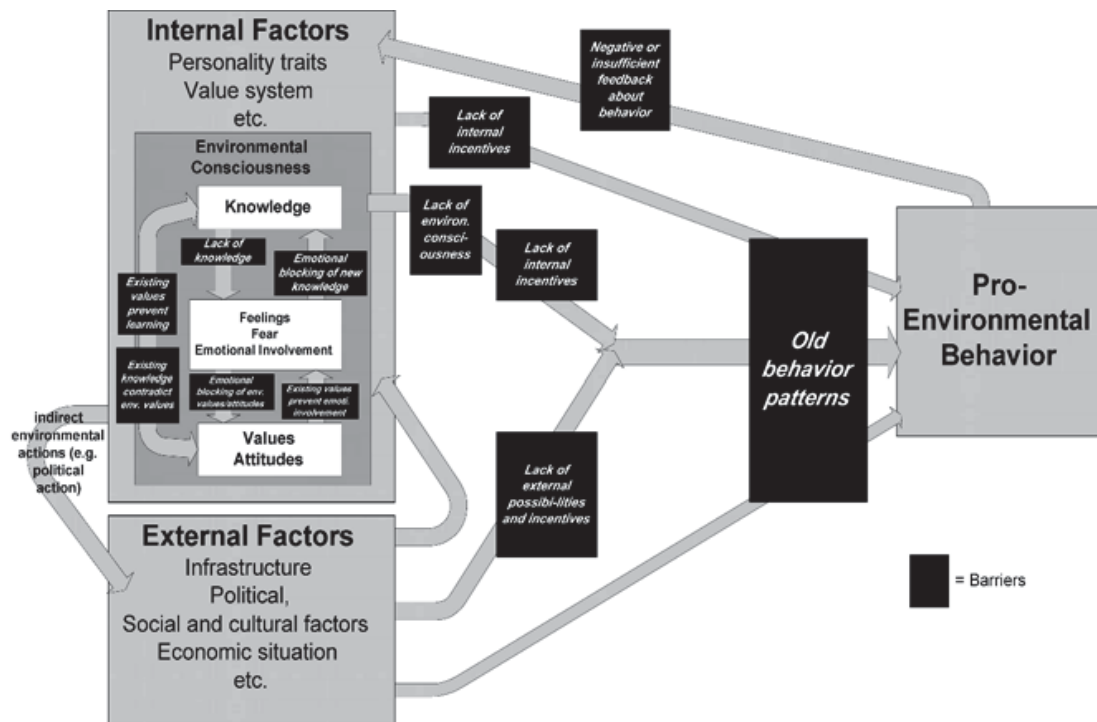
Attitude to the environment per se can be demonstrated as shown in figure 2.11 below. Based on the Ajzen and Fishbein’s theory of planned behavior (figure 2.8 above), Hines et al. (1987) produced a framework to explain pro-environmental behaviour.



(Hines et al., 1987).

Figure 2.11 Model of Responsible Environmental Behaviour

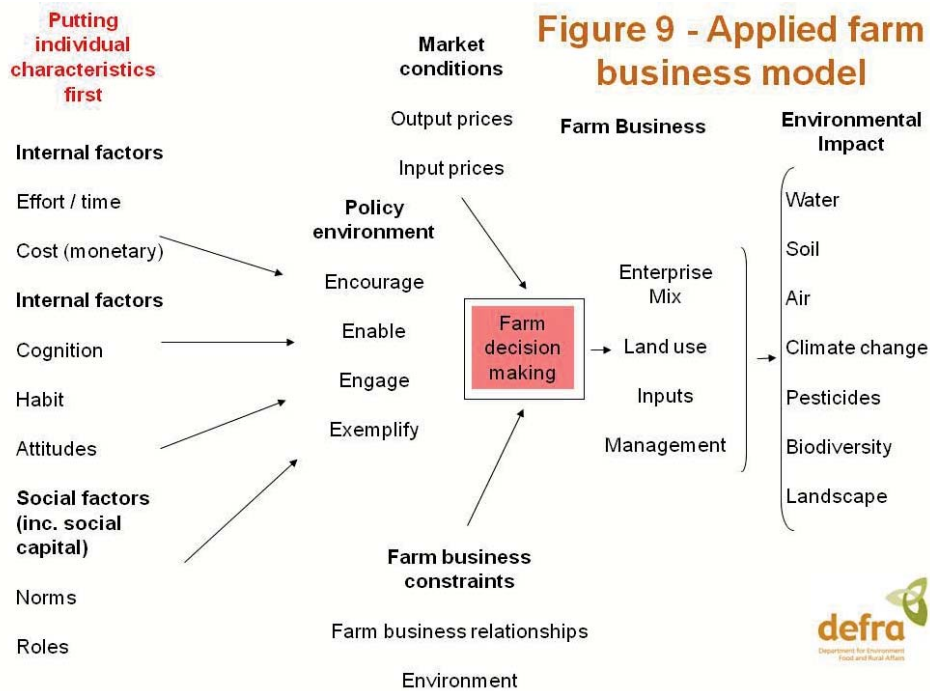
This model was extended by Kollmuss & Agyeman (2002) as shown in figure 2.12 below. It incorporates external factors and shows barriers to pro-environmental behavior.



(Kollmuss & Agyeman, 2002, p. 257).

Figure 2.12 Model of Pro-Environmental Behaviour

Expanding on their 'Theory of Behaviours' (figure 2.9), Defra (2008) in their study of 'Understanding Behaviours in a Farming Context' produced a farm business model with a top down approach (see figure 2.13).



(Defra, 2008, p. 16)

Figure 2.13 Applied Farm Business Model

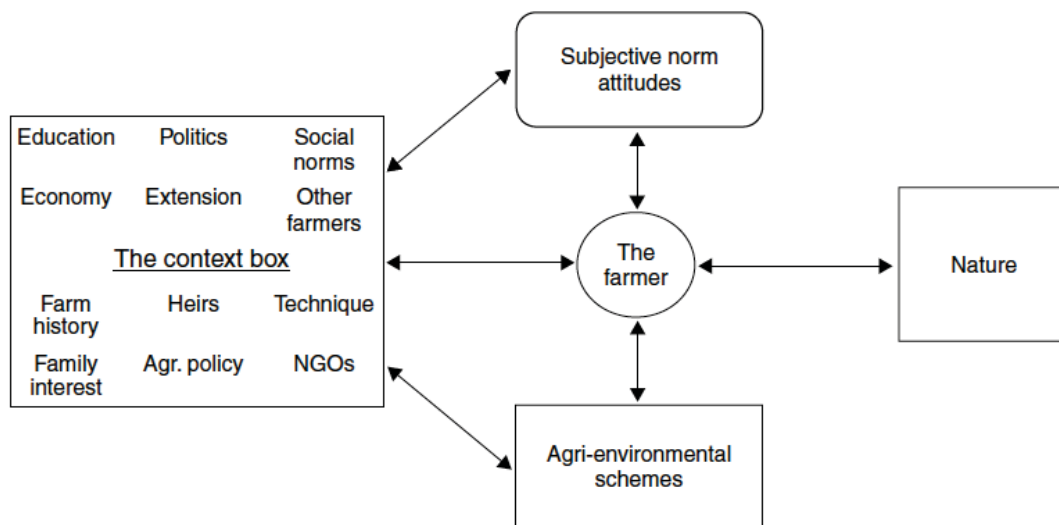
Attitudes feature in most of the decision making models previously presented. They are based on the following factors:

1. sociodemographic – research into the correlation between farmers demographics and their proenvironmental attitudes has been weak (Durpoix, 2010).
2. direct experience with nature - Several studies have shown that there is a positive relationship between farmers' attitudes to conservation and their environmentally friendly behaviour (Bayard & Jolly 2006).
3. knowledge
4. social influence of family and fellow farmers
5. institutions

(Sin, 2012)

2.3.4 Farmers' Attitudes to Conservation

Farmers are conflicted between using their land as a resource productively and thinking of the environment as a resource to be protected and preserved. Their decision making with respect to conservation practices is influenced by their attitudes to conservation as shown in figure 2.14 below. (Ahnström et al., 2008). The farmer is in the center of this model and thus the context box contains factors important for farmers.



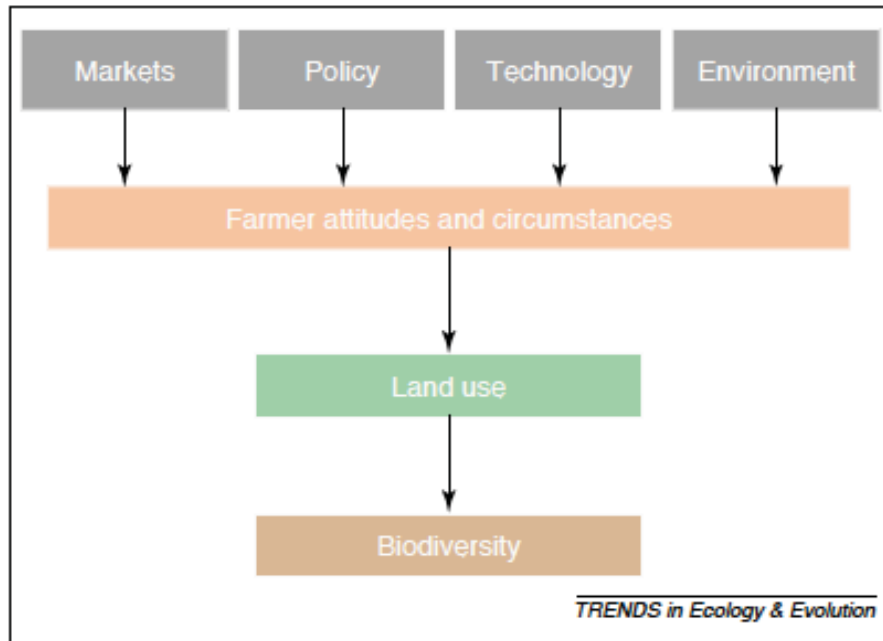
(Ahnström et al., 2008, p. 43)

Figure 2.14 Attitudes and perceptions of farmers as affected by nature, context, and agri-environmental systems.

It therefore may be thought that the more positive farmers attitudes to the environment are the stronger their intentions to divert land for conservation purposes are. However in Gasson and Potter's (1988) study, the associations had weak statistical significance. This may be influenced by a perceived threat to their livelihoods. Kabii & Horwitz (2006) stated that there is a positive attitude to nature conservation efforts so long as landholders do not feel their livelihoods are threatened. The threats could be economically, socially, their long-term objectives for the land and tenure and succession.

Figure 2.15 below shows the links between drivers of land-use and land-use change and

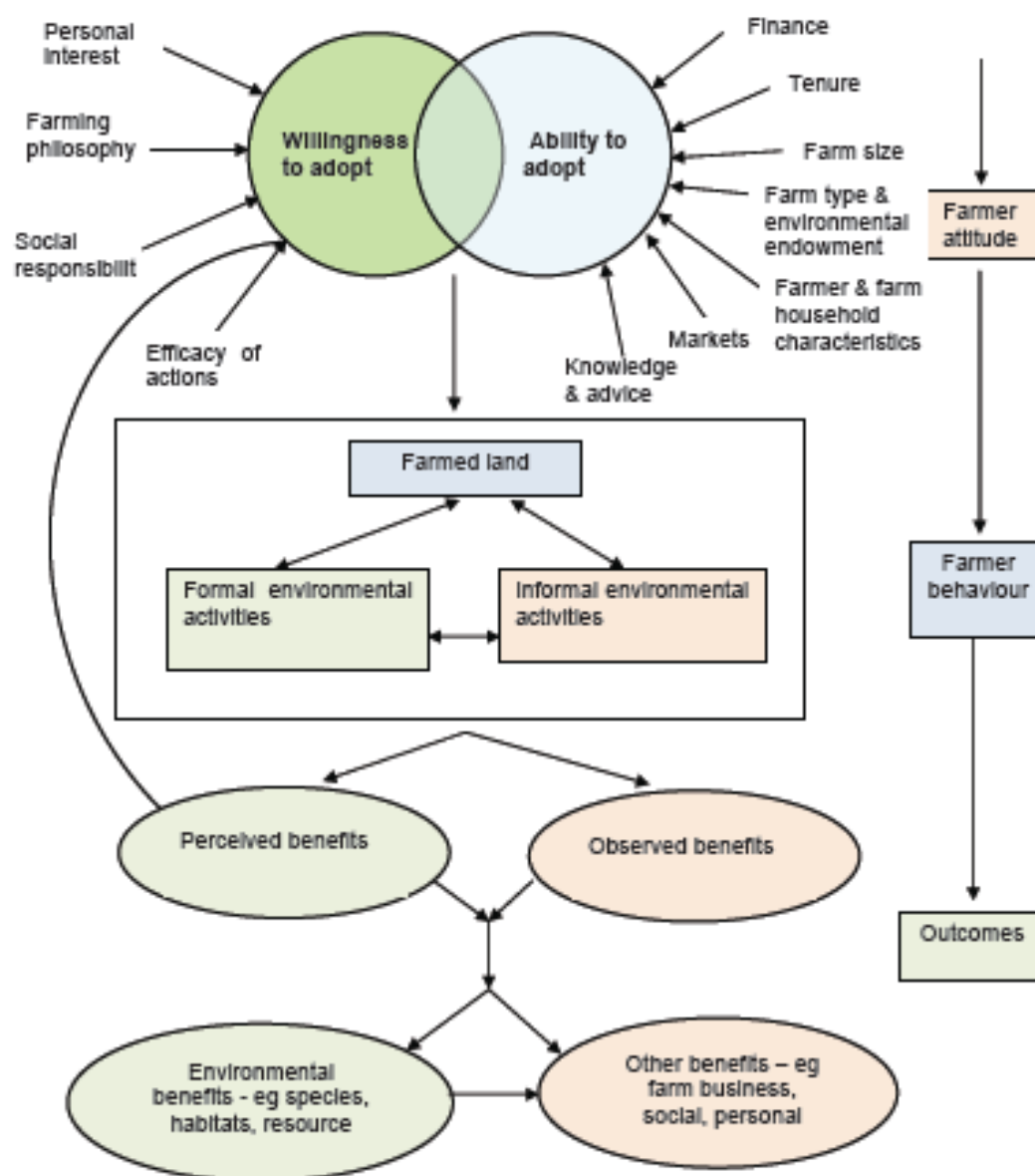
biodiversity. These drivers interact with the attitudes and circumstances of individual farmers who then determine land-use decisions, which in turn affect biodiversity.



(Mattison & Norris, 2006, p. 610)

Figure 2.15 Links between drivers of land-use and land-use change (black boxes) and biodiversity

To understand the link between farmer attitudes to environmental management and their subsequent behavior and resulting outcomes, Mills et al. (2013) have suggested the following framework.



(Mills et al., 2013)

Figure 2.16 Analytical framework for understanding link between farmer attitudes to environmental management and subsequent farmer behavior and outcomes.

2.3.5 Section Summary

This section has examined the decision making process that farmers may use and shows that the process is complex. There are many factors including financial, the farmer's characteristics, the household's characteristics, the farm structure, the innovation to be adopted, and the wider social milieu.

Farmer participation is influenced by a number of factors such as their attitudes and circumstances. The next section examines the literature about New Zealand farmers and our environmental legislation.

2.4 FARMERS AND NEW ZEALAND'S ENVIRONMENTAL LEGISLATION

2.4.1 Introduction

Farmers for centuries have been and still are the primary custodians of much of our land. Most have an affinity to the land, recognizing that it is in their best interest to protect the environment. They are strong supporters of positive environmental outcomes (Dairy NZ, 2008).

However, as explained in section 2.2, New Zealand farmers must abide with certain environmental legislation, primarily the RMA, plus those acts listed in appendix 1, some of which, unlike the RMA, are prescriptive. Despite the enabling nature of the RMA, the reality is that the administration of it by Regional Councils can be prescriptive. Like many democratic processes it can be fraught with problems. The costs of complying with New Zealand's environmental legislation are paid by the businesses, in this case farmers.

The results from the Federated Farmers July 2012 Farm Confidence survey indicates that environmental legislation impacts on farmers; 'regulation & compliance costs' ranking 2nd in farmers' concerns (Federated Farmers Revised Regulatory Standards Bill, 2012).

Farmers' specific concerns with the RMA, according to the FFNZ (Booklet) were:

- a. "Having to apply for resource consent for normal farming activities
- b. The impact on landowners when councils are protecting nationally important values
- c. Environmental advocacy by groups with no community mandate, or who live outside of the region
- d. The time and expense of complying with the Act
- e. Dealing with the Department of Conservation during the RMA process. Only 23% of farmers were satisfied with DoC's involvement."

Although not mentioned in the list above, a question in IMD's World Competitiveness

Yearbook asked respondents (top and middle management executives who dealt with international business situations) “do environmental laws and compliance costs hinder the competitiveness of your businesses”. New Zealand, out of 60 countries, ranked last (Treasury, 2006) – viewing them as a strong negative, believing they do hinder the competitiveness of business.

These concerns may impact farmers in different ways.

2.4.2 Impacts on Farmers

The New Zealand farming sector was deregulated in 1985, removing all farming subsidies. Farmers were encouraged to intensify and diversify to maintain or increase their levels of production. They have done this by either increasing their material and energy inputs which in turn increased production volumes, produced an end product of a higher quality and value and/or used new technologies (e.g. irrigation, genetics) (Parliamentary Commissioner for the Environment, 2004). Also economic pressures such as an increase in land prices have lead to farmers intensifying their farming operations. This in turn has put more pressure on the environment (Oram, 2007).

New Zealand must compete in the global market when selling its exports. It has used the ‘100% pure’ and ‘clean green’ themes in its marketing campaigns which imply high environmental standards. Therefore the pressure is on farmers to meet these standards or New Zealand’s competitiveness in the global economy will suffer (Oram, 2007). Society is putting more demands on farmers to address environmental issues and this will bring more costs through environmental standards, taxes, resource use charges, and tradable permits (Melyukhina, 2011). Environmental groups and Councils (through section 6 of the RMA) are also bringing economic pressure on farmers through demands of protection of outstanding landscapes and indigenous vegetation without recognition of the economic sustainability of the farm property (Harcombe, 2007). There has also been an increase in awareness of how a product is produced, not just the end product. More and more products are tracked from the farm to the consumer, adding pressure on the farmer. (Parliamentary Commissioner for the Environment, 2004).

The result of deregulation and the ensuing environmental legislation plus the added interest

and concerns of the public at large has impacted New Zealand farmers in many ways. They are described under the following headings (as used by Burrell et. al., 2006):

- Quantifiable Costs
- Qualitative Effects
- Impacts on Decision Making Behaviour
- Benefits

2.4.2.1 Quantifiable Costs

Federated Farmers of New Zealand state in their FFNZ Booklet that based on survey results (869 responses) and data, complying with the RMA costs New Zealand farmers \$80.9 million a year. They estimate that over the life of the RMA, direct costs and lost revenue, excluding compliance costs, could cost farmers an additional \$242 million. It was found that 43% of the farmers surveyed had had to apply for resource consent, the average cost of their last application being \$5413. However Cassells & Meister (2001) found that some environmental costs in the dairy sector, in their case water quality regulations control costs, were a relatively small portion of the total production costs (2.1% – 3.2%).

Burrell et al. (2006) list and describe the following quantifiable costs:

- application and processing costs (e.g. application fees for resource consents).
Generally the small to medium sized firms were concerned about the amount of application costs and the larger firms were more concerned with the time delays involved with processing applications.
- information costs (information about the RMA and the council application and the information that needs to be provided with the application).
The RMA and council processes are becoming more complex and there was more time and money spent researching and understanding them. More information is now required with more detail and research for applications.
- labour costs (internal and external).
Internal labour costs are rising as management must spend more time away from their

core business or employ staff specifically to handle RMA compliance. As information requirements have increased and become more complex so too has the need to employ experts in different fields and resource management/planning consultants.

- consultation costs (community and council).

Community consultation costs involve the actual costs of the consultation, opportunity costs and possibly substantial costs if the consultation leads to notification of an application and court costs as the result of an objection. Consultation with the council at an early stage of a project can lead to considerable savings.

- court costs (e.g. Environment Court).

Environment Court hearings are expensive and time consuming and have uncertain outcomes. Many firms will go out of their way to avoid Environment Court. Members of the public can cause significant costs by objecting, sometimes 'half-heartedly' or without good reason.

- financial contributions (e.g. contributions requested by council for infrastructure).

Councils may levy firms to contribute to local infrastructure.

- penalties (penalties for non-compliance)

A direct cost if firms do not comply with the Act.

- time delays (extensions to timelines).

Time delays due to the time taken for councils to process consents or plan changes, objectors heard at hearings, negotiations, and/or court cases settled have a significant impact on firms. This can lead to a loss of revenue.

(Burrell et. al., 2006).

2.4.2.2 Qualitative Effects

Less tangible impacts, other than costs, which affect farmers are productivity and innovation and growth.

2.4.2.2.1 Productivity

Particularly for small businesses, eg. farmers, the RMA can indirectly alter their productivity levels (Burrell et. al., 2006). This comes as a result of owners and staff spending time at meetings, gathering information, preparing consents, etc rather than attending to their core business of farming (Burrell et. al., 2006).

However farmers are a resilient breed. In the 1980s the New Zealand Government removed all forms of government intervention including agricultural subsidies (Waugh, 2011; Melyukhina, 2011). The removal of subsidies resulted in greater productivity gains and innovation within the agriculture sector.

“Farmers were required to be productive and profitable to survive and adjustments were made, new technologies were developed and overall it has led to great success for the country.” (Waugh, 2011)

2.4.2.2.2 Innovation/Growth

There are conflicting views as to whether subsidies stifle innovation and methods such as New Zealand’s RMA encourage innovation. The Porter hypothesis suggests that “strict environmental regulations can induce efficiency and encourage innovations that help improve commercial competitiveness.”(Wikipedia). While Burrell et al. (2006) state that “the RMA can both encourage and discourage innovation and growth” (Burrell et al., 2006, p. 39) their findings were weak with respect to encouraging, suggesting the RMA could “stimulate environmental or process improvements that allow firms to cut costs or gain a competitive advantage” (Burrell et al., 2006, 44). On the other hand they found that the RMA discouraged innovation and growth

“when council and communities are unwilling to accept new technology; or when higher standards are imposed on firms as they improve their practice; or set standards that don’t align with technology; or decline consents that firms believe would have been good for New Zealand nationally; or discourage firms from growing in size.” (Burrell et al. 2006, p.39).

