DOES NEW ZEALAND LAW PROTECT ORGANIC PRODUCTION?

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Abstract

The primary focus of this thesis is to examine the extent to which New Zealand law enables effects of activities to be controlled for the purpose of preserving the integrity of an organic farm. In particular the thesis examines the impact of contaminant discharge, emanating from non-organic farming activities, in the form of agrichemicals and genetically modified organisms ("GMO"). Both types of discharge pose a serious threat to the continued existence and development of organic farms in New Zealand. The thesis explores the nature of the threats and possible approaches to resolving conflicts between organic and non-organic farming.

The issues raised are of contemporary importance, and although land use conflict has been thoroughly considered by courts and commentators, this particular conflict has not received the same degree of attention. The increase in organic farming and the introduction of GMO into the New Zealand environment are factors, which give impetus to the need to explore ways in which to resolve any conflict.

In New Zealand organic farms can be certified, pursuant to several different schemes, to provide an assurance that product has been produced in accordance certification standards. Those standards generally place restrictions upon the use of artificial substances and GMO. Organic farms are commonly located alongside non-organic farms, and therefore organic farmers must ensure that there is no incursion by these substances across the boundary of an organic farm.

The thesis examines the extent to which non-organic farmers can be constrained in relation to the emanation of contaminant discharge. It identifies internalisation of effects as being of critical importance to the continued existence and development of organic farming within New Zealand. Theoretical justifications are examined, and support for a requirement for internalisation of effects, which cause decertification, is identified from different sources including an economic approach, arguments from property rights, ethical duties to the environment and the tort liability theory of outcome responsibility.

A critical issue that threatens the preservation and viability of the organic farm is whether the organic farm can be termed a sensitive activity, thereby reducing the right to protection by the law. At common law, sensitivity represents an obstacle to recovery for loss suffered in both negligence and nuisance. The thesis explores the

application of the concept of known vulnerability as a means by which to overcome the notion of sensitivity, as well as considering other theoretical justifications. It suggests evolution of the law, so as to preserve the opportunity to farm organically in New Zealand, and thus be in step with leading international initiatives to promote organic farming.

The research examines the statutory framework, and it is contended that in order to achieve integrated management of resources the RMA should be used in conjunction with HSNO to regulate the effects of hazardous substance and new organisms. The RMA is identified as a primary measure capable of providing effective protection of an organic farm. A requirement for internalisation of effects is recognised as the most flexible method to secure co-existence of conflicting activities.

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Introduction

New Zealand is widely perceived as a country with a unique and relatively unspoiled environment. Its isolation from the rest of the world, its distinctive biodiversity and large landscapes contribute to this perception. Internally the people of New Zealand have felt fortunate to enjoy the advantages of a small population and ready access to a proportionately large outdoors environment. National pride is imbued with notions of clean air, pristine waterways and lush vegetation. The nation's assets and products are offered to the world in reliance upon a clean, green standard. Comparative to some other countries, claims to environmental health may be justifiable. However recent reports[1] on the state of the nation's environment reveal serious degradation of resources consequent upon human activity.

To retain or enhance a healthy and functioning environment, rules governing resource use are essential. At some point a balance needs to be struck between resource use and resource protection. Traditionally the common law has provided limited remedies to control the impacts of activities upon others. As population pressure and resource degradation have increased, so has the need for environmental protection. Over time common law remedies have been complemented by statute. New Zealand in the 1990s made progress towards environmental protection by the passage of the Resource Management Act 1991 ("the RMA"), with a stated purpose of promoting the sustainable management of natural and physical resources. The legislation focuses on the control of adverse environmental effects, and uses resource management plans to achieve control. Non-regulatory methods, such as financial incentives or education may also be used to control effects.

The central purpose of this thesis is to examine the extent to which New Zealand law enables adverse effects to be controlled for the purpose of preserving the integrity of an organic farm. Humans have farmed organically for centuries. However as a result of growing pressures on the environment, worldwide attention is turning to organic farming methods, as offering an option to assist in alleviation of that pressure.

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[1] For example: Ministry for the Environment, *The State of New Zealand's Environment* Ministry for the Environment, (1997) Wellington and OECD "Conclusions and recommendations-NEW ZEALAND" Conclusions and Recommendations approved by the Group on Environmental Performance at its May 1996 meeting.