C. Pedersen, a past president of Federated Farmers, believes the RMA in its current form is “stifling innovation and investment” in New Zealand (Pedersen, 2013). Harcombe, Federated

Farmers South Island regional policy manager also believes the RMA is stifling innovation through the process:

“Plans are notified with policies, methods and rules that demonstrate a lack of understanding of their implications for farming activities which leads to perverse outcomes that stifle on farm innovation and require virtual “farming by consent”. Councils and planners at times take extreme views when dealing with innovative or new farming activities that require resource consent in response to a “public” who wish to retain their perceptions of an “ideal” farming landscape.” (Harcombe, 2007, p.6).

An example of the RMA discouraging innovations is the farmer who decided against the opportunity to subdivide his land as houses built near his farm “would lead to too many objections in future” (Burrell et. al., 2006, p.40).

2.4.2.3 Decision Making Behaviour

According to Burrell et al. (2006), the RMA also affects the way businesses think about making new investments:

“they may tailor their business to avoid notified consents, they may invest in a new type of technology or purchase it at a different time, or they may locate their business in a particular region where councils are known for being helpful.” (Burrell et al., 2006, p. i).

Decision making behavior can create a lack of certainty (Burrell et. al., 2006) and cause stress (Firth et al., 2001).

a. Investment Strategy

As businesses, farms would also be affected in their investment decision making behavior and other business decisions. Although it would not be an easy decision to change their location, farmers may find it more convenient to adapt their practices to avoid notified consents.

b. Uncertainty

Burrell et al. (2006) state that the RMA can “alter the level of certainty with which firms can

make decisions” (Burrell et al., 2006, p. 42). They explain that lack of certainty can arise from the:

“uncertainty as to what must be submitted with an application and the process followed, the length of time before an application will be processed, whether an application will be processed as non-notified or notified, whether any parties will object, whether the application will proceed to a hearing or Court, the chances of the application or appeal being successful, whether the legislation or local plan will be amended over time, the types of conditions that will be imposed, and whether a similar application will be accepted again in future or in another region.” (Burrell et al., 2006, p.43)

Farmers may also act rashly to guard against the possible introduction of new legislation (Norton & Reid, 2013).

The development of environmental regulations has caused uncertainty for New Zealand farmers. Harcombe (2007) suggests that section 6 of the RMA (1991), protecting matters of national importance, and its interpretation by the community, environmental groups and councils, erodes the farmer’s security of private title. With physical property or land being an important part of any farm business, the protection of rights in property is a particular concern to farmers. Farmers’ property rights are the “formal and informal rules that govern access to and use of property” (FFNZ, 2014a, p.1). They include the “rights to determine the use of property, income from property, disposal of property, and the exclusion of others from property” (FFNZ, 2014a, p.1). The Resource Management Act 1991 does not provide for compensation. Federated Farmers NZ suggest that where taking of property is justified in the public interest there should be compensation (FFNZ, nd).

Interpretation of the environmental legislation by all interested parties can be conflicting and therefore create uncertainty for the farmer. Increasingly scientists have been unable to settle debates of interpretation between the various interested groups, leading to more uncertainty (Boxelaar & Paine, 2005). Because the regulations, particularly the RMA, are developed at a regional level without direct guidelines from the government, there is uncertainty on how these regulations will be interpreted and enforced (Melyukhina, 2011). Examples of this are shown in the section ‘Causes of Impacts’ (section 2.4.3). There is also the added uncertainty of

the costs that may be incurred (Melyukhina, 2011).

In the OECD Environmental Performance Review of New Zealand (2007) it is stated:

“The central government has so far provided little statutory guidance in the form of national standards and policy statements to local authorities regarding implementation of the RMA and monitoring of environmental conditions.” (OECD Environmental Performance Review of New Zealand 2007, p.17)

“Differences in technical capacity, knowledge, skills and issues among local authorities translate into differences in environmental management, and businesses complain that the regulatory playing field within the country is not level. (OECD Environmental Performance Review of New Zealand 2007, p. 17 & 18).

c. Stress

Job related stress among farmers is an international issue. Simkin, Hawton, Fagg, & Malmberg (1998) found that one of the three most common stressors with English and Welsh farmers was problems arising from the effects of new legislation and regulations. The results of a postal survey in southwest England by Booth and Lloyd (1999) showed that one of the three most common stressors was coping with new legislation (Firth et al., 2001).

Deary, Willock, and McGregor (1997) found that the three most stressful items among farmers who attended agricultural shows in Scotland and England were ‘filling in government forms’, ‘bad weather’, and ‘adjusting to new government regulations and policy’ (Firth et al., 2006). Similar to this Scottish/English survey where four of the top seven stressors were to do with government bureaucracy, Firth et al. (2006) found that in their New Zealand survey the 8th highest stressor was ‘adjusting to new government regulations and policies’ and that four of the top 12 stressors related to government bureaucracy, namely ‘complying with health and safety legislation’, ‘complying with environmental regulations’, ‘adjusting to new government regulations and policies’, and ‘dealing with the workers compensation’. Although on a small scale, a dozen Waikato farmers cited the pressure that comes from Government in terms of the environment as one of the three things that worked against them the most (Spenser, 2011).

In Greer’s (2008) report, analysing stresses and pressures on high-country farmers in the South

Island (20 Otago farmers, eight from the Mackenzie Basin, six from Canterbury and two from Marlborough), only 17% identified the demands of the RMA as a major constraint. However the majority discussed present or future impacts and some mentioned the limitations they felt compliance with the RMA placed on their farming practices. One such issue, particularly from the Queenstown Lakes District farmers, was the lack of understanding by the public of farming practices. This was leading to pressure from authorities who were imposing restrictions which were inconsistent with normal farming practices and good environmental management.

Pressures in life can result in suicide and Statistics New Zealand figures show that suicide rates are higher in rural areas (16 per 100,000 people) than in urban areas (11.2 per 100,000 people). Between 2007 and 2014, 169 farmers have committed suicide (Hutching, 2014). Two of the stressors that lead to depression and suicide, according to Federated Farmers of New Zealand (2014d), are mounting compliance costs and increasing local and central government demands.

2.4.2.4 Benefits

The purpose of the RMA is “to promote the sustainable management of natural and physical resources” ” (Ministry for the Environment, 2011). This in itself is a benefit as the planet and all of society depend upon healthy biological and physical systems. Other benefits suggested by Burrell et. al. (2006) are listed below:

- **Innovation & Growth**

This was not a compelling finding but there was some evidence that by “stimulating environmental or process improvements” firms could “cut costs or gain a competitive advantage” (Burrell et al., 2006, p.44).

- **Project fits better with environment**

Some firms changed their projects before they started and mitigated more appropriately.

- **Awareness of community needs**

A better understanding of local community needs and views often results in a project that better suits the community.

- Public relations

Positive communication with the community can result in those communities being more willing to accept a project.

- Satisfaction from better environmental outcomes

Firms want to be good corporate citizens and get satisfaction from achieving better environmental outcomes.

- Time saving from non-notified or permitted activity

Time and costs are saved from consents that are non-notified or permitted activities especially if the consent process is fast.

- Flexibility

Firms find it advantageous if the council willingly meets and discusses an application during the consent process, talks through possible problems and are willing to be flexible.

- Niche for consultants

The extra work engendered by the RMA is a benefit to the consultants that are needed.

2.4.3 Causes of Impacts

What causes these effects? Burrell et. al. (2006) has suggested legislation, implementation, the regulatory environment, the institutional environment, implementation and complexity.

1. Legislation, implementation or something else?

Burrell et. al. (2006) found that most firms thought the RMA itself was not the cause of effects, generally supporting the philosophy behind it, rather the cause was the way in which it is implemented by councils. The issues with councils included resourcing, capacity and capability, council staff quality and experience, their ability to interpret the legislation, and inconsistency within and between councils.

2. The regulatory environment

The lack of national direction causes problems for businesses in general (Burrell et. al., 2006) and for farmers (Waugh, 2011; Harcombe, 2007). One of the lessons learnt by the OECD in their ‘decade of work’ was the need for “appropriate *co-ordination* within and between government authorities and other institutions involved in agri-environmental policy, in order to ensure a comprehensive response to environmental needs, and to avoid the duplication of effort and waste” (OECD, 2004, p. 28).

Anecdotal evidence in New Zealand would concur with Rhee’s (2011) statement that “most farmers just want all the regulators to get in the same room, agree on the result and issue straightforward rules” (Waugh, 2011). As well as being coordinated and uniform they would also like the rules to be more specific especially with regard to landscape, vegetation, cultural and heritage areas for protection (Harcombe, 2007).

3. The institutional environment

a. Councils

Councils interpret the RMA differently (see ‘Comparison of Interpretation and Administration of Legislation in New Zealand’ (section 2.2.5.2). This inconsistency can be between councils and within councils and leads to uncertainty (Burrell et. al., 2006). Other concerns about councils from a range of businesses include:

- Attitude (councils can be risk averse, unjustifiably capitulate to the community, lack leadership and/or the ability to make decisions, and can have a positive approach characterized by good communication and meetings, or a negative approach characterized by delays in processing applications),
 - lack of flexibility (e.g. rolling over a consent while preparing an application),
 - their level of expertise (not all councils have the needed expertise),
 - a high staff turnover (leading to difficulty in maintaining relationships with council staff, having to re-educate replacement staff, and understaffing),
 - a lack of accountability (there are few avenues for redress if there is a problem),
 - the size of the council (smaller councils were maybe easier to work with).
- (Burrell et. al., 2006).

Harcombe (2007) suggests that some councils require evidence from recognized experts and that more staff are involved in consent applications which leads to increased costs for the farmer.

In the 2007 survey by Research New Zealand on behalf of the Federated Farmers, the greatest concern of the respondents was that

“councils are attempting to control land-use decisions to achieve a ~~desired~~ ^{desired} outcome this generally results in farmers requiring resource consent for everyday activities” (Federated Farmers, 2013, p.38).

In the same report, the second greatest concern was that

“submissions of environmental groups and other parties outside of a community are given equal weighting by local councils to those made from within the community” (Federated Farmers, 2013, p.38).

The Local Government Amendment Act, 2004, changed the election rules for electing councilors by removing the ward basis process. Most regional councils have larger urban populations than rural ones which makes it more difficult for farmers to be elected as councilors (Gardner, 2007). This along with a population shift from rural to urban areas means that the farming perspective on any proposed legislation is possibly not heard. Therefore to be heard farmers must put more resources into submissions to select committees and regional council plans (Gardner, 2007).

b. Environment Court

A common complaint about Environment Court hearings is the high cost, time delays and the uncertainty of the outcome. As a result of these issues Burrell et. al. (2006) found that some firms would go out of their way to avoid litigation and this could mean not proceeding with a project or large mitigation costs.

c. Availability of experts

Some businesses in the Burrell et. al. (2006) report commented that it was difficult to find consultants who were impartial, either having a vested interest or a conflict of interest.

4. Implementation

In implementing the RMA, Burrell et. al. (2006) found the following concerns were raised:

- Allowing too many objectors to slow the process – the problem of open standing (the majority of interviewees thought this was a major problem where those “who are only affected in very minor ways, who don’t reside near the site or who are objecting for commercial reasons to hold up consents/plan changes was causing huge delays, litigation and costs” (Burrell et al., 2006, p.51); firms had to cover the whole cost of lengthy hearings),
- Ad hoc improvements, not fundamental change (changes were sometimes only tweaked rather than the fundamental issues investigated),
- Lack of consultation with the firm (sometimes it is difficult to talk through issues with council planners but usually not),
- Positive impacts not taken into account (the legislation does not allow for positive externalities to be offset against adverse effects; positive externalities may not be taken into account or not recognized),
- Not effects-based– inconsistent between groups (although the legislation is effects-based, councils do not always take an effects-based approach but often take an activity-based approach),
- Processing times (many interviewees did not receive non-notified consents within the statutory timeframe),
- Information requirements (the requirement for more information is increasing),
- Consents not standardized (firms can be uncertain about what is permitted when plans, consents and conditions are not standardized),
- Reconsenting (when renewing or altering a consent, a whole new consent must be applied for).

5. Complexity

The majority of the businesses interviewed by Burrell et. al. (2006) found the RMA and the district and regional plans and processes used to implement the RMA, complex. This often led to consultants being employed and/or spending time gathering information and attending meetings.

A recent case in the South Island of New Zealand demonstrates not only the complexity but also the uncertainty, costs and the impact environmental advocacy groups can have during the RMA process. The following is a summary of the case:

“Mr Innes has recently purchased a large area of land at South Hawea and was preparing that land for sowing and irrigation in time for winter. In his due diligence at the time of purchase, he had approached Queenstown Lakes District Council about the need to obtain resource consent to clear indigenous vegetation on the land. The planning officers he met at the Council had no information available to them at that time to suggest that resource consent was required. Mr Innes therefore proceeded with the vegetation clearance and cultivation of most of his land in readiness for sowing. Having observed the cultivation, Forest and Bird raised its concerns with the Council, claiming the land in question to be protected because of the presence of significant indigenous vegetation on the property. When the Council did not act to stop the cultivation, Forest and Bird obtained interim enforcement order from the Court to stop the cultivation, also seeking remediation of the land through a final enforcement order process to follow. The interim order was obtained from the Court without notice to Mr Innes or the Council.

The order put a total stop to everything Mr Innes wanted do with the land, including grazing, fertilising and irrigation. Being unable to use his land for its intended farming purpose, Mr Innes was significantly prejudiced by the interim order. As a result an urgent application was made to the Court to cancel the interim order. A hearing commenced in Queenstown just over a week later, taking four and a half days to complete. The Court carefully considered evidence and legal submissions on behalf of Mr Innes, the Council, Forest and Bird, an adjacent landowner Jim Cooper and Federated Farmers and decided that the interim order should be cancelled. It noted Mr

Innes' careful efforts to endeavour to comply with the District Plan and his reliance on the advice received from Council officers that consent was not required.

The evidence showed that the Council had instructed an external consultant to survey and report on land in the District containing significant indigenous vegetation and that the land Mr Innes had agreed to purchase had been surveyed. Through a draft report, the land was recommended for protection. However, that draft report had not been provided to the landowners in question and was not known to the two Council planning officers who had met with Mr Innes. The Court also found that there was likely to be indigenous vegetation in the remaining uncultivated areas that could well require resource consent should Mr Innes wish to cultivate further.

The proceedings highlighted very real problems with the interpretation of the Council's indigenous vegetation clearance rule, the Court noting in its decision that "we are dealing with a rule no-one could reasonably claim to be easy to understand" and that the rule "is unacceptably fraught with complexity and uncertainty" The Court has asked the Council to reconsider the rule urgently.

The extreme steps taken by Forest and Bird resulted in significant costs to Mr Innes with potential long term effects that could have been very detrimental."

(Gallaway Cook Allan, 2014, p.1)

2.4.4 Suggested Improvements

For businesses in general Burrell et al. (2006) suggest a number of improvements (see Appendix IV) many of them referring to issues such as national standards and guidance and council procedures and processes.

Federated Farmers NZ (2014b) has suggested the following 6 changes should be made:

"1. Acknowledge Stewardship - Changes must be made to the Act (s6) and its implementation to reward good stewardship with flexibility and freedom to farm; write economic or property rights as imperative into the Act to provide for compensation upon protection of more specific values for the national good.

2. Mandate Consultation - Councils must make a real effort to understand what motivates on-farm decision-making before writing policies and rules into plans; Memorandum of understanding with councils or legislate meaningful consultation with landowners.

3. Redefine DoC's Role - There are plenty of advocates for the environment; taxpayer-funded advocacy in the planning process by DoC must stop; introduce a concept of net conservation benefit to enable a more holistic approach to on-farm conservation management.

4. Streamline Process - Plans must encourage responsible farming by minimising those activities that require consent; manage effects not the farm; streamline process by introducing a one-stop on-farm visit for issuing individual resource consents.

5. Encourage Farm Succession - Encourage and enable economically sustainable farming with flexible subdivision policies and innovative use of covenants and transferable development rights that compensates farmers who have restricted land use or are required to manage amenity values in areas determined to be of high landscape value.

6. Recognise Farms as Working Landscapes - Farmers who provide the public with the use of their land or who farm in areas that are highly visible should not be required to preserve a state purely for public amenity; tone down or remove requirement to protect amenity values in section 7 of the Act.”

In 2013 reforms to the RMA were proposed. The key elements of the proposals are:

- “clearer national direction and tools”
 - “single, local resource management plans that address future environmental and development priorities and cover all local, regional and national issues; replacing the range of planning documents we have today”
 - “simpler, faster and fewer resource consents”
- (Ministry for the Environment, 2013)

In 2015 Nick Smith announced that ‘greater weight to property rights’ would be part of the

second phase of RMA reforms (New Zealand Government, 2015).

2.4.5 Section Summary

Section 2.4 has discussed the impacts legislation has on New Zealand farmers. It has also touched on the possible causes and suggested improvements from the available literature. Much of the literature is not specific to farmers and therefore gives justification for pursuing this area of investigation.

2.5 Chapter Summary

The first section of this chapter has shown that agriculture has an impact on the environment and the second section discusses the legislation that limits those impacts. In particular it shows that there is a difference between the environmental legislation in New Zealand and the European Union with respect to farmers and their actions.

The two main differences are:

- a. New Zealand's environmental legislation is predominantly effects-based (Resource Management Act 1991) and the European Union's environmental legislation is prescriptive.
- b. The European Union has financial incentives while New Zealand does not.

This chapter has also discussed the decision-making process that farmers use and their reactions to environmental legislation. A conceptual framework below (figure 2.17) is an amalgamation of frameworks discussed in this chapter with the focus of this thesis shown in the oval shapes.

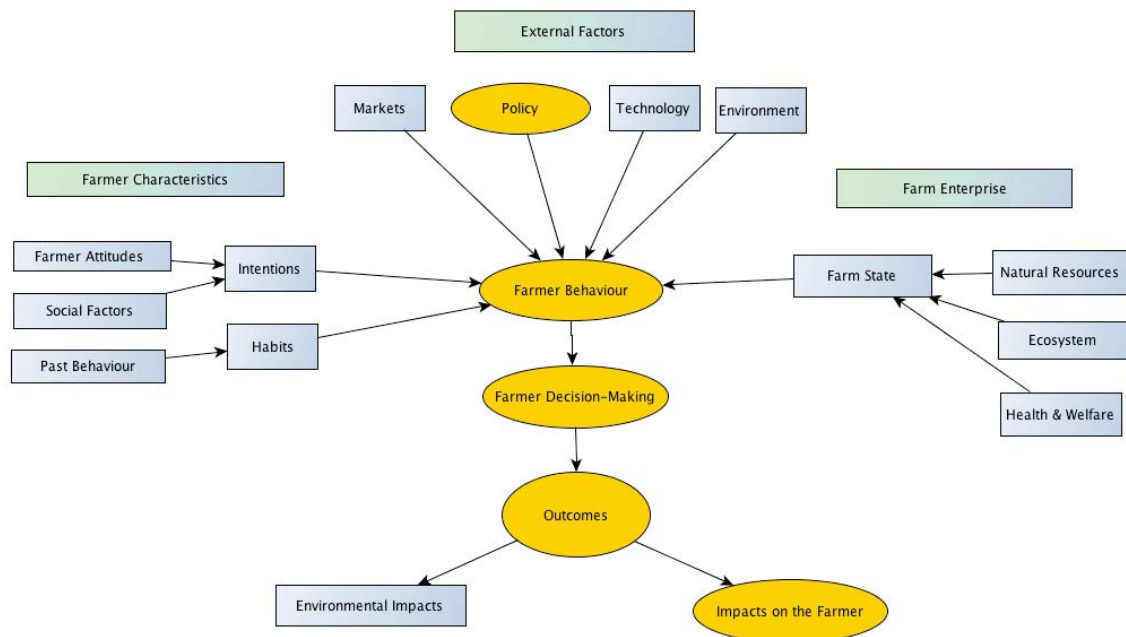


Figure 2.17 Conceptual Framework

Chapter 3 outlines the methods used to conduct further research which will add to the literature reviewed. The ensuing research will also fulfill the aim of this thesis and the corresponding objectives. The aim of this thesis is to explore how and why environmental legislation impacts on New Zealand farmers. This includes the following questions:

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?
2. What effect does New Zealand's environmental legislation have on farmers?

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes how the research was performed for both questions of this thesis:

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?
2. What effect does New Zealand's environmental legislation have on farmers?

The means by which the quality of the research was maintained is also explained.

To gauge the effectiveness of New Zealand's environmental legislation with regards to farmers, it has been compared to the equivalent in the European Union. There are issues regarding comparability as the EU legislation is prescriptive while New Zealand is governed by an effects-based approach to environmental regulation. However an attempt has been made to compare like with like as another tool for measuring the impact the RMA has on farmers relative to another regulatory system.

3.2 Methodology for the European Commission Research

The primary data was obtained from research commissioned by the European Commission Directorate-General for Agriculture and Rural Development. The overall purpose of this research was:

“to provide the background knowledge and a comprehensive and comparative assessment of the actual costs to farmers of complying with legislation in the fields of environment, animal welfare and food safety.”

The author assisted in this research with the collecting of data and the analysis for the New Zealand dairy farming case study. Sourcing, characterizing and interpreting New Zealand environmental legislation for this research was also relevant and helpful to the second section of the thesis.

A typical farm approach was used where “a typical farm is a model farm representing the most common farm type for a specific product in a specific country or region” (European Commission, 2014, p.45). It is a tool used to “estimate the total cost of production per unit (eg. euro/kg of milk)” (European Commission, 2014, p.44). This method was used as there is no worldwide uniform farm accountancy system and the typical farm approach is comparable due to standard rules. The International Farm Comparison (IFCN) was used for the dairy farms and the agri-benchmark network for the sheep farms. (European Commission, 2014). Both the IFCN and the agri-benchmark network are international networks which collect data, analyse and present it for use in and by the industries (IFCN Dairy Network, 2015; Agri-benchmark, 2015).

New Zealand’s environmental legislation and the relevant European Union directive matches, farmer’s obligations and strategies, cost components and explanations were entered into the research project spreadsheets.

First relevant New Zealand legislation was identified and characterized then listed according to the European Union grouping. For the typical farm scenario the technical and economic data was collected by interviewing the farm manager and the farm adviser and studying and analyzing the farm accounts. The resulting data was then inputted into the format provided by the European Commission Directorate-General for Agriculture and Rural Development.

Procedures for the data collection and analysis were carried out according to the guidelines as advised by the European Commission Directorate-General for Agriculture and Rural Development. The main steps were:

1. Have typical farms ready
2. Translate the content of the regulations into consequences for farmers
3. Arrange dates with the advisors/farmers for the discussions
4. Run the discussions on what farmers would do without the regulations and quantify the without strategies

Where the legislation was different from the European Union legislation, as in the case of New Zealand, the following procedure was followed:

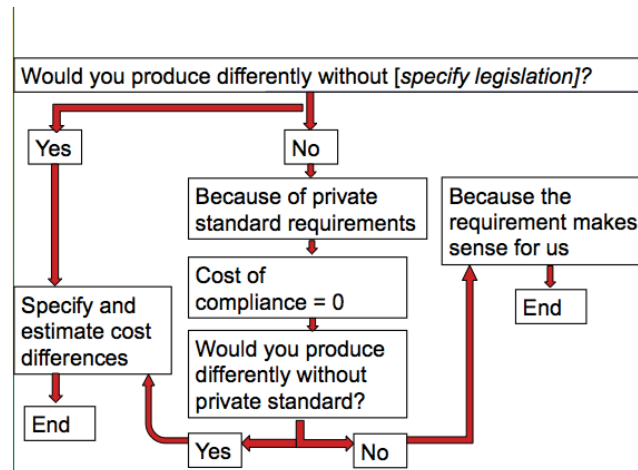


Figure 3.1 Procedure for non-European Union Countries

Each scenario was then quantified by

- Calculating the costs and benefits for every directive/regulation
- Describing the changes in an additional sheet
- Changing the value in the INP (the IFCN input spreadsheet), marking all cells with changed values in a different colour
- Using a new column for each directive/scenario
- Taking the prices of 2010 (where necessary)

This data was then submitted to the EU research project and validated by my supervisor, Professor Nicola Shadbolt. Once the multiple country analysis was completed the project was finalized and published (European Commission, 2015).

3.3 Introduction for the New Zealand Research

The European Union project highlighted a number of issues relating to the impact of environmental legislation on New Zealand farmers. This section describes the manner in which further research of these issues was conducted. The design has been based on a survey used by Burrell et. al. (2006). Although their survey was of a variety of businesses with only one farm included, it was still relevant as it related to the main areas identified from the literature. It formed a solid basis for this investigation.

The primary data for New Zealand involved six case studies. There were six farmers who between them owned eight farms. Interviews were conducted with the farmers who owned or jointly owned:

- a. a North Otago high country sheep and beef farm
- b. a North Otago dairy farm converted in 2011
- c. a Southern Lakes high country breeding and finishing (deer, sheep, cattle)
- d. a Southland dairy farm
- e. a South Canterbury dairy support farm
- f. a South Canterbury sheep and beef farm
- g. a South Canterbury sheep, beef and deer farm
- h. a Central Otago beef and dairy grazing farm

Secondary data was obtained from records and documentation such as consent processes.

This chapter explains the methodology used for this research. It covers the strategy, design, sampling method, data collection method, analysis method, the ethical considerations, limitations and a summary.

3.4 Research Strategy

The underlying basis of this study is to identify potential explanations for how environmental legislation impacts on New Zealand farmers. In choosing between methods of research, the author has considered Stake's (1995) three points of differentiation between quantitative and qualitative research:

- a. "quantitative work seeks to explain while qualitative work seeks to understand"
- b. "the personal and impersonal role of the researcher differs"
- c. "the quantitative researcher seeks to discover knowledge while the qualitative researcher seeks to construct knowledge"

Because the purpose of this thesis is to understand how New Zealand's environmental legislation impacts farmers and to construct knowledge, the methodology is qualitative rather than quantitative.

Qualitative research, according to Yin (2011), has five features:

- “1. Studying the meaning of people’s lives under real world conditions,
 2. Representing the views and perspectives of the people in a study,
 3. Covering the contextual conditions within which people live,
 4. Contributing insights into existing or emerging concepts that may help to explain human social behavior, and
 5. Striving to use multiple sources of evidence rather than relying on a single source alone.”
- (Yin, 2011, p. 7 & 8).

There are a number of methods of qualitative research including action research, case study, ethnography, ethnomethodology, feminist research, grounded theory, life history, narrative enquiry, participant-observer study, and phenomenological study (Yin, 2011).

The author considered Yin’s (2009, p. 8) three conditions in deciding which method to use:

- a. “the type of research questions being posed” (the who, what, where, when, why and how questions),
- b. “the extent of control an investigator has over actual behavioural events,” and
- c. “the degree of focus on contemporary as opposed to historical events”

Table 3.1 below sets out the above three conditions with relation to five major research methods.

Table 3.1 Relevant Situations for Different Research Methods

METHOD	Form of research Question	Requires Control of Behavioural Events?	Focuses on Contemporary Events?
Experiment	how, why?	Yes	Yes
Survey	who, what, where, how many, how much?	No	Yes
Archival Analysis	who, what, where, how many, how much?	No	Yes/No
History	how, why?	No	No
Case Study	how, why?	No	Yes

(Yin, 2014, p. 9)

As there has been little research in this topic there is a scarcity of data on which to build a hypothetical formula or framework. Farming systems are generally considered to be complex with dynamic processes and sometimes ad hoc management decisions. A case study methodology can encapture the key elements of these processes better than other techniques (Crosthwaite et al., 1997). Berg (2007, p. 283) states that case studies give “extremely rich, detailed and in-depth information.” The aim of the research was to obtain in-depth information from a few farmers and therefore the case study method was chosen. In addition, as shown in table 3.1, the author had no control of behavioural events and the research focused on contemporary events.

Yin (2009, p. 18) defines case study research as

“an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” which “copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.”

The research for this thesis has followed the general sequence used in most methods: research design, data collection, analysis and reporting the findings (Crosthwaite et al., 1997).

3.5 Research Design

“A research design is a logical sequence that links the empirical data to the research questions of the study and ultimately to its conclusions” (Gray, 2001).

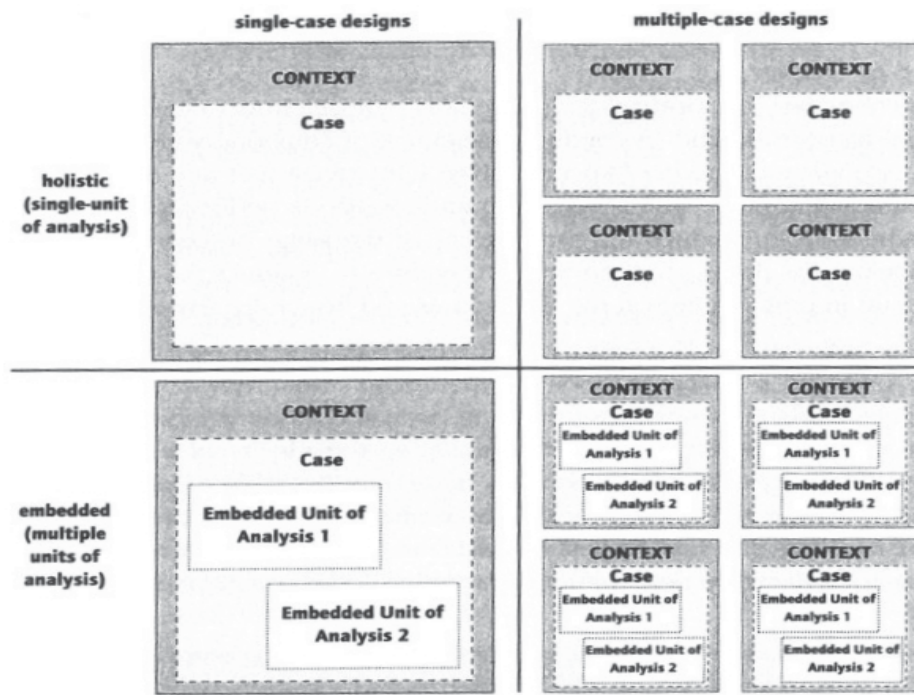
All empirical research has a research design (Yin, 2009) and the principal purpose of the design is “to help to avoid the situation in which the evidence does not address the initial research questions” (Yin, 2009, p. 27).

The components of a research design are:

1. “a study’s questions”; [who, what, where, how & why questions]

2. “its propositions, if any”; [“directs attention to something that should be examined within the scope of the study”] – that New Zealand’s environmental legislation has an effect on farmers
3. “its unit(s) of analysis”; [farm(s)]
4. “the logic linking the data to the propositions”; [“pattern matching, explanation building, time-series analysis, logic models, cross-case synthesis”] and
5. “the criteria for interpreting the findings”. (Yin, 2009, p. 27)

There are four basic types of designs for case studies (Yin, 2014) as shown in figure 3.2 below.

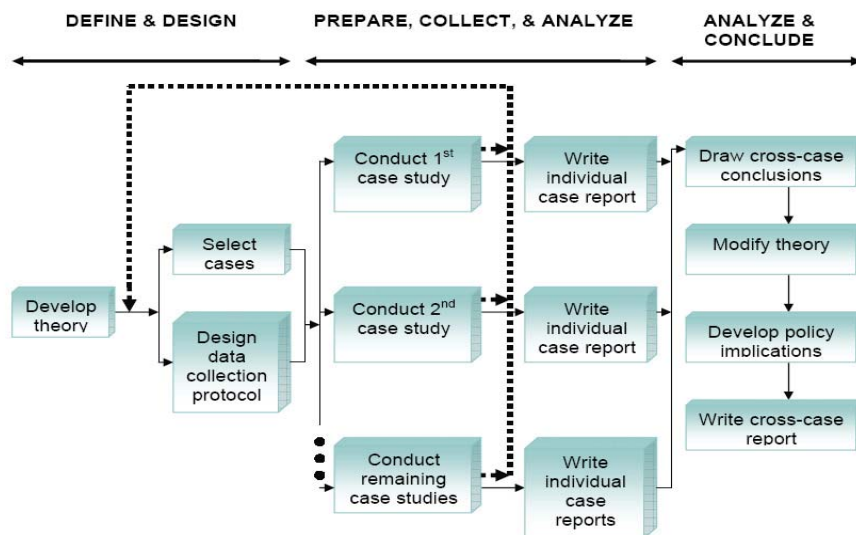


(Yin, 2014, p. 50)

Figure 3.2 Four basic types for case studies

As shown in figure 3.2, case studies may be single-case or multiple-case (collective). A single case study may be considered unique or artifactual and therefore susceptible to criticism (Yin, 2009). Conducting more than a single case study can give more compelling evidence and the study may be seen as more robust (Yin, 2009; Berg & Lune 2012). Multiple-case studies

follow replication logic rather than sampling logic (as in a survey). Therefore each case must be selected to obtain either similar results (literal replication) or contrasting results (theoretical replication) (Yin, 2009). The replication approach to multiple-case studies is shown in figure 3.3 below. It shows that the first step in the process is theory development, the literature review. Case selection is the next step with each case being a separate identity in the collection of data and report writing. If after the data collection of each case there is a need to reconsider one of the study's original theoretical propositions, redesign should take place to safeguard against selectivity. The final step is to analyse and draw conclusions and to write a cross-case report.



(Yin 2009, p.57)

Figure 3.3 The Replication Approach to multiple-case studies

Multiple-case research may be holistic or embedded (Yin, 2009). Holistic case studies have one unit of analysis whereas embedded case studies have several units of analysis.

This thesis used a multiple-case embedded exploratory method of research with qualitative data obtained from interviews.

3.6 Sampling Method

Primary data was collected by conducting semi-structured interviews. Purposeful sampling techniques were used as to obtain “insights and indepth understanding rather than empirical generalisations” (Patton, 2002, p. 230). Participants should be selected for “their unique characteristics or their experiences, attitudes, or perceptions” (Cooper & Schindler, 2008, p. 169).

Therefore considerations in selecting participants were:

1. Farmers selected had to be aware of the Resource Management Act and therefore were those who had been or were still involved in New Zealand’s environmental legislation.
2. The type of their resource consent
3. Their involvement in RMA litigation
4. Different council regions to capture variations in rules, policies and practices
5. Types and stages of farming - to broaden the range of case study farms
6. Their ability to express themselves in relation to the topic
7. Their willingness to participate
8. Location (see figure 3.4) to allow ease of access by the researcher.



Figure 3.4 Farm location area

All the farms were within the area shown by the map above. For each farm all the owners who were conversant with the farm’s involvement with conservation legislation were interviewed.

3.7 Data Collection Methods

There are several methods of data collection for case studies – direct observations, interviews, archival records, documents, participant-observation, and physical artifacts (Yin, 2012). Table 3.2 lists these six sources showing their strengths and weaknesses.

Table 3.2 Six Sources of Evidence: Strengths and Weaknesses

SOURCE OF EVIDENCE	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> *Stable - can be reviewed repeatedly * Unobtrusive - not created as a result of the case study * Specific - can contain the exact names, references, and details of an event * Broad - can cover a long span of time, many events, and many settings 	<ul style="list-style-type: none"> *Retrievability - can be difficult to find * Biased selectivity, if collection is incomplete *Reporting bias - reflects (unknown) bias of any given document's author *Access - may be deliberately withheld
Archival Records	<ul style="list-style-type: none"> * Same as those for documentation * Precise and usually quantitative 	<ul style="list-style-type: none"> *Same as those for documentation *Accessibility due to privacy reasons
Interviews	<ul style="list-style-type: none"> *Targeted - focuses directly on case study topics * Insightful - provides explanations as well as personal views (e.g.. perceptions, attitudes, and meanings) 	<ul style="list-style-type: none"> *Bias due to poorly articulated questions *Response bias *Inaccuracies due to poor recall *Reflexivity - interviewee gives what interviewer wants to hear
Direct observations	<ul style="list-style-type: none"> *Immediacy - covers actions in real time * Contextual - can cover the case's context 	<ul style="list-style-type: none"> *Time-consuming *Selectivity - broad coverage difficult without a team of observers *Reflexivity - actions may proceed differently because they are being observed *Cost - hours needed by human observers
Participant-observation	<ul style="list-style-type: none"> *Same as above for direct observations *Insightful into interpersonal behaviour and motives 	<ul style="list-style-type: none"> *Same as above for direct observations *Bias due to participant-observer's manipulation of events
Physical artifacts	<ul style="list-style-type: none"> *Insightful into cultural features * Insightful into technical operations 	<ul style="list-style-type: none"> *Selectivity *Availability

(Yin, 2014, p. 106)

As there are no archival records nor physical artifacts for this subject, these methods were discarded. Direct observations and participant-observation would take an extraordinary length of time so an interview method was chosen as the primary data source. Yin (2009) considers interviews to be one of the most important sources of case study information and open-ended interviews can provide rich and extensive material (Yin, 2012). The aim of an interview is to conduct a conversation with a purpose (Berg, 2007), in this case to ascertain participant views on their interactions with New Zealand's environmental legislation. Documentation such as Council Plans was used as a secondary source of data.

Semi-structured interviews involve predetermined questions in a systematic and consistent order, but allow the interviewer to digress and probe beyond the original questions (Berg, 2007). Berg (2007, p. 93) suggests the semi-structured interviews should be "more or less structured, questions may be recorded, wording of questions is flexible, the level of language may be adjusted and the interviewer may answer questions and make clarifications."

Thus semi-structured open-ended interviews were conducted and the questions were based on Burrell et. al.'s (2006) list of questions (Appendix III). Those that the author felt did not apply to farms were omitted while others were added that reflected the literature reviewed.

Interviews may be in-depth, focused or structured (as in a survey). As the topics were of a broad and open-ended nature, in-depth interviews were conducted.

The author took note of Yin's (2009) suggestions that she must follow her own line of inquiry and to ask questions in an unbiased manner. She also followed Berg & Lune's (2012, p. 150/151) 'ten commandments of interviewing' (see Appendix V).

Prior to the interview the selected farmers were contacted by the researcher to organize a time and place for the interview. Each farmer was provided with an information sheet, a participant consent form and a copy of the broad questions. All of the farmers had given thought to the questions before being interviewed with some having made notes.

At the start of each interview permission was obtained to record the interview and the interviewee was assured that his responses to the interview questions would remain confidential and that he would not be able to be recognized. The interviewees were allowed to

talk at length. The interviewer made notes while listening on any point that required further investigation and subsequently followed these up. Six interviews of approximately one to two hours in length were conducted, one with each farmer. The author went back to three of the farmers for further clarification on some issues.

3.8 Analysis Methods

Analysis consists of ‘examining, categorizing, tabulating, testing, or otherwise recombining evidence, to draw empirically based conclusions’ (Yin, 2009, p. 126). It changes data into findings (Patton, 2002). Analysis of case study data is more complex and difficult than other methods. There is no set formula to transform the data into findings (Patton, 2002). According to Marshall & Rossman (2006) there are seven phases of data analysis, each phase reducing the data until it is manageable. These phases are: “organizing the data, immersion in the data, generating categories and themes, coding the data, offering interpretations through analytic memos, searching for alternative understandings, and writing the report” (Marshall & Rossman, 2006, p. 156). Yin (2012, pp. 136 - 140) offers four general strategies for analyzing data: “relying on theoretical propositions”, “working your data from the ground up”, “developing a case description”, and “examining plausible rival explanations”. The objectives and design of this case study were based on the literature review and thus ‘relying on theoretical propositions’ is the most appropriate strategy. In addition, the strategy of ‘examining plausible rival explanations’ has also been used as the literary review has included rival hypotheses (eg. innovation).

This thesis uses within-case and cross-case analysis to identify various patterns in the data. Within-case analysis can help researchers familiarize themselves with the data collected. Cross-case analysis can assist researchers to identify similarities and differences between individual cases and therefore identify any common patterns between cases. (Collis & Hussey, 2003). Comparing cases in qualitative research can raise generalizations to other situations in contrast to quantitative methods which generalize to populations (Yin, 2012).

The analysis consisted of transcribing each recorded interview, checking the transcripts, familiarization with the data by reading it several times, and grouping the responses according

to themes driven by Burrell et al. (2006) and the literature review. These are reported in the results chapter. Each case study was described and analysed using the same format. By doing this the issues that emerged were able to be compared and contrasted in the cross-case analysis.

Two methods were used to provide structure for the questioning and the analysis. Firstly the results are discussed with respect to the conceptual framework (figure 2.17). The author wanted to explore the data on a wide basis and not be limited to the issues raised by Burrell et al. (2006). The literature review had uncovered some additional issues but by conducting the semi-structured interviews and allowing the farmers to talk at length more insights arose. Thus issues that were not in the literature review nor mentioned in the report by Burrell et al. (2006) were identified.

Secondly, based on the literature review and on Burrell et. al.'s (2006) methods, the following hypotheses were formed. These hypotheses were used to guide the researcher when searching for patterns while, as explained by Marshall & Rossman (2006), still being free to discover and follow other patterns.

Hypothesis 1: The RMA creates direct and indirect costs for the farming business

Hypothesis 2: The RMA has indirect impacts on the farmer

Hypothesis 3: The RMA motivates farmers to be innovative

Hypothesis 4: Farmers see room to improve the RMA and its process

Hypothesis 5: Different farmers experience different impacts from the RMA

Hypothesis 6: The RMA is a necessity, even though it imposes a cost on businesses

To obtain high quality analysis, the author followed Yin's suggestions (Yin, 2009, pp. 160 & 161). Yin's suggestions below are followed with an explanation of how they were achieved.

1. "analysis should show that you attended to all the evidence"; "including the development of rival hypotheses." The analysis and interpretation strived to use all the evidence that was available and it was scrutinized for different issues.
2. "analysis should address all major rival interpretations." Those interviewed often had opposing or different views from the literature review and from each other. This was always reported.

3. “analysis should address the most significant aspect of your case study.” The analysis focused on the questions posed in the research aim and objectives of this thesis.
4. “you should use your own prior, expert knowledge in your case study.” The author had personal knowledge and experience in the thesis subject.

3.9 Ethical Considerations

The data collection methods for this thesis intrudes into the lives of the interviewees and the researcher has an ethical obligation to ensure their rights and privacy are not compromised. This project was considered to be low risk and an application for approval was made to the Massey University Human Ethics Committee. As a result those interviewed were given an information sheet (see Appendix III) so that they could make an informed decision on whether to participate or not. Every endeavor was made to abide by the Massey University Human Ethics Committee code of conduct.

Two common ethical concerns are the voluntary aspect of participation and privacy. There was no coercion or manipulation of the participants and each agreed willingly to be interviewed. No names nor information that could lead to their identities was published in the thesis. The only people who had access to the interview transcripts were my Massey University supervisor, Professor Nicola Shadbolt, and myself. The information sheet and the consent form are in Appendix III.

3.10 Limitations

To be credible, qualitative research must be transparent, methodical, and based on an explicit set of evidence (Yin, 2011). Yin (2009) has identified four ‘tests’ to establish the quality of case study research along with several ‘tactics’ to help attain quality.

Table 3.4 Tests and Tactics to Establish Quality

TESTS	TACTICS
Construct Validity	use multiple sources of evidence
	establish chain of evidence
	have key informants review draft case study report
Internal Validity	do pattern matching
	do explanation building
	address rival explanations
	use logic models
External Validity	use theory in single-case studies
	use replication in multiple-case studies
Reliability	use case study protocol
	develop case study database

(Yin, 2009, p.41)

Using ‘multiple sources of evidence’ and establishing a ‘chain of evidence’ was carried out in the data collection phase and reviewing the draft case study report in the composition stage. With respect to establishing a chain of evidence, the case study questions were linked to protocol topics, cited and written in report form. Internal validity tactics were taken into account and some aspects of them were used in the data analysis for internal validity. External validity tactics were implemented in the research design. The tactics for reliability were executed in the data collection phase.

Although the above tactics were taken into account there still remain some limitations to the data collection and analysis. Yin (2009) suggests that case study research may lack rigor, provide little basis for scientific generalization and result in massive, unreadable documents. Also there may be a “lack of trust in the credibility of a researcher’s procedures” (Yin, 2012, p. 6). Biased responses are of concern and personal interviews are vulnerable to inaccuracy in reflecting the situation. This may result from “cognitive dissonance” and/or a “retrospective of the case on the part of the individual interviewed.” (Barkley, nd., p. 10)

The ability of the researcher has an effect on the character of the interview and therefore the quality of the data (Berg & Lune, 2012). However following the presented guidelines by Yin may minimize shortcomings in these areas. To further limit problems, Stake’s (1995, p. 131) ‘critique checklist for a case study report’ (see Appendix VI) was used as a guide when writing the results.

There are several different ways of treating ‘theory’ in research: it can be absent, it may be used to guide the case study or it can be used as a comparison at the end of the study. In this thesis it has been used to guide the researcher as to what questions to ask in the interviews. However the interviewer needed to be aware that answers may differ from existing theory and therefore not hold a predetermined mind-set.

3.11 Summary

This chapter has described the research design used for this thesis. To investigate the effects New Zealand’s environmental legislation has on farmers, a case study research strategy was chosen. This enabled an in-depth investigation of the issues. Through using the methods outlined in this chapter, the findings reported in the following chapter were able to be achieved in a robust and reliable manner. Chapter 4 discusses the results from the analysis of the data.

CHAPTER 4

RESULTS

4.1 European Commission Results

A study was commissioned by the European Commission Directorate-General for Agriculture and Rural Development the overall purpose being:

“to provide the background knowledge and a comprehensive and comparative assessment of the actual costs to farmers of complying with legislation in the fields of environment, animal welfare and food safety.”

The year 2010 was established as the reference year for this study.

The specific objectives of the study were:

- “1. To provide a comprehensive description and assessment of the costs of compliance with EU legislation in the fields of environment, animal welfare and food safety at farm level in selected EU Member States and in selected third countries;
2. To provide a comprehensive description and assessment of the costs of compliance for farmers in a number of third countries with equivalent legislation in their respective countries, as well as with EU legislation as exporters to the EU;
3. To compare the costs of compliance with environmental, animal welfare and food safety legislation for EU and third country farmers and to draw conclusions with respect to the impact on competitiveness.” (European Commission, 2014, p. 2)

The two agricultural sectors relevant to this thesis were dairy and sheep. A typical farm approach was used where “a typical farm is a model farm representing the most common farm type for a specific product in a specific country or region” (European Commission, 2014, p.45). Comparisons in dairy were made between the EU Member States of Germany, the Netherlands, Ireland, Poland and Finland, and the two third countries of New Zealand and

Argentina. In the sheep sector the comparisons were between the EU Member States of France and the United Kingdom and the third countries of New Zealand and Australia. For the purpose of this thesis information about Argentina and Australia has been omitted. The selection of which directives and regulations would be used was based on which would generate relevant compliance costs for farmer. The environmental directive selected for both dairy and for sheep was the nitrate directive. (European Commission, 2014). The nitrate directive was one of the first European directives as described in section 2.2.5.1 under the Nitrate Directive (91/676/EEC). Comparable national legislations exist in New Zealand (see section 2.2.5.1).

The report looked at both the costs and benefits of complying with environmental legislation, see table 4.1, and determined whether or not the EU has a competitive advantage over non-EU countries. Although the report commented on the competitive advantage or disadvantage in each section, it did not quantify the benefits for farmers.

Table 4.1 Costs and Benefits of Compliance with Environmental Legislation

Costs for Farmers	Benefits for Farmers
Operational costs (including inputs and labour costs)	Savings in inputs/labour
Investments/Disinvestments	Investment support
Foregone production and profits (opportunity cost)	Additional revenues
Private transaction costs (including administrative costs)	Subsidies
	Extension/education programmes financed with public funds

Examples of operational costs are the processing of manure and buffer strips and investments include new equipment. Environmental legislation affects capital costs, especially when the legislation requires a production system change on a farm.

Private transaction costs include those costs that are “generated through information gathering on legislation, the decision-making process, negotiation with officials, provision of information for monitoring procedures, and coordination with other farm activities.”

(European Commission, 2014, p. 33).

Benefits include savings in inputs such as fertilisers, additional revenue where a higher price can be charged for environmentally friendly products, and subsidies. Also the regulations can generate awareness, prompting farmers to make better use of their resources, and as a result

farmers may improve their management techniques which in turn may mitigate the increase in costs that relate to compliance with environmental legislation (European Commission, 2014).

Dairy

The dairy farm climates and systems vary between countries. Finland has short summers and harsh winters; Ireland has a mild climate and all year grazing; the Netherlands has a temperate climate and intensive farming systems; Germany has all the three systems of Finland, Ireland and the Netherlands; Poland has both small and larger family farms; and New Zealand has all year grazing, semi-intensive and low input systems.

Table 4.2 General Information¹

	unit	Finland	Germany	Ireland	Netherlands	Poland	EU	New Zealand	World
Production	million tons	2.45	30.47	5.31	12.77	11.93	157.2	19.16	739.4
Cows	1,000 head	289	4,182	1,122	1,477	2,529	23,216	4,397	348,908
Milk Yield	t/cow/year	8.5	7.3	5.1	8.6	4.7	6.5	4.4	2.1
Total Farms	1,000 units	11	91.6	18	20	465	1,876	12	348,908
Average Farm Size	heads	26	46	61	75	5	12	376	3
Currency		EUR	EUR	EUR	EUR	Zloty	EUR	NZD	
GNI per capita	\$	36,570	38,410	34,410	41,010	19,220		28,310	

Legislative conditions that affect milk production are shown in table 4.3 below. The comparison is the basis of the analysis of the costs of compliance.

¹ GNI per capita (Gross National Income) is based on purchasing power parity (PPP). The indicator is calculated converting gross national income to international dollars using purchasing power parity rates. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.

Table 4.3 Specific normative requirements of selected legislation for milk production for the Nitrate Directive (91/676/EEC)

Legislation	Finland	Germany	Ireland	Netherlands	Poland	New Zealand
Max level of N from animal manure (kg N/ha)	170	170	170	250	170	o
No nitrogen on water logged or frozen land	x	x	x	x	x	o
Obligatory fertiliser planning + soil samples	x	x	o	x	x	x
Annually farm based nutrient balance	x	x	o	x	x	x
Application of fertilisers has to be recorded	x	x	x	x	x	o
Buffer strips to water courses inside NVZ	x	x	x	x	x	x
Minimum storage capacity required	x	x	x	x	x	o
Special equipment to avoid leakage/no structural defects	x	x	x	x	o	o
Catch crops on maize land	o	o	o	x	o	o
Correct transport of excess manure	o	o	o	x	o	o

x = enforced in the country; o = no specific legislation

The following table lists the cost items generated by the implementation of the legislation at the farm level.

Table 4.4 Comparison of legislative areas impacting cost of compliance in milk production

Legislation	Obligation	Finland	Germany	Ireland	Netherlands	Poland	New Zealand
Nitrate Directive	storage capacity for slurry (and silage liquid)	x	x	x	x	x	
	manure handling equipment				x		
	transport and removal costs	x			x		
	sampling (slurry, soil, roughage)	x			x		
	fertiliser plans, consultant fee			x	x		x
	administration	x		x	x		x
	fencing and protection of riparian strips						x

x = enforced in the country; o = no specific legislation

The costs of complying with the Nitrate Directive (and equivalent) were generally about 0.1 €100 kg milk. In the EU countries the main contributing cost was due to additional storage facilities. The exception was the Netherlands because of additional costs for excess slurry transport. The costs for New Zealand were associated with the protection of streams, rivers and groundwater from nitrogen pollution. They were considered comparable with the EU-farms in the lower cost range.

Table 4.5 Costs of compliance with environment legislation for milk

Country	Farm	unit	base (2010) with legislation	without legislation	difference	% change
Finland	F125	€/100 kg milk	75.05	74.93	0.12	0.16
	F169	€/100 kg milk	70.15	70.03	0.12	0.16
Germany	DE31	€/100 kg milk	65.35	65.26	0.09	0.15
	DE95	€/100 kg milk	35.00	34.98	0.02	0.04
	DE650	€/100 kg milk	34.72	34.66	0.06	0.16
Ireland	IE48	€/100 kg milk	31.04	30.92	0.12	0.40
	IE115	€/100 kg milk	26.71	26.64	0.07	0.27
Netherlands	NL76	€/100 kg milk	41.96	41.29	0.67	1.61
Poland	PL15	€/100 kg milk	40.66	40.56	0.10	0.24
	PL65	€/100 kg milk	37.68	37.43	0.25	0.64
New Zealand	NZ974	€/100 kg milk	23.19	23.13	0.05	0.24

Sheep

The countries chosen for the sheep analysis have different characteristics. France specializes in big flocks on extensive grassland and the United Kingdom has a temperate climate and extensive farming systems. New Zealand has all year grazing, little inputs and therefore low production costs, and is highly dependent on exports. (European Commission, 2014).

Table 4.6 General Information

	unit	France	United Kingdom	EU	New Zealand	World
Total Sheep	million head	7.64	21.95	99.15	32.6	1,127.05
Slaughtering	million head	5.54	14.49		25.28	
Sheep Meat produced	1,000 tons	104	290	889.85	470	8,532
Average slaughter weight	kg	18.8	20		18.6	
Number of Farms	units	64,950	67730 ^a		26625 ^c	
Average Herd Size	heads	n.a.	208 ^b		1487 ^c	
Currency		EUR	GBP	EUR	NZD	
GNI per capita	\$	34,970	35,590		28,310	

^a holdings breeding ewes; ^b breeding animals; ^c year 2002

Table 4.7 Specific normative requirements of selected legislation for sheep production for the Nitrate Directive (91/676/EEC)

Legislation	France	United Kingdom	New Zealand
Nitrate Vulnerable Zones (NVZ)	x	x	o
Ban on use of chemical fertiliser/manure in autumn and winter	x	x	o
Ban on N on water-logged or frozen ground	x	x	o
Buffer strips to water courses inside NVZ	x	x	x
Establish fertiliser planning	x	x	x
Establish farm-based nutrient balance	x	x	x
Soil sampling	o	o	o
Min area covered with catch crops	o	o	o
Min capacity for manure storage	x	x	o
Max level of N from manure (kg/ha/year)	170	170	o
Max level of fertiliser for each crop	o	x	o
Special spreading conditions	x	x	x
Special storage vessels for manure	x	x	o
Special equipment to avoid leakage/structural defects	o	o	o
Record application of fertiliser	x	x	o
Conditions for transport of excess manure	x	o	o

Table 4.8 Comparison of legislative areas impacting cost of compliance in sheep production

Legislation	Item	France	United Kingdom	New Zealand
Directive 2001/81/EC	non-burning of bale wraps			x
Directive 2008/98/EC	recycling of agrichemical containers			x
Directive 91/676/EEC	fertilisation planning	x		x
Directive 91/676/EEC	applying training and certification for disposal of sheep dip		x	
GAEC 2	land availability for production and pest control			x
GAEC 2	attending accreditation course			x
Directive 92/43/EEC	predator species control			x

In New Zealand sheep graze outside all year round unlike some EU countries and New Zealand typically has a lower stocking rate. Therefore fertiliser is generally applied at lower rates compared with European standards. This becomes evident in table 4.9 below.

Table 4.9 Costs of compliance with environment legislation for sheep

Country	Farm	unit	base (2010) with legislation	without legislation	difference	% change
France	FR470s	€/100 kg LW	351.15	350.32	0.83	0.24
	FR860s	€/100 kg LW	373.24	372.61	0.63	0.17
United Kingdom	UK400s	€/100 kg LW	358.15	357.28	0.88	0.24
	UK500s	€/100 kg LW	308.07	307.06	1.01	0.33
New Zealand	NZ3200s	€/100 kg LW	85.97	85.51	0.46	0.53

4.2 New Zealand Research Results

4.2.1 Introduction

The results of the case study interviews of six farmers are presented in this chapter. They were conducted in 2014. Each interview lasted between one and two hours, was recorded, transcribed and analysed. The results are guided by Burrell et al.'s (2006) approach and are presented under the subjects asked about in the interviews. In chapter 5 they are discussed in relation to the conceptual framework as well as the hypotheses suggested by Burrell et al. (2006).

4.2.2 Farming Situation

The six farmers interviewed farm in the South Island of New Zealand, in the provinces of South Canterbury, Otago and/or Southland. Three of them own or jointly own more than one farm with two of them owning farms in different districts.

Of the eight farms, two are dairy, one dairy support, two sheep, beef and deer, two sheep and beef, and one beef and dairy grazing. One of the sheep, beef and deer farms runs approximately 60% deer, 30% sheep and 10% beef totaling 30,000 stock units while the other runs predominantly sheep (10,000 stock units).

The personal situation of each farm is shown in table 4.10 below.

Table 4.10 Farming Situation

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Location						
a	North Otago	Southern Lakes	Southland	South Canterbury	South Canterbury	Central Otago
b	North Otago		South Canterbury	North Otago		
c				Central Otago		
Type of Farm						
a	sheep & beef	breeding & finishing (deer, sheep, beef)	dairy	sheep & beef	sheep, beef, deer	beef & dairy grazing
b	dairy		dairy support	dairy		
c				beef & dairy grazing		
Size of Farm						
a	7,200 ha	20,000 ha	1,400 ha	10,000 ha	20,000ha	513 ha
b	820 ha		7,300 ha	820 ha		
c				513 ha		
No of Stock Units						
a	15,000	30,000	4,300	10,000	10,000	15,000
b	18,000		3,400 - 7,500	18,000		
c				15,000		
No of Employees						
a	4	4	22	3	3	2.5
b	15		8	15		
c				2.5		

4.2.3 Interaction and Experience with the Resource Management Act (RMA)

All of the farmers thought their experiences of the RMA were typical of other farms, particularly of similar farms. Their comments and reasons for believing they were typical of other farms were:

1. “My interaction with the RMA is not unique and is widespread across all types of farms all over New Zealand”. As the “topic is widely discussed in the industry” there had been evidence from numerous famers. (F1)
2. “I think my experiences would by typical of other typical farms, similar farms, but I don’t think my experiences are necessarily typical of the rural sector in general and that’s because we tend to be constrained by our physical and climatic conditions whereas other farms have a lot more opportunities to do other things and that I think is a key difference.” (F2)
3. Allowing for regional differences in the application of the Act they would be typical of other farms. (F3)

4. “Two of my farms would be typical but one wouldn’t because of the scale of that farming enterprise – it attracted a lot of attention.” This farm and the one quoted in ‘5’ below are in the same area.
5. Because the area we live in is a high profile area and “people love to talk about it even though they probably don’t even know where it is.” (F5)
6. “The issues will be similar to other irrigated farms” evidenced through discussions with other farmers. (F6)

All of the interviewees had applied for resource consents under the RMA from their local district and regional councils. They differed in the number they had applied for and included consents for burning, farm tracks, dams, effluent and nutrient discharge, waterways, irrigation, indigenous vegetation clearance, spraying, buildings, earthworks and water-takes. One farmer had also made submissions to the Environment Court along with other farmers to appeal proposed rules mostly relating to the clearance of indigenous vegetation.

While all the farming businesses had had “reasonable” to “lots” of experience with the RMA, there was a range of interaction on a personal level from everyday applications for consents to only dealing with them when they got to court. One farmer who dealt with the RMA on a daily basis said it had been his “whole life in the last 10 years” with 50 to 60 emails per day that had something to do with the RMA. The farmer who personally only dealt with the RMA when it got to court said he employed “a lot of people who deal with that, legal and those preparing applications” (F4).

The government institutions with which the farmers dealt are shown in table 4.11 below.

Table 4.11 Government Institutions

Government Agency	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
District Council	x	x	x	x	x	x
Regional Council	x	x	x	x	x	x
Environment Court		x	x	x	x	
DoC		x	x	x	x	
LINZ		x	x	x	x	
MOE						

The relevant District Councils are the Mackenzie District Council, the Waitaki District Council, Queenstown Lakes District Council, Southland District Council and Central Otago District Council. Regional Councils are Otago Regional Council, Environment Canterbury (ECAN) and Environment Southland.

Five of the farmers had been involved in developing the plan process. The involvement was mainly submitting on district plan reviews both on a personal level and on behalf of other organisations such as Federated Farmers. There were mixed opinions as to whether it was positive or negative. One farmer said “When I was chairman of the local Federated Farmers I submitted as a positive advocate for farming in our local District Plan. I found that the District Council itself were generally on our side and there were local people making local decisions and they were generally sympathetic to farming. However other government agencies and in particular Environment Canterbury, the regional agency, and DoC, advocated against farming during those hearings and they had unlimited amounts of funding and they wore us down like a relay and we also had an outside environmental group, Forest & Bird, that advocated against farming and I think that was appropriate because someone has to advocate for the environment. I’ve also submitted for the Land & Vegetation regional plan and that’s part iv that relates to land management fires in the high country and I’ve done that on 2 occasions – about 10 years ago when this was new policy in the regional council and DoC appealed the policy to the Environment Court I had the Regional Conservator Mike Cuddihy come to our farm for a day to learn about the practical implications of being on the land. He was sympathetic to farming. I respect him for going back to his planners and saying he was going to pull the DoC appeal to the Environment Court because he felt that he needed to give us an opportunity to demonstrate our sincerity and on the strength of that a planner resigned and it was quite a big thing for DoC on the day. And more recently about a year ago there have been hearings at Lincoln College on the same Land & Vegetation Management Plan with a Commissioner for Environment Canterbury and once again I have advocated for burning and vegetation clearance.”

Another farmer (F6) said his experience had been negative as “there was quite a protracted method of commenting on the COCC plan” and “to have real impact a consultant would be required”.

Five farmers had had to apply for a resource consent for normal farming activities such as clearance of indigenous vegetation, maintenance of tracks, construction of buildings, effluent discharge and installing a pivot. One farmer in the Mackenzie District said he normally applied for resource consents in the form of Certificates of Compliance but in doing so found the rules “quite complex”.

Four of the farmers believed the cost of protecting the environment was unfairly imposed on farming. One farmer (F6) stated that “the cost of minor effects is unfairly created and therefore imposed.” Two farmers mentioned ‘property rights’ in this context. They thought their property rights were being watered down without any compensation. It was stated that “the property rights of the farmers are not compensated for when to make the business sustainable for farming, greening, irrigation and possibly subdivision are necessary things to happen to allow succession and business success but because our property rights are watered down by people that don’t live in our communities, to have rules around subdivision and to not allow greening or irrigation or pastoral intensification it’s a huge property right that is not compensated for.” It was then suggested that the district and regional councils in administering the RMA could learn from LINZ who partially compensates through the tenure review process. Another farmer suggested that the Ministry of the Environment was used more. One of the farmers who didn’t think the cost of protecting the environment was unfairly imposed on farming did add he thought that “there needs to be a balance between development and leaving the land unfarmed.”

There was a range of attitudes to the interaction each farmer had with the RMA. One farmer said he had a “good interaction with the RMA” (F2) while another found it “insidious” (F3).

4.2.4 Impacts of the RMA on the Farming Business

There were mixed responses as to how the farmers considered the RMA or district/regional plan had impacted their farming business with one saying it was positive overall but had negatives, two both positive and negative and three saying it was negative.

The three positive examples were as follows:

1. “I believe it is positive in a sense that one of its goals or objectives is sustainability and sustainability is in the best interest of everyone including the landowner and whilst some people see that probably a little bit differently I think it has made us look at our businesses not only from an economic but also from an environmental point of view.” (F2)
2. The RMA compared to the Town & Country Planning Act 1977 is more enabling and “it means that there’s more flexibility with what’s able to be done where.” (F5)
3. “An increased emphasis re efficient water use will save power and fertilizer” but he felt that this would have been an objective of his anyway. (F6)

The negative examples are:

1. The RMA “adds costs, limits production, and causes frustration.” In building a dam under three metres in accordance with the RMA rules, he had found it very confusing complying also with the Regional Council and the Building Act.
2. “What I don’t like about the RMA is that it significantly affects the value of the land. The value of the land is really made up of what is currently on the land and what you can currently do with the land but also what you can do in the future with it and what you could put on the land and so the consent or not has a very significant impact on the value of the land and if you have a very subjective consenting process you can’t really readily say I can’t do this or I can’t do that and that makes it quite hard I think. I think that has been a negative side of the RMA and hard to get consistencies in approaches on the same piece of legislation but between one district council and the next. A clear example is QLDC and Central Otago District Council - they are chalk and cheese – one heavily promotes development and the other one heavily constrains it because it sees that its highest dollar comes from tourism as opposed to production and therefore

- it wants to retain a natural character of the land and I think that has been a negative side of things.” (F2)
3. “Massive costs and time”. This was for both his farms.
 4. “The Mackenzie District Council did not have a definition in their plan for a centre pivot irrigator. It therefore becomes a building with the consequent restrictions on crossing streams, setbacks, etc. Other councils don’t seem to have this problem” (F4) [This has since been to court and it is not a building.]
 5. “We’ve got one very large example where we were unable to obtain a water consent at the Upper Waitaki hearings which involved submissions to 4 commissioners representing Environment Canterbury and after paying \$101,000 to be heard by these commissioners we were given a consent for spray irrigation on a relatively small area of 200 hectares which wasn’t practicable as we weren’t able to do any leveling of the moraines as one of the conditions of the consent and it seems farcical to me that commissioners who are paid substantial sums of remuneration to hear us didn’t take the time to come down and inspect the land to understand how ridiculous the consent offered was. We have since gone on to the Environment Court where we were supposed to mediate with the interested parties to our consent with the understanding that the Environment Court would simply sign off our consents in a sensible fashion. But now the Environment Court judge is treating us like a political pawn and we’re involved in very complex RMA matters that are beyond our understanding.” (F5)
 6. It has resulted in “high electricity prices because of the penalty on coal fired generation”, the “restriction of nutrient leaching will reduce productivity and increase costs” and the “restrictions on water use” will limit productivity. (F6)

All had made decisions differently because of the RMA. These decisions related to activities such as spraying, oversowing, topdressing, cultivation, burning and pivot design. One farmer had sprayed before new rules were implemented, and another had been more careful with burning. One farmer said he had made decisions differently because of the RMA but “they had now become part of the normal way of doing business.” He had taken a more sustainable approach as he farmed in an area of high public interest and so “had to be responsible.”

Another farmer said he had been through a mediation process as a result of the RMA and had had to put land aside for conservation.

Farmer 4 listed his difficulties with consenting on one of his farms (see Appendix VII).

All the interviewees had had interaction with environmental groups and/or the general public about environmental issues on their farms. Five had had positive and negative experiences while one had found it only negative. Three of the farmers gave examples of positive feedback from the public and environmental groups, one winning an environmental award. Another cited DoC as being logical in their approach and good to work with. A negative example given was where an environmental group wanted to secure access to the property without contributing to maintenance costs. Another farmer had had the experience of environmental groups “creating evidence to support their position” when opposing applications. One stated that their experience with the MacKenzie Guardians had been negative and said “it doesn’t matter what you do it is never enough”. This is also worried him as far as his property rights were concerned. Another stated that the interaction with environmental groups and/or general public was “negative in the work required but a positive outcome”.

4.2.5 FFNZ Booklet Concerns

Federated Farmers New Zealand produced a publication outlining their concerns with the RMA. In it are listed the five top RMA issues for farmers (listed a to e below). Not all the farmers had heard of the FFNZ Booklet but were concerned about the subject matter.

- a. Having to apply for resource consent for normal farming activities.
All six farmers had concerns.
 1. It is “the thin edge of the wedge.”
 2. Questioned what a normal farming activity is. Under his council he didn’t have to apply for farming activities that would be considered normal but knew of farmers in other districts who did. Therefore “the interpretation is the problem as I see it between one planner and the next.”
 3. It is a concern e.g. certificates of compliance.

4. "I don't think that it is correct that we have to apply for resource consent for normal farming activities but changes to activities sometimes should require consents."
 5. Not comfortable about applying for resource consents for normal farming activities.
 6. "Will increase costs and cause reduced productivity to the extent consents are delayed or limited."
- b. The impact on landowners when councils are protecting nationally important values.

In general the farmers were not against protecting nationally important values, in fact they were supportive but they were concerned with how councils manage that process.

1. It can be "devastating."
2. "Well if it's a nationally important value then it needs protecting. It's a silly statement because if it's a nationally important value and you have to assume it is then it should be protected and that's where the indigenous vegetation clearance rules are very good in QLDC versus elsewhere perhaps because they list on national importance the types of vegetation and at the very top you have beech forest and broadleaf forest and right at the bottom you have bracken which is what most of our problem is here and above bracken you get into your short tussock grasslands. Tall tussock grasslands are up closer to broadleaf. It doesn't mean you can't clear beech forest but what is the scale of that, what is the effect of that. You can't help it if you have to put a road from A to B you're not going to build an overpass over a beech tree so you're allowed to cut down some trees."
3. "Councils can socialize protection on their lands but they must compensate in full any impact private property taken in the public interest."
4. "The protection of nationally important values is something we agree with but needs to be dealt with so that the scale of the values on a particular farm are compared with the values in the wider area."

5. "I don't feel comfortable about that because of the impact on our property rights."
 6. "Needs to be applied consistently with balance between benefits and costs."
- c. Environmental Advocacy by groups with no community mandate or who live outside the region.
- All those interviewed had had issues with environmental advocacy groups.
1. "A major issue in the high country."
 2. "I think that environmental advocacy is very important and it should raise awareness to things but that doesn't mean that someone for the price of a postage stamp would be able to appeal something to the environment court if it makes no sense at all which is where I think our process at a prehearing or where a judge can have a look at it and say sorry you haven't really got a case here to go to court."
- "Most of what the environmental advocacy groups do is that they have lawyers that do things pro bono and the environment court has always typically favoured the applicant not the respondent. I don't think it matters so much if they live outside the region if they are nationally important values. It's a hard one as I myself wouldn't have anything to say about something in Thames because I would consider it none of my business but if I drove past a dairy farm that was polluting into the river I wouldn't feel happy about it from a national standpoint. The thing I don't like about the environment advocacy groups is they tend not to front up in person – that annoys me."
3. "It's a shocking indictment."
 4. "It is quite clear that dealing with the advocacy groups such as Forest & Bird, Mackenzie Guardians, EDS and DoC add to the costs of farming quite considerably when specific development is considered."
 5. "I am very strongly opposed to this practice and I think these people need to pay to be heard and I think they would have a lot less to say if they had to pay."
 6. "They should incur full costs of the applicants and authorities to the extent that they fail."

- d. The time and expense of complying with the Act.

Here again all respondents thought this was a problem.

1. "Farmers spend a large amount of time and expense complying with the Act."
2. "That is a relevant concern for some other farming areas."
3. "Massive."
4. "Inconsistency in rules and plans adds to the time and expense."
5. It has become "ridiculous."
6. "Needs to be more tailored for the potential environmental costs."

- e. Dealing with the Department of Conservation during the RMA process.

There was a mixed response to this question.

1. "Dealing with DoC culture is now a sport. Their lack of institutional knowledge is a joke."
2. "We don't have to deal with DoC during the RMA process."
3. "DoC doesn't even pay rates so it has to be questioned as to why they can have so much influence over private property when they complain they don't have the resources to manage their own estate."
4. "Have had difficulty with DoC during tenure review."
5. "I've had quite a lot to do with DoC during the RMA process" and it has been "mixed". "The local people in DoC are generally more understanding and they are sympathetic to local concerns. The planners that work for DoC are diabolical and are generally the people who are involved in advocacy at things like district and regional plans and these people are quite often not DoC staffers but are contracted to DoC. "
6. "Agree with Federated Farmers."

Federated Farmers six changes

As a result of the concerns above, Federated Farmers NZ (2014b) has suggested the following 6 changes should be made:

“1. Acknowledge Stewardship - Changes must be made to the Act (s6) and its implementation to reward good stewardship with flexibility and freedom to farm; write economic or property rights as imperative into the Act to provide for compensation upon protection of more specific values for the national good.

2. Mandate Consultation - Councils must make a real effort to understand what motivates on-farm decision-making before writing policies and rules into plans; Memorandum of understanding with councils or legislate meaningful consultation with landowners.

3. Redefine DoC's Role - There are plenty of advocates for the environment; taxpayer-funded advocacy in the planning process by DoC must stop; introduce a concept of net conservation benefit to enable a more holistic approach to on-farm conservation management.

4. Streamline Process - Plans must encourage responsible farming by minimising those activities that require consent; manage effects not the farm; streamline process by introducing a one-stop on-farm visit for issuing individual resource consents.

5. Encourage Farm Succession - Encourage and enable economically sustainable farming with flexible subdivision policies and innovative use of covenants and transferable development rights that compensates farmers who have restricted land use or are required to manage amenity values in areas determined to be of high landscape value.

6. Recognise Farms as Working Landscapes - Farmers who provide the public with the use of their land or who farm in areas that are highly visible should not be required to preserve a state purely for public amenity; tone down or remove requirement to protect amenity values in section 7 of the Act.”

There was a high level of agreement with Federated Farmers (2014b) suggested six changes as shown in table 4.12 below.

Table 4.12 Federated Farmers' Suggested Six Changes

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Acknowledge stewardship	Yes	Yes	Yes	Yes	Yes	Yes
Mandate consultation	Yes		Yes	Yes	No	Yes
Redefine DOC's role	Yes		Yes	Yes	Yes	Yes
Streamline process	Yes	Yes	Yes	Yes	Yes	Yes
Encourage farm succession	Yes		Yes		Yes	Yes
Recognise farms as working landscapes	Yes	Yes	Yes	Yes	Yes	Yes

Comments made were:

1. Acknowledge stewardship

“Farming is no longer about mining it is about sustainability. We’re passed degradation, been through the restorative phase.” (F2)

2. Mandate consultation

“In my mind there is quite a lot of consultation in our district.” “I think it exists.” (F5)

3. Redefine DoC’s role

“To be only involved in land owned by the Crown.” (F4)

“I think around advocacy. I think DoC has an important role in society. I think it is a very middle ground organization now it has been poked around by with a big stick by various governments and streamlined and commercialized. I think it’s doing a pretty good job in my mind. Redefine DoC’s role round advocacy would be all.” (F5)

4. Streamline process

5. Encourage farm succession

“I don’t see how the RMA has any bearing on encouraging farm succession. Farm succession is up to the individuals involved and succession does not always fit with retirement.” (F2)

“What happens when we leave. Yes it needs to be documented so it suddenly can’t change e.g. if I give my word that I’m not going to reapply for water on the big flat then it’s all documented. Everything documented.” (F3)

“Of course. If farming in New Zealand is poisoned with unsustainable rules, succession won't occur. So it is an outcome.” (F5)

6. Recognise farms as working landscapes

“Yes I think that is quite an important one because closing them all up doesn't necessarily have the desired affect.” (F2)

“That's very very important. To me this is the most important. Change is inevitable and part of what we do.” (F5)

When asked if there were any other changes they would like to see, the comments were:

Farmer 2: Re ‘more efforts at the national level to promote consistency’, “this is a hard one because the plan does want things to be specific to the region, the people and the physical characteristics. It's hard to be more consistent.”

Farmer 3: “I think the way forward in NZ is to do things hand-in-hand and not being extreme one way or the other. So in other words if there is room for development and protection that should be recognized. I've got absolutely no problem with that unlike some people who say they get nothing. We shouldn't be thinking like that because it is about the future. So that has not been mentioned and I think it is one of the most important things because with growth comes innovation so if you go hand-in-hand you become more passionate about the environmental side of it. You become more passionate about your production side of it and doing it well – that is the way forward. That for NZ is very important. If you can sit around a table and listen to each other then it's better than using ecologists, lawyers and advisers and everybody feeding on it, you would get a much better pathway forward.

The advocacy groups have too much say and they lock everything up. To stop it now maybe put the layer in between and somehow bring back what was originally planned to put in the RMA – compensation. I wouldn't have a problem if there were compensation clauses but there is not. The government is probably scared of them because that's going to cost them a lot of money. The 1000 acres of DoC land I've got the wilding pines are now like this – it will be interesting to see as there's not a lot of money so it will be interesting to see what happens in a couple of years.

The RMA hasn't considered what happens if it all falls apart (land not looked after by DoC).

I'm considering approaching DoC and suggest a swap – give me the 1000 acres and they could have some of the other land.”

Asked if he saw a difference in Councils, he replied: “This is why we need national rules. There are differences but it hasn't been a huge issue but it could be improved and the sooner we get national rules and penalties because if somebody is in breach and there is a real issue then he should be penalized. What happens in that case it doesn't become quite as personal anymore and also if there is something that is being wrongly diagnosed I would actually stand up and say something. But because it's not like this at the moment I don't, I just keep my head down.”

Farmer 5: “I've seen before on precedent with ECAN counselors and they put in Dame Margaret Beasley so I'm sure that in other areas that I'm not familiar with more effort could be made to bring people into line. The trouble with ECAN is it is dominated by Christchurch city. ECAN is an organization the counselors were vastly skewed in favour of Christchurch city and they didn't understand, acknowledge or sympathise with farming sufficiently to be fair. So some of these regional government institutions are not fair to farming.” When asked how he would suggest improving that situation he replied “Well local and regional authorities they are reviewed periodically for their suitability in terms of size and geographic spread and I believe Canterbury would be better off without Christchurch city. For arguments sake, the government putting in the commissioners got passed those issues and now we're moving on. The present government as we know would like to streamline the RMA. The commissioners is a bandaid on a problem. I think it is important that we go back to democracy and have democratically elected councillors but the problem we had with ECAN is that it was skewed by Christchurch city and so unsympathetic to farming. It has been a long standing problem ever since the Canterbury regional council was originally formed – that long where we haven't had democratic process.”

Farmer 6: Recognise farms as working landscapes and compensate.

Two of the farmers (F2 & F4) had made submissions about changes they would like to see.

4.2.6 Benefits of the RMA

Two of the farmers thought New Zealand as a whole benefitted from the RMA through leveraging off New Zealand's environment and its clean and green image, one citing the New Zealand Merino Company as an example. However one farmer did not think the Pure NZ branding attracted customers. He believed that "custom happens by building trust between parties." Another said "I can't say that anything in the RMA has made anything we do more innovative or made our products more effective or has attracted new consumers and we haven't made better decisions because of the RMA."

Table 4.13 Benefits of the Resource Management Act 1991

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Made your products/processes more innovative	No		No	No	Yes	No
Made your products/processes more efficient	No		No	No	Yes	Marginally
Have you attracted new consumers	No		No	No	Yes	No
Become an early mover in a market relative to foreign competitors	No	Yes	No	No		No
Been able to make a swift business decision	No	Yes	No	No		No

On a personal level attitudes were again mixed.

Table 4.14 Personal benefits of the Resource Management Act 1991

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Awareness of community needs	Yes	Yes	Yes	Yes	Yes	Yes
Satisfaction from better environmental outcomes	No	Yes	No	Yes	Yes	Yes
Satisfaction from the understanding that RMA compliance helps maintain and improve environmental sustainability	No	Yes	No	Yes	Yes	Yes
Public Relations	Yes	No	No	No	Yes	No
Project fits better with the environment	N/A	Yes	No	Yes	Yes	Yes
The RMA generates a positive net benefit to society even though it imposes costs on businesses	No	No	Yes	Yes	Yes	No
How many instances has resource consent for an activity or development not been required because it was a permitted activity under the relevant plan	N/A	Mostly	Generally	Sometimes	Often	Never
How many cases have you received a non-notified resource consent for an activity or development within 20 days	N/A	2	2	0	several	0

Additional comments made when questioned about their awareness of community needs were:

- a. “That depends on what the council defines as community needs.” The primary objectives of his council are round tourism and “farming tends to be given the backburner a little bit”.
- b. “the community drives expectation without proper knowledge”. An example is water quality where it is “hard to find empirical evidence” yet “the community make decisions about quality.” The media had a part to play in this scenario.

It was also suggested that farmers should be aware of the community needs but sometimes it was “over the top”.

Three farmers commented that farming also needs to have “good environmental outcomes” and that most farmers are environmentally conscientious and “understand the benefits from protecting the environment”. One of the farmers did not think litigation helped environmental sustainability.

Two of the farmers were more aware of the importance of public relations one making the positive observation that “a lot of visitors to our property are secondary school children or university students particularly from North America and they recognize the protection and environmental awareness of our district.” Two negative comments were:

- a. “I would say it is worse. It has further divided the rural/urban gap and it’s done that because more people have a say in other people’s business because other people’s business becomes everyone’s business because it involves the environment.”
- b. “Why is it OK that individuals should be held to ransom to the ‘evolving expectation of society’ when society has been poorly appraised of the subject.”

Four of the farmers thought their project fitted better with the environment with two positive examples given:

- a. “we have fenced off a river running through the property to improve water quality.”
- b. “because my property is a double edged sword so I have to be strategic about my farm pastoral intensification so that it doesn’t compromise environmental values that our business depends on.”

When asked about obtaining a resource consent for an activity one farmer said it was often a permitted activity although there were a strict set of rules attached and another commented “we always look to find ways in which any resource consent for an activity or a development does not require a notified consent because it is a permitted activity and our advisers always say that that is what we should go for.”

There was a wide range of answers to the question of receiving a non-notified resource consent for an activity or development within 20 working days. Two of the farmers had received two but with different results:

- a. “I’ve just had two. I applied for an extension to a tracking one which was coming to the end of its 5 years and I got it back within about 2 weeks and I’ve just applied for resource consent to put in 2 fertiliser bins and it was the same, took about 2 days for someone to contact me to come and do a site visit, 2 weeks to have the consent done by the commissioner.”
- b. “Twice”. This was for the same activity. Firstly it was challenged by EDS and secondly by Forest & Bird. It cost \$70,000 but the consent was granted in the end.

Another farmer had received non-notified resource consents several times within the 20 days and had “never found that the council has gone over time for buildings or earthworks so there hasn’t been delays” yet another farmer stated that “we have never ever had a non-notified resource consent given to us within the 20 days but we have had many given after longer periods.”

4.2.7 Impacts of the RMA on the Farming Business (quantified)

None of the farmers was able to quantify how much compliance with the RMA or their district/regional plan had saved them or cost them in monetary terms. The costs in two cases were incorporated in the maintenance, consultancy/legal or other relevant expenses in their accounts. However they had all incurred both direct and indirect costs, see table 4.15 below.

Table 4.15 Direct and Indirect Costs

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Direct Costs						
Paid Application Fees	Yes	Yes	Yes	Yes	Yes	Yes
Incurred additional internal labour costs	Yes	Yes	Yes	Yes	No	Yes
Incurred additional external labour costs	Yes	Yes	Yes	Yes	Yes	Yes
Court costs	Yes	Yes	Yes	Yes	Yes	No
Paid financial contributions	Yes	No	Yes	Yes	Yes	Yes
Paid penalties	Yes	No	Yes	No	No	No
Indirect Costs						
Delays	Yes	Yes	Yes	Yes	Yes	Yes
Made submissions	Yes	Yes	No	Yes	Yes	Yes
Missed opportunities	Yes	No	Yes	Yes	No	No
Foregone investment opportunities or altered investment plans	Yes	No	Yes	Yes	No	Yes
Been forced to change your inputs of production to less efficient ones	Yes	No	Yes	Yes	No	Will
Seen changes in productivity/efficiency	Yes	Yes	Yes	Yes	No	Will
Seen impacts on your ability to innovate	Yes	No	No	Yes	No	Will

All the farmers said they had paid application fees and didn't have strong feelings about that with some stating they were nominal and acceptable. However one farmer went on to say that he did have a problem with the processes and the associated costs which followed. He had made an application which in the end had cost him \$3 million and he had not got anything for it because "one person can hold the whole process to ransom."

The one farmer who said he hadn't really incurred additional internal labour costs did say it had caused a "lot of stress - it's had a large personal impact on me as a person."

All had employed external consultants, An example given of additional labour costs was employing an independent ecologist.

Five of the interviewees had paid court costs and several stated that they had been substantial, three of them still waiting for a result after three years. Court costs were both independent and on a collective basis and some had been substantial.

An additional problem cited was that council planners seem to have their training in the civil service then they move into the private sector, the problem being the turnover of staff.

All interviewees had incurred indirect costs through delays.

Three farmers said they had missed opportunities. One example was because more people had to be employed to help with the RMA process, therefore less were able to be employed and

there was less development, because of financial constraints, on the farm. This process had taken four years and the farm had become run-down. Another farmer said he had missed investment opportunities because of the delays in getting consents and as a result “the property wasn’t as efficient as it should have been.”

One farmer who said he had not seen any impacts on his own ability to innovate said he saw “daily occurrences of where other people’s ability to innovate was restrained” and therefore “good ideas often don’t get off the ground.”

Farmer 6 had not been forced to change his inputs of production to less efficient ones, seen changes in productivity or seen impacts on his ability to innovate but was expecting to when a new water plan came into force in his area.

4.2.8 Causes and Concerns with the RMA

All the farmers interviewed had a tertiary education yet they found the RMA process complex, at least at times. “Some of it can be very straight forward; some even the planner can’t work out what you can and can’t do. The Innes case (see box in section 2.4.3) is a case in point as the planners couldn’t decide what was right and what was wrong and it required a judge to make a decision and that shouldn’t happen.”

Those interviewed all said they felt stress because of the RMA. “Farmers have the highest amount of suicide. A lot of that comes from economic stress and fluctuation but definitely the RMA has an affect on things because you don’t know what you can and can’t do sometimes and ‘security of private title’ yes that is the key component to that.” On the same theme another farmer said that the RMA “does not always provide security of title or of any future requirement, i.e. they have the right to change the rules.” One of the examples given of stress from the ‘security of private title’ issue was where a neighbor thought he had the right to drive through the farm.

Two farmers talked of how they had handled the stress, one saying “It is stressful but I’ve become more philosophical about it” and the other “I have learnt to put it aside - you have to learn to put pressure from government agencies aside and devote time to your family and business otherwise it does your head in.”

Five of the farmers said they felt uncertainty because of the RMA, one saying there were “ever increasing requirements”. The one who did not feel uncertainty because of the RMA said he thought there were “a lot of people with a lot of expertise in positions that are administering the RMA”. He said the issue was the complexity not the uncertainty.

When asked what they thought caused the issues they had with the RMA the answers were varied as shown in table 4.16 below.

Table 4.16 Causes

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
legislation itself	Yes	No	Yes	Yes	Yes	Yes
related regulation and policy	Yes	Yes	No	Yes	No	Yes
institutions set up to implement it	Yes	Yes	No	Yes	Yes	Yes
way it is implemented at the regional/local level	Yes	Yes	No	Yes	No	Yes
problems the legislation is designed to alleviate	Yes	No	No	Yes	No	

Farmer 2 expanded on his ‘no’ answers:

- a. “The legislation allows the district and regional authorities to implement that legislation and so it’s not the legislation itself it’s by the related ‘regulated regulation and policy’ authority.”
- b. “Legislation can’t be exact; it can be defined but it can’t be exact. The purpose wasn’t to make a farm in Wanaka the same as a farm in South Auckland. It is there to allow the same resources to be managed in perhaps different ways.”

Farmer 3 expanded on his ‘yes’ answer:

“The councils in general from what I’ve had are quite helpful but it’s the pressure from other groups on them that make things more difficult.” He had been given a Certificate of Compliance by the wrong person from the council, an advocacy group had objected, he had applied for another CoC, it got challenged again and so it ended up in the High Court.

Farmer 4, although he thought that the issues with the RMA were caused by all the above reasons, thought they were mainly caused by “the different interpretation at the regional and district level.”

Farmer 5 expanded on his ‘yes’ answers:

- a. “I think the legislation itself causes some large issues.” This was of particular concern to him.
- b. “I think the institutions that are implementing cause a lot of issues. In my instance trying to obtain a water take for irrigation purposes from ECAN I found that the staff from ECAN were advocating directly against farming whereas I feel strongly that the government did a good thing by removing ECAN counselors and putting in Dame Margaret Beasley and other commissioners and it cleaned the staff out of ECAN where they’re now neutral and are implementing the RMA in a sensible fashion as it was intended. So some of the institutions in my mind are out of control. I feel very strongly about that and the government quite correctly did something about it.”

Farmer 6 thought the institutions “don’t think it through first”. His perceptions had been reinforced through discussions at meetings.

What aspects of the RMA concern you most?

Table 4.17 below shows what concerned each farmer with comments below that illustrate more clearly what concerned them most.

Table 4.17 Concerns

	Farmer 1	Farmer 2	Farmer 3	Farmer 4	Farmer 5	Farmer 6
Unclear consent process	No	Yes	Yes	No	Yes	Yes
Outcome you disagreed with	Yes	Yes	Yes	Yes	No	No
Delays in decision-making	Yes	Yes	Yes	Yes	Yes	Yes
Inconsistent approach by local authorities	Yes	Yes	Yes	Yes	Yes	No
Inequitable treatment	Yes	Yes	Yes	Yes	Yes	No
Variability and differences between plans	Yes		Yes	Yes		No
Availability of impartial consultants	No		Yes	Yes	No	Yes
Environmental advocacy	Yes	Yes	Yes	Yes	Yes	Yes
Lack of consultation	Yes	No	Yes	Yes	No	No
Positive impacts not taken into account	Yes	Yes	Yes	Yes	Yes	Yes
Non-notified consents/limited notification not always available	No		Yes		No	Yes
Not effects-based - inconsistency between groups	Yes		Yes	Yes		Yes
Processing times	Yes	No	Yes	Yes	Yes	Yes
Information requirements	No	No	No	No	No	Yes

Farmer 1: “Outcomes influenced with people that live outside the district concern me most about the RMA. Also increasingly a lack of understanding from stakeholders about how to run a high country station. Objectors can also impose a huge cost on farmers without any accountability.”

Farmer 2:

- a. ‘Inconsistent approach by local authorities.’ “A lot of the resources are the same and also the activities around them between district authorities and they can be chalk and cheese.”
- b. ‘Inequitable treatment.’ “It’s an interesting one because I think it concerns me because often the quality of the application can dictate the outcome and that’s not necessarily fair and I think that councils are obligated to carry a consistent approach with its planners and it shouldn’t be the quality of the application reflect in what the applications for. It seems to be that deeper pockets can attempt to get preferential treatment.’
- c. ‘Availability of impartial consultants.’ “Valuers are supposed to be the last non-advocating professional. They should be impartial to other people’s views but they should always hold their own views and it’s quite realistic for one ecologist to perceive something to be quite different from another. Whilst the plant, the genus and species name may be exactly the same, one ecologist may consider it has different values to another and that doesn’t mean that they’re impartial because there’s a difference between impartial and unprofessional and there shouldn’t be any room for unprofessionalism. Hard one.”
- d. ‘Lack of consultation.’ “No I think it is the other way round. I think there’s too much consultation at times.”
- e. ‘Positive impacts not taken into account.’ “The RMA directs to look at not just the environmental outcomes but also the economic benefits or otherwise and I think too often the positive impacts on some of the other values aren’t taken into account and the McKenzie one is characteristic of that because of the starting level of economic activity versus what it could be.”

- f. 'Not effects-based – inconsistency between groups.' "We are effects-based in our area and the resource consent envisages an effects-based but they're moving away from that pretty quickly because of the subjectivity

Farmer 3: Some of the concerns are because there are no national rules e.g. 'inconsistent approach by local authorities'.

Farmer 4: "The consent process is clear but the interpretation by different parties leads to confusion."

Farmer 5: His biggest concerns were in order of most to least 'environmental advocacy' followed by 'positive impacts not taken into account', an 'unclear consent process', 'delays in decision-making' and 'processing times'.

4.2.9 Changes made as a result of the RMA

All the farmers interviewed stated that they had had to or would have to change the way they ran their farms in response to the RMA or their district or regional councils.

1. "I now spray and burn without consents because it is too much hassle to obtain the proper consents."
2. "Initially yes but there's more positives out of that – it's more about a sustainable approach rather than mining the land any more."
3. "An example of that is that my original application was to do dairy grazing and I had to change my application to stay within the nitrate and phosphate levels which is not necessarily negative but it is not really what I wanted to do and I'm not exactly sure if it would have been more negative or not. Most likely not because the grazing part which is a very economic way of running these farms so I had to change it to accommodate. So not necessarily negative but it's had an impact because it's going to require much larger capital expenditure."
4. "Oversowing and topdressing to allow spraying and cultivation." This is to comply with Council rules. "Should have done it 10 years earlier."
5. "There were rules for farming previous to 1991 so it's just that the rules are more robust so an example for us would be for vegetation clearance we have to be strategic because we are only allowed to spray 15% of a block per year but I think that in some instances being strategic about things like vegetation has a positive impact because it

means you consider other people's views on what you are doing and you can mitigate the annoyance and damage to other people."

6. "Change farm management to lessen nitrogen leaching."

Two of the farmers said their changes had been financially advantageous and had offset the compliance costs through increasing fertility and subsequently production.

All the farmers considered that they had been innovative but not necessarily because of the RMA, one stating that "I think farmers in general are very good innovators and I think the economy provides the biggest incentive to innovate more so than the environment but because of the sustainable economy you do tend to innovate for something that protects the environment at the same time." Another farmer stated that competition made you innovative – "if it's price driven you will constantly look at bettering what you are doing." All of them would have innovated in the absence of the RMA, one saying he may have done so earlier.

Examples of their innovations were:

1. Spraying effluent through pivots on the dairy farm.
2. With the use of technology e.g. spraying rather than burning.
3. Oversown, topdressed and cultivated land that would normally not be cultivated.
4. Put chicken manure on the land to improve the texture of the soil as well as fertiliser it instead of commercial fertilisers.
5. Diversified into tourism. "It has had a much bigger financial gain than to offset any compliance cost and the other thing about tourism is that it is in sync with the environment. The success of the tourism is dependent on protecting the environment."
6. "Deficit water scheduling, changing fertilizer types and wider sprinkler spacings." This will "enable higher productivity" and the financial gain would partially offset the compliance costs.

4.2.10 Improvements

Additional improvements suggested by the six farmers are as follows:

Farmer 1: “I would change the RMA to give the local people the power to determine what happens in their own community, including the administration of DoC lands.”

Farmer 2: “I’m not a planner but I would try to use the experiences of effects-based to be more activity based while still allowing change in the future. Mindful that every district plan has to be reviewed every 10 years under the RMA. Trying to get things more objective rather than subjective. I don’t believe landscape has a place in the RMA. I don’t believe landscape is a resource as defined by the act. I think that landscape is a result of what is on the land but it is not a resource as such. A resource is soil, water, vegetation, air.”

Farmer 3: Suggested a Court/Board/Committee should be set up who would consider the views of the advocacy groups or anyone objecting to the applied consent. In the present scheme a farmer can go to a court directed mediation and then still have to go back to the Environment Court. They can each cost about \$500,000. The mediator should be able to take everyone’s views to a Court/Board/Committee and they could decide on the merits of the objectors. This may stop one person “hijacking the process”. In Farmer 3’s case he was heard by the ECAN commissioners, the decision was appealed, it went to the Environment Court and then was sent to mediation. He negotiated with all the advocacy groups but one person continued to object over a couple of issues and so the whole case has to go back to the Environment Court. He thought therefore a Court/Board/Committee would be good to consider the one objector rather than automatically take the whole case back to the Environment Court.

Farmer 4 suggested that plans throughout the country should be consistent within each Council and with Government Policy, that less groups should be involved in setting rules (eg. Zone Committees) and that the rules for appeal should be the same as for applications.

Farmer 5: “I think the biggest thing for me is the environmental agencies need to pay more to be heard because they have such an impact on people that are seeking consents under the RMA and because it costs them little to be heard; they have a huge impact disproportionate to the content of what they are saying. We have to pay to be heard. I think it’s important that these agencies exist because we have to have environmental watchdogs but I think that is skewed in favour of those people, its like socialism, and the impacts on business are disproportionate.”

Farmer 6 suggested that ‘time frames should be mandatory’, the requirement to balance benefits with cost should be “more robust and contestable”, that “objectors should pay all actual costs of applicant and authorities and other participants to the extent they fail”, and that “information, evidence and process requirements should be appropriate for the scale of the likely environmental cost”.

4.2.11 European Union

All the farmers knew very little about the European Union counterpart’s interactions with their equivalent. When pushed they commented about issues such as there being a very different population dynamics in the European Union compared to New Zealand and the European Union farmers are paid compensation even though there may be more rules.

4.2.12 Summary

This chapter has presented the results of this study with respect to the six farmers interviewed. All of them had had considerable experience with the Resource Management Act 1991.

Chapter 5 presents the main findings of the study and discusses these results in relation to the aim and objectives of this research.

CHAPTER 5

DISCUSSION

5.1 Introduction

The aim of this thesis was to explore how and why environmental legislation impacts on New Zealand farmers.

The main questions of this thesis were:

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?
2. What effect does New Zealand's environmental legislation have on farmers?

To achieve this three steps were followed. Firstly a literature review was undertaken which was based on the natural environment and agriculture and focused on legislation, farm decision making and the interaction of farmers and New Zealand's environmental legislation. Secondly, primary research was carried out in the form of interviews using qualitative methods. Thirdly, the results of the primary research were presented and discussed in relation to the issues raised in the literature review. This chapter highlights the issues raised in the previous chapters and these issues are discussed within the context of the two main questions above. Finally, implications of this research and recommendations for future research are suggested.

This section discusses the results from the previous chapter in relation to the literature review. The first part discusses the difference between New Zealand environmental legislation and that of the European Union. The second part uses the conceptual framework (figure 2.17) to discuss the results of the research.

5.2 How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?

The section on Environmental Legislation (section 2.2) in the literature review discusses the differences between New Zealand and the European Union with respect to environmental legislation. The purpose of the RMA is “to promote the sustainable management of natural and physical resources” and it “places a responsibility on all New Zealanders to act in an environmentally responsible way” (Ministry for the Environment, 2011) and the aim of EU environmental legislation is to “improve the quality of the environment, protect human health, achieve prudent and rational use of natural resources, and promote international measures to address global or regional environmental problems” (European Commission, 2004, p.3). The main difference is in the type of legislation, New Zealand being effects-based whereas the European Union environmental legislation is prescriptive. Two other areas of possible difference are the costs of complying with environmental legislation and the benefits derived.

For dairy, the European Commission report looked at how the cost of compliance affected both the internal competitiveness among EU Member States and between third countries (eg. New Zealand). Their conclusion was “that with these limited differences in compliance costs, EU Member States do not lose significant market shares” (European Commission, 2014, p. 264).

With respect to competitiveness the conclusion for sheep farming was “that the competitiveness of EU sheep production is not caused by compliance with legislation” (European Commission, 2014, p. 265).

5.3 What effect does New Zealand’s environmental legislation have on farmers?

The literature review has discussed the importance of the environment and the impact agriculture has on it (see section 2.1). New Zealand, as does the entire planet and all of society, depends upon healthy biological and physical systems. Agriculture relies on and has an impact on the natural resources of soil, water, air, biodiversity and landscape, all found naturally within the environment. For agriculture to remain viable the natural resources on which it is based need to be maintained. It needs to be environmentally sustainable. The

majority of the farmers interviewed understood the benefits of considering the environment and were supportive of protecting nationally important values.

In most countries some form of legislation is used to safeguard the environment. In New Zealand the main legislation is the Resource Management Act 1991 which promotes the sustainable management of natural and physical resources by setting out how we manage our environment. Farmers' main point of contact with the RMA is through the district and local councils which interpret and implement it through District and Regional Plans. Burrell et al. (2006) suggests that environmental legislation impacts New Zealand farmers through quantifiable costs, qualitative effects, impacts on decision making behavior and benefits.

Quantifiable costs have been determined in the European Commission research and show that while there is no big difference between costs incurred by New Zealand farmers and European Union farmers, there are still significant costs.

The conceptual framework below (figure 5.1) illustrates the factors and impacts discussed in the literature review. The focus of this thesis is shown in the oval shapes.

The following section uses this framework to discuss the findings of the thesis.

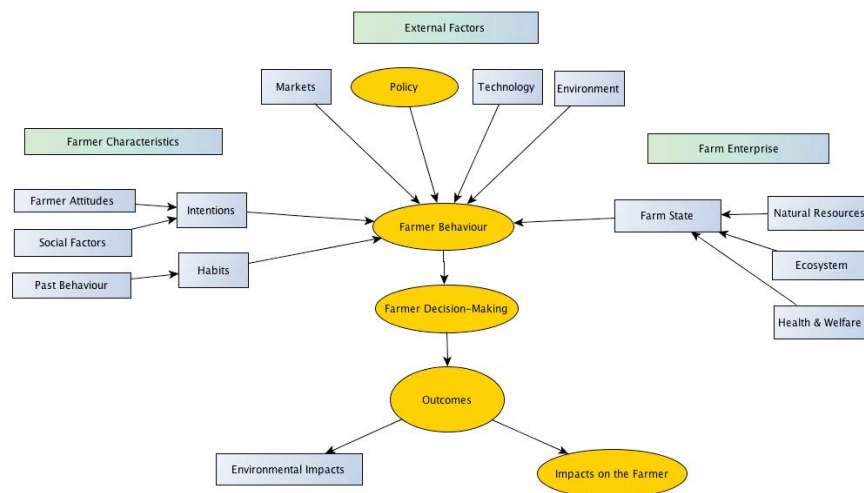


Figure 5.1 Conceptual Framework

5.3.1 Farmer Behaviour

There are three factors that affect a farmer's behavior – external factors, the farm enterprise and farmer characteristics. Combined with the state of the farming enterprise and a farmer's characteristics, in particular the farmer's attitude which according to Edward-Jones (2006) plays an important part in decision making, policy is one of the external factors that affects the behavior of individual farmers. The literature review includes Willock et al.'s (1999, p. 287) definition of attitudes as “a positive or negative response towards an attitude-object (where the attitude-object may be a person, idea, concept, or physical object).” Kaine et al. (2010) propose a framework for “understanding and predicting the motivation of an individual to comply with regulations” (Kaine et al., 2010, p. 531) which puts individuals' attitudes into one of four quadrants depending on their attitudes to the issue and to the intervention. They suggest attitudes can be favourable (comparable to Willock et al.'s positive response), unfavourable (comparable to Willock et al.'s negative response), or no attitude formed. Thus farmers may respond to policy by being positive and pro-active (favourable attitude), ignoring it (unfavourable attitude), finding ways around it (unfavourable attitude), or accepting it per se (no attitude formed). All six farmer interviewed had had a reasonable amount of involvement with the RMA legislation and the institutions that regulated it, their attitudes falling into quadrant 3. Therefore they had all formed attitudes, favourable or unfavourable depending on the issue and the intervention as described by Kaine et al. (2010).

Kaine et al. (2010) hypothesise that individuals have a favourable attitude when they perceive that “benefits of complying would outweigh the costs of meeting intervention obligations, or because the intervention imposes obligations that align with their views, or both” (Kaine et al., 2010, p. 534). They hypothesise that individuals have an unfavourable attitude when they perceive that “the cost of meeting the intervention obligations would be greater than the benefits of complying or because the intervention imposes obligations and behaviours that do not align with their views, or both” (Kaine et al., 2010, p. 534). An example of this with respect to the interviews was when faced with clearing of indigenous vegetation, one farmer cleared the land without consents “because it was too much hassle” (unfavourable attitude) while another farmer saw an advantage in complying with the regulations “because the land is worth more with sections in its natural state than it is completely in clover and ryegrass and

because we farm deer and they are a browser rather than a grazer they prefer to have a little bit of broadleaf and a little bit of grass, a little bit of coprosma and so it has done well” (favourable attitude).

Costs of complying with the RMA, i.e. the cost of meeting the intervention obligations, had been incurred by all six farmers interviewed through financial costs and personal costs. Five of the farmers thought it was the legislation itself (the issue) that caused their concerns and four thought it was the related regulation and policy (the intervention).

The farm enterprise also impacts on farmer behavior. This thesis did not cover this topic but it should be noted that those farmers interviewed who had large farms were able to negotiate with advocacy groups and put some land aside for biodiversity.

5.3.2 Farmer Decision Making

The farmers interviewed were well educated and had a wealth of experience. They are constantly making decisions about how to run their farms be it financial, on-farm decisions (eg. what type of seed to plant and how much per hectare), investments (eg. what brand of tractor), technology, the markets, and changes. Policy is just one of the factors that they have to consider.

Burrell et al. (2006) found that during the decision making process businesses, because of the impact of the RMA, may:

1. change the location of their business
2. change their management to avoid notified consents
3. consider new types of technology and when to buy

None of the farmers interviewed had seriously contemplated selling their farm to buy in another district because of the RMA.

They had mainly complied with the environmental legislation although there were examples of non-compliance and of avoidance. For example one farmer did not comply with the requirements for spraying and burning and another circumvented the requirements for spraying and cultivating (vegetation clearance) by oversowing and topdressing first. [The Mackenzie District Plan (2004) has the following exemption to vegetation clearance: “any short tussock grassland where the site has been oversown, and topdressed at least three times

in the last 10 years prior to new clearance so that the inter-tussock vegetation is dominated by clovers and/or exotic grasses”.]

All the farmers interviewed had changed their practices and had made management decisions differently because of the RMA. One management change which affected several farmers was to lessen nitrate leaching. Thus new types of technology mentioned were to do with spraying equipment, eg. wider sprinkler spacings and the technology to allow spraying effluent through pivots. One farmer commented that he had become more strategic in some farming practices as a result of the RMA regulations.

5.3.3 Outcomes

The outcomes of complying or not complying with the RMA that impacted the farmer and mentioned in the literature review were numerous. They have been presented below under the headings of ‘Direct Outcomes’ and ‘Indirect Outcomes’. A third section, ‘Observations’, discusses issues that arose from the interviews but are not direct outcomes of the RMA. In some cases the ‘Observations’ created on-farm or off-farm outcomes such as the different interpretations by those who administer the RMA.

Direct Outcomes

The direct outcomes arrived at in this thesis are environmental outcomes, changes in productivity, alterations to farming practices, innovation and growth, missed opportunities and projects that fit better with the environment.

The RMA was introduced with the purpose “to promote the sustainable management of natural and physical resources” (Ministry for the Environment, 2011). Several of the interviewees indicated that the goals and objectives of the RMA were similar to their personal views, especially in respect of sustainability, nationally important values, and the environment in general. It was also pointed out that having good environmental outcomes is complementary to farming goals. A farmer interviewed put it as “our property is adjacent to a National Park and we have conservation covenants that are aligned to RMA goals of landscape and vegetation and that is complementary to my business success.” Another farmer stated “we always understand the benefits from protecting the environment.” A third farmer felt that if

you did development and protection hand-in-hand and not be extreme “you became more passionate about the environmental side”. Two farmers did comment that although compliance with environmental legislation helps to maintain and improve environmental sustainability, it was not always the case. As one farmer said “I think that is the intention but it does not always happen.” None of the farmers interviewed suggested they complied with the RMA to produce better environmental outcomes because they wanted to be good corporate citizens as Burrell et al. (2006) had found.

The RMA can indirectly alter productivity levels as a result of owners and staff spending more time at meetings, gathering information, preparing consents, etc. rather than attending to the core business of farming was suggested by Burrell et al. (2006). All six farmers had spent time in preparing consents, in the plan process and in dealing with advocacy groups. The effects of the RMA can also reduce productivity as owners/managers spend time thinking of ways of ‘getting round’ the RMA rather than focusing on production (Burrell et al., 2006). One farmer acknowledged he sprayed weeds and tussocks instead of burning them to avoid a consent or clashing with the RMA. Another farmer said he has become more strategic when it came to vegetation clearance.

Burrell et al. (2006) state that “The RMA can alter production processes when plans and council decisions dictate rules.” The farmers interviewed said that they had had to or would have to change the way they ran their farms in response to the RMA or their district or regional councils. One farmer had to change his application resulting in not dairy grazing and another had to plan better to stay within limits (eg. spraying only 15% of a block per annum). Several of the farmers considered their changes in response to the RMA were sometimes positive such as reducing nitrogen leaching and increasing fertility and subsequently production. One farmer said he had oversown and topdressed to entitle him to spray and cultivate which he wished he had done ten years earlier.

The RMA can both encourage and discourage innovation although their interviews had weak support for encouraging innovation (Burrell et al., 2006). Most of their interviewees stated that “they would have innovated in any case in order to be competitive”. This concurred with the

findings of this thesis. All six farmers considered that they had been innovative and gave examples but this was not necessarily because of the RMA and all said they would have innovated in the absence of the RMA. One farmer stated that farmers had been innovating long before 1992 and did not think the RMA had helped innovate farming. He said he thought that “farmers in general are very good innovators” that “the economy provides the biggest incentive to innovate, more so than the environment” but “because of the sustainable economy you do tend to innovate for something that protects the environment at the same time.” Two farmers thought their ability to innovate had been stifled as Harcombe (2007) had suggested, one farmer had seen other people’s ability to innovate had been restrained and another thought he may be stifled in the future. However it should be pointed out that Burrell et al. (2006, p. 66) were sceptical of their findings on this point suggesting that their interviewees may have been influenced by the RMA even though they said they were not. They contend that it is “a common problem with the analysis of regulatory regimes”. In this respect, although many of the innovations undertaken by the farmers interviewed in this thesis were for financial reasons (either saving money or making money), they may also have been subtly influenced by the RMA.

The nitrate leaching regulations had led to farmers being innovative in their application (eg. spraying effluent through pivots) and choice of fertilizer (eg. applying chicken manure to improve the texture of the soil as well as fertilise it). Two interviewees had obtained higher productivity which had offset the costs of complying with the RMA and another had cultivated more land which had also partially offset RMA costs. Two of the farmers had diversified into tourism, both on a significant scale.

A weak to moderate finding from Burrell et al. (2006) interviews was that projects can fit better with the environment as a result of the RMA because businesses can consider any needed changes before a project starts and mitigation can be better targeted.

Two of the farmers operate tourism businesses in conjunction with their farms and both thought that complying with the RMA encouraged them to protect the environment and therefore enhanced their tourism businesses. The success of the tourism businesses depended on protecting the environment. Another positive to the environment was complying with the nitrate and phosphate levels to limit their leaching. One farmer had installed a number of bores

to monitor the leaching of nitrates from his property before intensification of some of his land and he had fenced off a river to improve water quality.

Indirect Outcomes

The indirect outcomes are financial, missed opportunities, hiring consultants, the time saved from non-notified or permitted activities and the risk to property rights.

There are several financial outcomes:

Application and Processing Costs

The interviewees were not concerned over the cost of the application fees unlike the small to medium firms, which would be comparable to the farming businesses, that Burrell et al. (2006) interviewed who were concerned about the level of application costs.

Information Costs

Burrell et al. (2006) found that information requirements (e.g. from Councils) had increased and had become costly. Although five of the farmers were not concerned about the amount of information required and therefore did not find the costs a problem, they had all employed consultants. Consultants included ecologists, lawyers, and irrigation experts. One farmer accepted it as “the cost of doing business.”

Labour Costs

Five of the farmers had incurred additional internal labour costs although none had had to hire a dedicated staff member as Burrell et al. (2006) found. They had done a lot of the work themselves which had taken them away from focusing on their core business of farming. For example one farmer stated that he had dealt with 50 to 60 emails a day which related to the RMA. Burrell et al. (2006) found this to be a major impact. The one farmer who had not incurred additional internal labour costs stated it had caused him a lot of stress and had had a “large personal impact” on him.

Consultation Costs

Consultation costs can be with the community or with the council. All of the farmers had had interaction with environmental groups and/or the general public about

environmental issues on their farms which they considered was a time cost rather than a direct financial cost. It had sometimes led to financial costs for example court costs. Similarly the farmers had all dealt with their district and regional councils which again they saw as a time cost.

Court Costs

Five of the farmers had incurred court costs which could be extremely expensive. Three were still waiting for a result. This concurred with Burrell et al. (2006) who state “a strong finding from the interviewees is that firms find Environment Court hearings expensive and time consuming, with a relatively uncertain outcome.” Burrell et al. (2006) also found that many firms went out of their way to avoid Environment Court. One farmer interviewed for this thesis had come to a somewhat undesirable arrangement with environmental groups as he could not afford to go to the Environment Court.

Time Delays

Burrell et al. (2006, p. 37) state that “a strong finding from interviews is that one of the key impacts on firms is the extension of project timelines, while consents and plan changes are being processed by councils, objectors heard at hearings, negotiations held, and/or court cases settled”. All six farmers had experienced time delays and as mentioned above under ‘Court Costs’, three were still awaiting a decision. One farmer had been going through the process for a consent to irrigate for over ten years which included a two year Environment Court case, a two year wait for a decision, and several years negotiating and going through the court system with one environmental group.

Submissions

In the democratic process the public are invited to make submissions on councils’ proposed plans, plan changes, or plan variations under the Resource Management Act. Five of the farmers had made submissions, a time consuming exercise.

Burrell et al. (2006, p. 40) found that some interviewees thought the RMA had led to missed opportunities for New Zealand and for their firms. Difficulty in obtaining consents could lead to missed opportunities. The one farmer they interviewed said that “he would be unwilling to

subdivide his land and allow houses near his farm as it would lead to too many objections in future”. Half those interviewed for this thesis stated they had foregone investment opportunities or altered investment plans. This was due to delays in obtaining consents or for financial constraints because staff were helping with the RMA process rather than on development of the farm. An example was where the costs of employing consultants for an Environment Court hearing for a water consent “stopped the progress on the farm” and “for four years I did not do any development” and “it was just letting the farm run down.”

Burrell et al. (2006) commented on hiring consultants as a labour cost. Although this was a cost to all the six farmers, some were more concerned with the issue of impartiality. One comment was that “valuers are supposed to be the last non-advocating professional. They should be impartial to other people’s views but they should always hold their own views and it’s quite realistic for one ecologist to perceive something to be quite different from another. Whilst the plant, the genus and species name may be exactly the same, one ecologist may consider it has different values to another and that doesn’t mean that they’re impartial because there’s a difference between impartial and unprofessional and there shouldn’t be any room for unprofessionalism.”

Generally most farmers take advice from consultants on normal farm operations (eg. soil, fertilizer, seeds, etc) but when a consent is required under the District Plan, Regional Plan, the RMA, or valuation issues the position changes. Then a farmer is required to select and pay for a consultant (eg. ecologist) and the council also hires another consultant who does a peer review of the farmer’s consultant’s information. The farmer who was the most concerned about consultants was concerned that often, in his experience, the consultants employed by the different parties gave conflicting evidence. He thought that RMA issues “polarized experts into a ‘development group’ and an ‘anti-development group’ with the farmer applicant often paying for both sides.” The examples he gave, from his own experience, included the assessment of landscape and ecology. This farmer and another thought the RMA had created an industry for RMA consultants and lawyers the number of which possibly exceeds the actual farmers.

In some districts most farming activities are permitted albeit with strict rules. The farmers were aware of the time and cost involved in a notified consent and where possible looked for options that were permitted activities. Burrell et al. (2006) found that quick consent processes, including those that meet the 20 day statutory rule, saved firms time and expense. The farmers concurred with this but not all had received their consents within 20 days or the consent had been challenged by environmental groups which had extended the 20 day time-frame.

Property rights include the “rights to determine the use of property, income from property, disposal of property, and the exclusion of others from property” (FFNZ, 2014a, p.1). All six farmers interviewed agreed with the change suggested by FFNZ to acknowledge stewardship. Two farmers also mentioned their concern about the watering down of their property rights during other sections of the interviews. One farmer stated that what he did not like about the RMA was that it significantly affected the value of the land explaining that it was not just what is currently on the land and how it is currently farmed but also what can be done with that land in the future. It was noted by another farmer that in his tenure review the government agency LINZ had recognized and compensated for covenants which had been placed on his land and had therefore inhibited future development. However this was the only organization mentioned that had recognized the limitations that covenants put on farming. An example of curtailing future development was given by one farmer who had “offered a large portion of the farm to be put in a QEII Trust” in a deal with environmental groups so he could avoid the expense of going to the Environment Court. Another farmer, to appease environmental groups, had also suggested covenanting land which would only be able to be lightly grazed in the future. A farmer who said he felt very strongly about the issue of property rights was concerned that to run his business successfully and to allow for succession he needed to be able to “green” his property, irrigate, pastorally intensify and possibly subdivide. However he thought that the restrictions on such activities by “people who don’t live in our community” was a “huge property right that is not compensated for.” A decision by council or an agreement with an advocacy group may have very long term effects.

Observations

There were several issues that arose that were neither on-farm or off-farm outcomes but are worthy of comment. They are the awareness of community needs, relationships with the community, the different interpretations and enforcement by those who administer the RMA and the influence of environmental groups and the public.

Burrell et al. (2006) found that many of their interviewees had become more aware of community needs and that was a positive. Most of the farmers interviewed said they were more aware of community needs. Points raised were:

- a. the council interpretation of community needs as farming can take second place to tourism.
- b. decisions and opinion made by the community were not necessarily based on scientific or empirical evidence.
- c. the involvement of the community was sometimes excessive.

There were two schools of opinion with respect to relationships with the community. One farmer stated that students visiting his farm left with a better understanding. The other view was that because under the RMA the community could have more involvement, relationships between farmers and the community had become worse. One farmer said that public relations had “divided the rural/urban gap” and another offered an explanation: “Public intelligence has been abused by poorly researched media stories. They appear to have been written by journalists with agendas. They use words like pollution, contaminant or nutrient in a destructive context.”

Four of the farmers found the consent process unclear, one believing the confusion arose from the way it was interpreted by different parties. Criticism by the majority of the six farmers (at least five) was leveled at local and regional councils for:

- a. positive impacts not taken into account

All six farmers were disappointed that positive impacts were not normally taken into account when assessing a project. It was suggested that as the RMA directs that economic benefits as well as environmental outcomes should be considered it followed that councils should put more emphasis on positive impacts. As one

farmer stated: “make the requirement to balance benefits with cost more robust and contestable.”

b. delays in decision making

This has been discussed above under ‘Indirect Costs’.

c. an inconsistent approach

Burrell et al. (2006 p. 70) state that “there is significant variation between territorial authorities in New Zealand in terms of their implementation of the RMA”. This is also demonstrated in the table 2.6 by Wilson (2001) which presents the different methods adopted by councils for monitoring water quality. It was suggested in the interviews that it was because there are no national rules. Two of the farmers interviewed operated in different locations and under different councils. They both agreed along with three of the other farmers that from their experience there was an inconsistent approach between councils and between council staff and council appointed consultants. One farmer stated that “a lot of the resources are the same and also the activities around them between district authorities and they can be chalk and cheese.” An example given was that the Otago District Council allowed irrigation on 400 hectares on the basis of a hand written application and a \$250 fee whereas the Mackenzie District Council and ECAN had taken over 10 years at a cost to the farmer of several million dollars with as yet no irrigation consent. One farmer believed with respect to different councils’ rules for resource consents for normal farming activities that “the interpretation is the problem between one planner and the next.” However one farmer recognized that it was sometimes hard to be consistent as the RMA “wants things to be specific to the region, the people and the physical characteristics”. For example “the purpose wasn’t to make a farm in Wanaka the same as a farm in South Auckland.”

d. inequitable treatment

Five of the farmers interviewed were concerned about inequitable treatment by the council staff and council consultants. One farmer commented about this in relation to the quality of an application. He thought the approach should be about the

outcome not the application stating that “deeper pockets can attempt to get preferential treatment.”

e. long processing times

Streamlining the process was one of Federated Farmers’ suggested changes and all six farmers agreed with this. Burrell et al. (2006) also found that their interviewees were concerned about the processing times for non-notified and notified consents. All six farmers agreed that the process should be streamlined.

f. having to apply for resource consent for normal farming activities.

This is an issue raised by Federated Farmers New Zealand and all six farmers had concerns about applying for resource consent for their normal farming activities. In the interviews farmers gave the following examples as normal farming activities: burning, spraying, earthworks, clearance of indigenous vegetation, maintenance of tracks, construction of buildings, effluent discharge and pivot installation. One farmer queried what a ‘normal farming activity’ was and said that change was part of farming. Another farmer added that although he did not think he should have to apply for a resource consent for normal farming activities he did think he should have to apply for a consent for changes to activities. A concern for one farmer was that it would “increase costs and cause reduced productivity to the extent consents are delayed or limited.” A stronger view from another was that “applying for consents for normal farming activities was ‘the thin edge of the wedge’.”

Society, environmental groups and councils are putting more demands on farmers to address environmental issues and protect outstanding landscapes and indigenous vegetation (Melyukhina, 2011; Harcombe, 2007). Two of farmers’ specific concerns with the RMA, according to the FFNZ (Booklet) were “the impact on landowners when councils are protecting nationally important values” and “environmental advocacy by groups with no community mandate, or who live outside of the region.”

The issue of ‘environmental advocacy’ arose a number of times throughout the interviews. In general the six farmers were supportive of protecting the environment and had had some positive experiences with environmental groups and the public. In one instance the farm property had won an award from the Department of Conservation for wilding tree control.

Two farmers had had positive feedback during tenure review from environmental groups with one saying a group had been impressed with his alpine shrubland rejuvenation programme. However there was concern about the involvement of environmental advocacy groups, the public and the councils. In some instances it was the way the advocacy groups were involved and the demands they made. One farmer had found that some advocacy groups, members of the public and council employees were opposed at the outset to his farming activities (irrigation and dairy farming) and “attempted to create evidence to support their position”. The example another farmer gave was that an advocacy group “wanted to secure access to the property without contributing to maintenance costs.” A third farmer said he had issues with the public, particularly one neighbor, entering his property. Two of the farmers noted that their farms were in a high profile area which attracted a lot of interest and one said “people love to talk about it even though they probably don’t even know where it is.” Several farmers suggested that objectors should have to pay to be heard. The farmers themselves incurred considerable costs in dealing with advocacy groups both through litigation and through putting land aside. As one farmer said: I think that environmental advocacy is very important and it should raise awareness to things but that doesn’t mean that someone for the price of a postage stamp would be able to appeal something to the environment court if it makes no sense”. He went on to say: “ The thing I don’t like about the environmental advocacy groups is they tend not to front up in person.” In the same vein another farmer said: “I think the biggest thing for me is the environmental agencies need to pay more to be heard because they have such an impact on people that are seeking consents under the RMA and because it costs them little to be heard.” This to some extent aligns with Harcombe’s (2007) comments that Environmental groups and Councils (through section 6 of the RMA) are bringing economic pressure on farmers through demands of protection of outstanding landscapes and indigenous vegetation without recognition of the economic sustainability of the farm property. One farmer stated that he had found his council quite helpful but that “the pressure from other groups” on the council had made things “more difficult.”

All of the farmers interviewed would like farms recognized as working landscapes (as suggested by Federated Farmers). The literature review pointed out that the public often wish to retain their perceptions of an “ideal” farming landscape (Harcombe, 2007) which is not

always in line with a “working” landscape. One farmer suggested that closing farms up as some environmental groups have suggested did not necessarily have the desired outcome. Several farmers commented that the community, advocacy groups and councils did not understand the concepts of farming and therefore the consequences of their actions and suggestions. One comment was that “change was inevitable and part of what we do” while another was that there was “increasingly a lack of understanding from stakeholders about how to run a high country station.” Another farmer stated that “the protection of nationally important value is something we agree with but needs to be dealt with so that the scale of the values on a particular farm are compared with the values in the wider area.”

5.3.4 Impacts on the Farmer

The impacts on the farmer as a result of the above outcomes include:

a. **Satisfaction**

Burrell et al. (2006) found that the firms they interviewed got satisfaction as a result of the RMA from better environmental outcomes, projects being a better fit with the environment and improved relationships with the community.

Several of the interviewees indicated that they got satisfaction because their views were similar to the goals and objectives of the RMA especially in respect of sustainability, nationally important values, and the environment in general. One farmer had taken a more sustainable approach to farming rather than mining the land because of the RMA. He felt positive about this goal or objective of the legislation and said “I believe it is positive in a sense that one of its goals or objectives is sustainability and sustainability is in the best interest of everyone including the landowner and whilst some people see that probably a little bit differently I think it has made us look at our businesses not only from an economic but also an environmental point of view.” An example of improved environmental outcomes was using less chemicals which resulted in improved water quality. Another farmer thought it was really positive that commercial businesses such as the New Zealand Merino Company had leveraged off New Zealand’s environmental sustainability.

From the interviews, satisfaction also came from seeing the farming business going hand-in-hand with a tourism business on the same property and from getting positive feedback from visitors. Increased flexibility with what is able to be done and where under the RMA was another advantage. A comment relating to this was “it gives a controlling influence on the way the business is developed.”

b. Uncertainty

Uncertainty can arise from council applications and processes, the length of time to process the applications, whether the application will proceed to a court hearing and the chances of it's success, objections from advocacy groups and/or the community, whether the RMA and/or council annual plans will be changed and the conditions that the change may impose, and the chances of a similar application being accepted (Burrell et al., 2006). Harcombe (2007) also suggests uncertainty may arise from protecting matters of national importance and the interpretation of such by the community, environmental groups and councils which creates a risk to property rights.

Uncertainty was an issue for the majority (five out of six) of the interviewees and all the above reasons were mentioned. Additional reasons given were because of not knowing what you could or could not do under the regulations, “ever increasing requirements” and what future requirements may be introduced.

c. Stress

Job related stress among farmers is an international issue and government regulation is one of the recognized stressors (Simkin et al., 1998; Firth et al., 2001; Firth et al., 2006). The interviews supported the views that government regulation, in this case the RMA, causes stress to farmers. The main reasons given for stress were economics, uncertainty (see above), the risk to property rights and environmental advocacy. As one farmer said when talking about stress: “definitely the RMA has an effect on things because you don't know what you can and can't do sometimes and ‘security of private title’ is the key component.” Two of the farmers said that they consciously managed the stress and had become more philosophical.

CHAPTER 6

CONCLUSIONS

6.1 Introduction and Conclusions

The purpose of this thesis was to explore how and why environmental legislation impacts on New Zealand farmers.

The main questions were:

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?
2. What effect does New Zealand's environmental legislation have on farmers?

These questions are now addressed, the second one by discussing the six hypotheses based on the research by Burrell et al. (2006).

1. How does environmental legislation differ between New Zealand and the European Union with respect to farmers and their actions?

There are three main areas in which New Zealand's environmental legislation differs from the European Union with respect to farmers and their actions.

1. The European Union environmental legislation is prescriptive whereas New Zealand's legislation is effects-based. This affects farmers in that there is more consistency in the implementation of policies in the EU than in New Zealand.
2. The European Union pays subsidies and incentives whereas New Zealand does not.
3. The cost of complying with environmental legislation. The research by the European Commission found there was little difference in the costs of compliance.

2. What effect does New Zealand's environmental legislation have on farmers?

Environmental legislation impacts New Zealand farmers through quantifiable costs, qualitative effects, their decision making strategies and through benefits. The research in this thesis has shown that the RMA has cost the six farmers through time and expense when complying with the legislation. It has also highlighted other outcomes which have impacted the farmers.

The results are summarized according to the following six hypotheses:

Hypothesis 1: The RMA creates direct and indirect costs for the farming business

Direct costs on the farming business include application and processing costs, information costs, labour costs, consultation costs, court costs, financial contributions and penalties. The six farmers had incurred costs in all these areas although they did not quantify them. All thought that the time and expense of complying with the Act was a problem. Indirect costs include time delays, time involved making submissions, missed opportunities including investment opportunities, and altered productivity levels.

Hypothesis 2: The RMA has indirect impacts on the farmer

The literature review has highlighted two indirect impacts on farmers: uncertainty and stress.

Uncertainty

Uncertainty was an issue for the majority (five out of six) of the interviewees which aligns with the literature review. Two reasons for the farmers interviewed to feel uncertainty which concurred with the literature review are:

- a. The interpretation and enforcement of the RMA regulations (Burrell et al., 2006; Melyukhina, 2011).
- b. Risk to property rights (Harcombe, 2007).

Stress

Job related stress among farmers is an international issue and government regulation is one of the recognized stressors (Simkin et al., 1998; Firth et al., 2001; Firth et al., 2006). The interviews supported the views that government regulation, in this case the RMA, causes stress to farmers. The main reasons given for stress were economics, uncertainty (see above) and environmental advocacy.

This thesis also found that satisfaction, particularly with environmental outcomes, is another indirect impact on farmers.

Hypothesis 3: The RMA motivates farmers to be innovative

Burrell et al. (2006) state that the RMA can both encourage and discourage innovation although their interviews had weak support for encouraging innovation. Most of their interviewees stated that “they would have innovated in any case in order to be competitive”. This concurred with the findings of this thesis. All six farmers considered that they had been innovative and gave examples but this was not necessarily because of the RMA and all said they would have innovated in the absence of the RMA.

Hypothesis 4: Farmers see room to improve the RMA and its process

All six farmers, though well educated, thought the RMA process was complex as did the majority of the businesses interviewed by Burrell et al. (2006) (see section 2.4.3). This complexity may be a reason that rules are often interpreted differently by different groups. It may also be a factor in why five of the farmers thought the RMA itself was a cause of the issues they had with the RMA. Conversely, those interviewed by Burrell et al. (2006) did not think it was the RMA that was the main issue. Five of the farmers also thought the ‘institutions set up to implement the RMA’ equally, if not more, contributed to the cause of their issues as did those interviewed by Burrell et al. (2006).

A number of the issues that the six farmers were asked about concerned them but the three concerns that were unanimous were:

1. ‘environmental advocacy’,
2. ‘positive impacts not taken into account’, and
3. ‘delays in decision making’.

Those concerns where five farmers agreed were:

1. ‘inconsistent approach by local authorities’,
2. ‘inequitable treatment’, and
3. ‘processing times’.

Apart from ‘environmental advocacy’ these concerns were directed at councils.

The farmers all made suggestions that they thought would improve the RMA process. Burrell et al. (2006) and Federated Farmers NZ (2014b) have suggested changes to the RMA. The first list below records the improvements suggested by the farmers interviewed that correspond with changes suggested in the literature review. The second list includes improvements that were not cited in the literature review.

Suggested Improvements corresponding to the literature review:

1. “consistent plans throughout the country which are consistent with Government Policy” – national rules
2. “fewer groups involved in setting rules, e.g. Zone Committees”
3. “rules for appeals to be the same as for applications”
4. “environmental agencies need to pay more to be heard”
5. “make time frames mandatory”
6. “more efforts at the national level to promote consistency”

Suggested Improvements not cited in the literature review:

1. “give local people the power to determine what happens in their own community”
2. “use the experiences of effects-based to be more activity-based while still allowing change in the future”
3. “get things more objective rather than subjective”
4. set up a court/board/committee to consider objectors’ views and decide on the merits of those views before the expense of returning to the Environment Court
5. “make the requirement to balance benefits with cost more robust and contestable.”
6. “objectors pay all actual costs of applicant and authorities and other participants to the extent they fail.”
7. “information, evidence and process requirements to be appropriate for the scale of the likely environmental cost.”
8. a forum where everyone interested can discuss the issues
9. compensation
10. democratically elected councillors

Hypothesis 5: Different farmers experience different impacts from the RMA

As shown in the literature review, a farmer's decision making is influenced by his characteristics and his farming enterprise. Therefore it can be expected that they will react differently to the RMA resulting in different outcomes and thus experience different impacts. However the impacts in general were common across all six farmers and the differences were subtle.

The most noticeable difference was in the farmers' attitudes to conservation. Kabii & Horwitz (2006) stated that there is a positive attitude to nature conservation efforts so long as landholders do not feel their livelihoods are threatened. Unfortunately several of the farmers interviewed did feel their livelihoods were threatened by the added direct and indirect costs the RMA causes, the impact on the value of their land, the impact on farm succession and their property rights being watered down. Nonetheless some of the farmers still saw the benefits of good environmental outcomes. The two large sheep, beef and deer farmers (farmers 2 and 5) in particular saw more benefits than the other four farmers.

Hypothesis 6: The RMA is a necessity, even though it imposes a cost on businesses

There was a mixed response to this hypothesis and no clear conclusion unlike Burrell et al. (2006) who found this hypothesis proven. There was no consensus on whether the RMA generated a positive net benefit to society nor whether the cost of managing the environment is fairly or unfairly imposed on the farmers. In general the farmers thought they had a better understanding of how to farm with respect to environmental impacts than councils and the public.

Summary of the results relative to the hypotheses

Hypothesis 1	The RMA creates direct and indirect costs for the farming business	Yes
Hypothesis 2	The RMA has indirect impacts on the farmer	Yes
Hypothesis 3	The RMA motivates farmers to be innovative	No
Hypothesis 4	Farmers see room to improve the RMA and its process	Yes
Hypothesis 5	Different farmers experience different impacts from the RMA	Yes *
Hypothesis 6	The RMA is a necessity, even though it imposes a cost on businesses	Unclear

* Yes but very minor differences

6.2 IMPLICATIONS OF RESEARCH

There has been little previous research into the views of farmers with regard to New Zealand's environmental legislation, especially those opinions that are not cost related. Knowledge of the decision making processes of and the impacts on farmers is important in understanding farmers and in predicting their reactions to environmental legislation. This research demonstrates that investigation into the impacts of environmental legislation on New Zealand farmers is possible. The research has uncovered the concerns farmers have especially those related to their property rights. It has also highlighted the benefits of the RMA. This study has provided insights into a section of the community who are regulated by the RMA but maybe do not have a prominent voice on the subject. The analysis of the interviews with six farmers shows the importance of personal consequences as well as economic considerations. Although the results and conclusions cannot be generalized because of the small size of the research population even though all the farmers thought they were typical, the research shows that the consequences of New Zealand's environmental legislation warrants further investigation.

6.3 RECOMMENDATIONS FOR FURTHER RESEARCH

To endorse the findings of this research, it is recommended that this study be replicated. In addition, it would be advantageous to explore the opinions of farmers in other locations and of people in other sectors of the community. More in depth research could also be conducted into the perceived threat to property rights, the involvement of advocacy groups, the farmer/council relationship and the suggested improvements.

APPENDIX 1

New Zealand Environmental Legislation Acts

- Accident Compensation Act
- Agricultural and Pastoral Societies Act 1908
- Agricultural Compounds and Veterinary Medicines Act 1997
- Animal Control Products Limited Act 1991
- Animal Identification Act 1993
- Animal Products (Ancillary and Transitional Provisions) Act 1999
- Animal Products Act 1999
- Animal Welfare Act 1999
- Apple and Pear Industry Restructuring Act Repeal Act 2001
- Aquaculture Reform (Repeals and Transitional Provisions) Act 2004
- Biosecurity Act 1993 (Ministry of Agriculture and Forestry)
- Building Act 1991 (eg dams)
- Climate Change Response Act 2002
- Commodity Levies Act 1990
- Conservation Act 1987 (Department of Conservation)
- Crown Minerals Act 1991 (Ministry of Economic Development)
- Crown Pastoral Land Act 1998
- Dairy Industry Restructuring Act 2001
- Environment Act 1986
- Fiordland (Te Moana o Atawhenua) Marine Management Act 2005
- Fisheries (Quota Operations Validation) Act 1997
- Fisheries Act 1996 (Ministry of Fisheries)
- Food Act 1981
- Forestry Encouragement Act 1962
- Forestry Rights Registration Act 1983
- Forests (West Coast Accord) Act 2000
- Forests Act 1949 (with 1993 amendment) (Ministry of Agriculture and Forestry)
- Hazardous Substances and New Organisms Act 1996
- Hop Industry Restructuring Act 2003
- Irrigation Schemes Act 1990
- Kiwifruit Industry Restructuring Act 1999
- Māori Commercial Aquaculture Claims Settlement Act 2004
- Māori Fisheries Act 1989
- Māori Fisheries Act 2004
- Marine and Coastal Area
- Meat Board Act 2004
- Ministries of Agriculture and Forestry (Restructuring) Act 1997
- Ministry of Agriculture and Fisheries (Restructuring) Act 1995
- Ministry of Agriculture and Forestry (Restructuring) Act 1998
- National Parks Act

- New Zealand Horticulture Export Authority Act 1987
- Ozone Layer Protection Act 1996
- Phosphate Commission of NZ Dissolution Act 1989
- Plants Act 1970
- Pork Industry Board Act 1997
- Potato Industry Act Repeal Act 1988
- Poultry Board Act Repeal Act 1989
- Primary Products Marketing Act 1953
- Public Works Act 1981 (Part XIX - Irrigation)
- Resource Management Act 1991
- Royal New Zealand Institute of Horticulture Act 1953
- Soil Conservation and Rivers Control Act 1941.
- Taratahi Agricultural Training Centre (Wairarapa) Act 1969
- Treaty of Waitangi (Fisheries Claims) Settlement Act 1992
- Veterinarians Act 2005
- Walking Access Act 2008
- Waste Minimisation Act 2008
- Wildlife Act 1953 (Department of Conservation).
- Wine Act 2003
- Wool Industry Restructuring Act 2003

APPENDIX II

Otago Regional Council rules regarding nitrate leaching:

12.C.1.3 The discharge of nitrogen⁴ onto or into land in circumstances which may result in nitrogen entering groundwater, is a permitted activity, providing:

(a) From 01 April 2020, the nitrogen leaching rate does not exceed:

- (i) 15 kgN/ha/year for the total area of land managed by a landholder that is located over the relevant Nitrogen Sensitive Zone identified in Maps H5 and H6; and
- (ii) 20 kgN/ha/year for the total area of land managed by a landholder that is located over the relevant Nitrogen Sensitive Zone identified in Maps H1 to H4; and
- (iii) 30 kgN/ha/year for the total area of land managed by a landholder that is located outside any Nitrogen Sensitive Zone identified in Maps H1 to H6,

as calculated using OVERSEER® version 6 by a Certified Nutrient Management Advisor in accordance with OVERSEER® Best Practice Data Input Standards; and

(b) (i) From 1 May 2014 to 31 March 2020, the landholder for outdoor pork, fruit (excluding grapes), berry and rotational vegetable production will keep a record of all complied with the relevant industry good management practices and provide Council upon request with that information.

From 1 April 2020, 12.C.1.3(b)(ii) will apply; and

(ii) From 1 May 2014, in all other cases, the landholder will:

(1) Maintain a record of all necessary data to run OVERSEER® version 6; and

(2) Provide Council upon request with:

- (a) All necessary data to run OVERSEER® version 6; or
- (b) Any available OVERSEER® version 6 output and input parameter report prepared by a Certified Nutrient Management Advisor in accordance with OVERSEER® Best Practice Data Input Standards.

⁴ For the purpose of Rule 12.C.1.3, nitrogen comprises of organic nitrogen, ammoniacal nitrogen, nitrite nitrogen and nitrate nitrogen forms.

APPENDIX III

Information Sheet

New Zealand Farmers and Environmental Legislation

Information Sheet

My name is Barbara Valentine and I am currently doing a thesis for a Master of Agricommerce at Massey University.

The aim of my research is to explore how and why environmental legislation impacts on New Zealand farmers. In particular there are three questions I am addressing:

1. How does environmental legislation impact New Zealand farmers?
2. What causes these impacts?
3. What improvements could be made?

I would like to invite you to participate in my research by being interviewed. You have been selected because you have some awareness of the Resource Management Act and have been or are still involved with New Zealand's environmental legislation. Personnel from five farms are being interviewed.

If you agree to take part you will be asked to answer a series of open-ended questions and give your opinion on each topic. The time commitment is estimated to be between one and two hours. If at any time you feel uncomfortable answering any question or giving any information you may choose not to answer without disadvantage to yourself.

The data collected will be analysed then stored in a secure environment. It will be destroyed after five years. No names nor information that could lead to your identity will be published in the thesis and the only people who will have access to the interview transcripts (including the participant's names) are my Massey University supervisor, Professor Nicola Shadbolt, and myself. A summary of the project findings will be given to you once the thesis is completed.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study (by 31 March 2014);
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interview.

If you have any questions or concerns about the project please contact me or my supervisor; our contact details are:

Barbara Valentine bvalentine.nz@gmail.com phone 021425031

Professor Nicola Shadbolt N.M.Shadbolt@massey.ac.nz

This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher please contact Professor John O'Neill, Director, Research Ethics, telephone 06 350 5249, email humanethics@massey.ac.nz.

Your participation is an integral component of my study and is much appreciated so if you decide to participate, thank you. If you decide not to take part there will be no disadvantage to you of any kind and I thank you for considering this request.

Consent Form

New Zealand Farmers and Environmental Legislation

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded

I wish/do not wish to have data placed in an official archive.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature

Date

Full Name – printed

Questions

The following are the guiding questions asked (in italics) and the justification for asking them. Those that are based on Burrell et. al.'s (2006) interview questions are marked as such.

Personal

Location

Type of farm

Size of farm

No of stock units

No of employees

Interaction with RMA (Burrell et. al., 2006)

How does your farming business interact with the RMA? (e.g. what types of resource consents have you applied for, have you made submissions on regional plans?)

Which government institutions have you been dealing with? (e.g. regional council or territorial authority, Ministry for the Environment, Environment court)

How much experience has your farming business had with the RMA?

Personally, how do you interact with the RMA?

Impacts of the RMA on your farming business (specific examples)

Please describe generally how the RMA or your district/regional plan has impacted on your farming business (in a positive or negative way)? (Burrell et. al., 2006)

Please describe one specific example where the RMA or your district/regional plan has impacted on your farming business in a negative way? If you operate in more than one district, can you differentiate between plans in one part of the country and another? (Burrell et. al., 2006)

Please describe one specific example where the RMA or your district/regional plan has

impacted on your farming business in a positive way? If you operate in more than one district, can you differentiate between plans in one part of the country and another? (Burrell et. al., 2006)

Have you been involved in developing the plan process? If so, was your experience positive or negative? (Burrell et. al., 2006) How and why?

Have you had to apply for resource consent for your normal farming activities?

Have you made decisions differently because of the RMA? (section 5.2.3) – examples

Have you had any interaction with environmental groups and/or the general public re environmental issues on your farm? (section 5.2.2.3) Positive or negative? Examples

Impacts of the RMA on your farming business (quantified) (section 5.2)

Can you quantify how much compliance with the RMA or your district/regional plan has saved you directly and indirectly? e.g. streamlined a process that would have been more complex under other regimes. (Burrell et. al., 2006)

Can you quantify how much compliance with the RMA or your district/regional plan has cost you directly and indirectly? (Burrell et. al., 2006) e.g.

Have you faced the following direct costs:

paid application fees, (Burrell et. al., 2006)

incurred additional internal labour costs, (Burrell et. al., 2006)

incurred additional external labour costs (external advice); (Burrell et. al., 2006)

court costs

paid financial contributions

paid penalties

Have you faced the following indirect costs:

delays, (Burrell et. al., 2006)

made submissions to select committees and/or council plans

missed opportunities, (Burrell et. al., 2006)

foregone investment opportunities or altered investment plans, (Burrell et. al., 2006)

been forced to change your inputs of production to less efficient ones, (Burrell et. al., 2006)

seen changes in productivity/efficiency, (Burrell et. al., 2006)

seen impacts on your ability to innovate (Burrell et. al., 2006)

Impacts of the RMA on the farming industry (Burrell et. al., 2006)

Do you think your experiences of the RMA would be typical of other farms?

Why?

How?

Do you have evidence for this?

Do you believe that the cost of protecting the environment is fairly or unfairly imposed on farming?

Changes made as a result of the RMA (Burrell et. al., 2006)

Have you had to change the way you run your farm in response to the RMA or your district/regional plan? If so, how?

Can you describe an example where your farm has innovated to at least partially offset the cost of complying with the RMA (if any)?

More specifically,

What was the nature of that innovation?

Did it bring financial gain to your farm?

To what extent did that financial gain offset the compliance costs?

Would you have innovated in the absence of the RMA?

If not, why not?

FFNZ Booklet concerns (section 5.1)

How do you feel about the following concerns from the FFNZ:

Having to apply for resource consent for normal farming activities

The impact on landowners when councils are protecting nationally important values

Environmental advocacy by groups with no community mandate, or who live outside the region

The time and expense of complying with the Act

Dealing with the Department of Conservation during the RMA process

Benefits of the RMA

Has your farming business seen any positive impacts of the RMA? (Burrell et. al., 2006) e.g.

Made your products/processes more innovative? (Burrell et. al., 2006)

Made your products/processes more efficient? (Burrell et.al., 2006)

Have you attracted new consumers? (Burrell et. al., 2006)

Become an early mover in a market relative to foreign competitors? (Burrell et.al., 2006)

Been able to make a swift business decision due to an activity being covered by a plan or through receiving a non notified resource consent very quickly? (Burrell et. al., 2006)

Seen other benefits? (Burrell et. al., 2006)

Have you personally seen any positive impacts of the RMA?

Awareness of community needs

Satisfaction from better environmental outcomes

Satisfaction from the understanding that RMA compliance helps to maintain and improve environmental sustainability (Burrell et. al., 2006)

Public relations

Project fits better with the environment

Do you agree that the RMA generates a positive net benefit to society even though it

imposes

costs on businesses? (Burrell et. al., 2006)

In how many instances has resource consent for an activity or development not been required because it was a permitted activity under the relevant plan? (Burrell et. al., 2006)

In how many cases have you received a non-notified resource consent for an activity or development within 20 working days? (Burrell et. al., 2006)

Issues with the RMA

Do you find the RMA process straight forward or complex? (section 5.3, no. 5)

Do you feel any stress because of the RMA? (section 5.2.2.3) If so, how? e.g. security of private title (section 5.2.2.4)

Do you feel uncertainty because of the RMA? (section 5.2.2.4) e.g. rule interpretation, skill of council staff

If you have issues with the RMA, do you think they are caused by (section 5.3):

the legislation itself (Burrell et. al., 2006)

by the related regulation and policy (Burrell et. al., 2006)

by the institutions set up to implement it (Burrell et. al., 2006)

by the way it is implemented at the regional/local level (Burrell et. al., 2006)

by the problems the legislation is designed to alleviate? (Burrell et. al., 2006)

Do you have any evidence for these perceptions? (Burrell et. al., 2006)

What aspect of the RMA concerns you most? (Burrell et. al., 2006) e.g.

- *An unclear consent process (Burrell et. al., 2006)*
- *An outcome you disagreed with (Burrell et. al., 2006)*
- *Delays in decision-making (Burrell et. al., 2006)*
- *Inconsistent approach by local authorities (Burrell et. al., 2006)*
- *Inequitable treatment (Burrell et. al., 2006)*
- *Variability and differences between plans (Burrell et. al., 2006)*
- *Availability of impartial consultants*

- *Environmental Advocacy, e.g. allowing too many objectors to slow the process – the problem of open standing*
- *Lack of consultation*
- *Positive impacts not taken into account*
- *Non notified consents/limited notification not always available*
- *Not effects-based – inconsistency between groups*
- *Processing times*
- *Information requirements*

Improvements

If you could change the RMA to lessen the negative impacts on you and strengthen the positive impacts, what changes would you make (please be very specific)?

- *Do you agree with Federated Farmers NZ's suggested six changes (section 5.4):*
 1. *acknowledge stewardship*
 2. *mandate consultation*
 3. *redefine DoC's role*
 4. *streamline process*
 5. *encourage farm succession*
 6. *recognize farms as working landscapes*

Are there any other changes you would like to see? e.g. more efforts at the national level to promote consistency? (Burrell et. al., 2006)

Have you made submissions concerning any of these? (Burrell et. al., 2006)

European Union

Can you tell me a bit about your EU counterpart's interactions with their equivalent.
(Burrell et. al., 2006)

How do you believe EU environmental legislation impacts on farms, compared with the RMA in NZ? (Burrell et. al., 2006)

Do environmental laws and compliance costs hinder the competitiveness of your business? Compared to the EU? (section 5.1).

APPENDIX IV

Improvements for businesses in general suggested by Burrell et al. (2006).

- writing national standards that would be interpreted and applied consistently by councils
- national guidance on council implementation
- more uniformity and standardization of consents
- legislation, plans and consents be written in plain language and be practical
- “positive social and economic externalities” of an activity “be recognized as well as the environmental impacts” (Burrell et al., 2006, p.55)
- “litigants to demonstrate standing and provide evidence, and the ability to sanction litigants and strike out cases” (Burrell et al., 2006, p.55)
- a quicker appeal system
- a simpler council process
- consistency between and within councils
- “additional information should only be requested once” (Burrell et al., 2006, p.56)
- a time limit put on council for processing applications
- restricting time delays and costs caused by objectors
- councils should be more accountable
- more national guidance to councils on implementation
- a central agency or group of independent commissioners “to force consistency, avoid political interference and help deal with issues outside of councils’ expertise” (Burrell et al., 2006, p.56)
- more experienced and better trained staff
- a positive attitude towards sustainable development be developed rather than no development
- standardization and uniformity of consents
- rules should be relevant and effects-based
(Burrell et. al., 2006)

APPENDIX V

Berg & Lune's (2012, p. 150/151) 'ten commandments of interviewing'.

1. never begin an interview cold
2. remember your purpose
3. present a natural front
4. demonstrate aware hearing
5. think about appearance
6. interview in a comfortable place
7. don't be satisfied with monosyllabic answers
8. be respectful
9. practice, practice, and practice some more
10. be cordial and appreciative

APPENDIX VI

Stake's (1995, p.131) 'critique checklist for a case study report':

1. Is the report easy to read?
2. Does it fit together, each sentence contributing to the whole?
3. Does the report have a conceptual structure (for example, themes or issues?)
4. Are its issues developed in a serious and scholarly way?
5. Is the case adequately defined?
6. Is there a sense of story to the presentation?
7. Is the reader provided with some vicarious experience?
8. Have quotations been used effectively?
9. Are headings, figures, artifacts, appendixes, and indexes used effectively?
10. Was it edited well, then again with a last minute polish?
11. Has the writer made sound assertions, neither over-nor under-interpreting?
12. Has adequate attention being paid to various contexts?
13. Were sufficient raw data presented?
14. Were the data resources well chosen and in sufficient number?
15. Do observations and interpretations appear to have been triangulated?
16. Are the role and point of view of the researcher nicely apparent?
17. Is the nature of the intended audience apparent?
18. Is empathy shown for all sides?
19. Are personal intentions examined?
20. Does it appear that individuals were put at risk?

APPENDIX VII

Impacts of the RMA on the Farming Business. A list by Farmer 4 of his difficulties with consenting on one of his farms.

1. Rules: Many of the rules bear little practical relationship to the effects of the activities.
2. Consent applications could easily be substituted by performance outcomes.
3. Thresholds between permitted activities and activities requiring consent are simply so low as to not relate to common sense or any practical level.
4. Earthworks: Earthworks quantities are so small that most earthworks activities require a consent.
5. Earthworks: Require a earthworks consent from both the Regional Council and a separate consent from the District Council.
6. Tracking: Require a tracking consent from both the Regional Council and a separate consent from the District Council for the same activity.
7. Streams listed in Regional Council documentation do not exist and require consents to be gained for activities over areas called streams that never have water in them.
8. Incomplete background and field investigation by the people writing the rules.
9. Vegetation clearance: rules relating to vegetation clearance are not able to be interpreted. Vegetation clearance rules in the Mackenzie District Plan can be interpreted four different ways.
10. Some Council staff (and their consultants) are biased and simply anti "development" i.e. anti change and are too influenced by "green" policies.
11. Repeat of investigations - good example is that the Ecan Commissioners resolved what the TLI for the lakes and rivers should be but now the ZIP is now completely redoing all of that work again with huge additional cost to the community.
12. Landscape issue - issue has been latched upon by greenies to stop any development in the Basin.
13. Doubling up of issues being examined during hearings and then required to be repeated again in further hearings. Good example of this is landscape issues. This was first examined by the Ecan Commissioners in the water permit hearings. Now being

- examined all over again by the District Council in subsequent applications.
14. Tenure Review: Issues being examined in tenure review then examined all over again in resource consent processes.
 15. Collaborative approach - huge financial and time input into this process and now it has had no effect on reducing the bureaucracy for obtaining consent. Forest & Bird refuse to acknowledge that 25,000 hectares of irrigation was agreed to by the Forum but publicise that 100,000 hectares of land should be set aside. No acknowledgement of the outcome of this process by the Regional or District Councils.
 16. Within the Mackenzie Basin, very difficult to undertake any activity (except continuation of an existing activity) without a resource consent.
 17. Plan Change 13 in the Mackenzie District Plan is re examining issues that were previously resolved by the Ecan Commissioners in the water permit hearings.
 18. Processing times by Mackenzie District Council of resource consent applications too slow.
 19. Regional Council and Mackenzie District Council putting resource consent applications out to consultants for processing who make a meal of the processing times and resultant high processing charges.
 20. "Reinvention of the wheel": Ecan Commissioners water permit decisions, collaborative approach outcome, ZIP Committee, Proposed Land & Water Plan Hearings, Plan Change 13 etc.
 21. ZIP Committee loaded with anti "development" i.e. change Committee members and giving slanted outcomes. Not enough property owner stakeholders on the ZIP Committee i.e. it is biased.
 22. Too many processes bombarding property owners who are attempting to farm the land - not possible for a small number of property owners in the Basin to be part of all of the processes. Yet the result is that each process claims to have represented, sought, discussed, and taken account of property owners concerns.

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