Progressively, throughout the world, policy makers are recognising organic farming as a production method worthy of governmental support. An increased focus on environmental protection, growing concern for food security and recognition of the benefits provided by organic farming are driving the change.

In considering whether New Zealand law is sufficiently well developed to adequately protect organic farms and keep pace with international developments, this thesis will first consider the current position occupied by organic farming in New Zealand. It will then identify threats posed to organic production and the ability to control those threats. In particular the thesis will concentrate upon threats posed from agriculture in the form of contaminant discharge, including impacts from agrichemicals and genetically modified organisms. The thesis will identify conflict between different forms of farming activities, and examine options for the resolution of that conflict. One of the options identified will be Outcome 1, which would require a contaminant-producing farmer to internalise effects that would result in decertification of an organic farm. Existing principles will be considered in order to determine the extent to which they justify or support Outcome 1. The common law will then be considered to measure the extent to which principles supporting Outcome 1 are represented in the common law. Whether remedies in negligence and nuisance can effectively be used to preserve the integrity of an organic farm will be examined. The enquiry will then turn to the statutory framework. In particular the RMA will be examined to identify its potential for achieving internalisation of effects and preservation of the integrity of the organic farm. The relationship of the RMA with the Hazardous Substances and New Organisms Act 1996 ("HSNO") will also be considered.

Although the thesis is written from the perspective of an organic farmer,[2] it is not the intention to suggest that organic farming should necessarily be preferred over other farming methods. Rather, the purpose of the enquiry and the associated research is to consider how far the existing law and any modifications to it can ensure that organic farming can exist and develop in the context of New Zealand production today.

[2] The author co-owns and manages a blueberry farm in the Waikato Region of New Zealand that is in its final transition year for organic certification with BIO-GRO.

I. Organic production in New Zealand

1.1 Certified organic production units in New Zealand

Organic production is recognised in common terms as agricultural and horticultural production carried out without recourse to artificial inputs. It is identified with natural and sustainable processes.[3] Organic production encompasses terms such as biological husbandry, eco-agriculture and biodynamic.[4] The aim of the ethic is to produce goods of optimum quality whilst maintaining a balanced and sustainable unit that creates as few negative impacts on the environment as possible. Farming practices are modified or maintained to align with the ethic. Methods employed to achieve organic production include:

1. Fostering beneficial practices
2. Reducing external inputs, and allowing inputs to work with natural processes
3. Achieving nutrient flows which have as few losses as possible
4. Sustaining the life supporting capacity of the resource
5. Minimizing adverse effects
6. Ensuring ethical treatment of animals
7. Minimizing the use of non-renewable resources.[5]

In practical terms, applying these principles supports the use of practices such as crop rotation, recycling through composts and liquid manure, and increasing plant and animal bio-diversity.[6] Organic production is not a new phenomenon. In fact many of the practices employed in organic production stem from traditional practices, exercised down the ages.[7] In pre-European New Zealand, Maori agricultural and horticultural activities were carried out without recourse to artificial inputs. The methods employed could generally be termed organic, although there is argument as

[3] For a comprehensive definition see that adopted by the International Federation of Organic Agricultural movements (IFOAM) International Federation of Organic Movements <www.ifoam.org>.
[4] BIO-GRO New Zealand, *BIO-GRO New Zealand Organic Standards* (30 April 2001) cl.2.1. (Hereinafter referred to as BIO-GRO Standards).
[5] Ibid.
[6] The Bio Dynamic Farming and Gardening Association in New Zealand Incorporated "About Biodynamics" [22 May 2003] <http://www.biodynamic.org.nz>.
[7] Palmer, K "Origins and Guiding Ideas of Environmental Law" in Bosselmann, K and Grinlinton, D (eds) *Environmental Law for a Sustainable Society (*2002) 1 (New Zealand Centre for Environmental Law) 4.

to how sustainable some of the farming practices were.[8] With the arrival of European and other colonists, new farming methods, plants, animals and products were introduced. But since that time there also continued a "persistent, if low profile, interest in organic farming in New Zealand".[9]

Only in recent times has modern agriculture become dependent upon artificial inputs such as herbicides, pesticides and synthetic fertilizers.[10] New Zealand's dependence, which escalated in the mid twentieth century, was particularly marked.[11] This was largely due to the country's rapid conversion from forest to grassland, and subsequent reliance on artificial substances to maintain productivity in the converted areas.[12] As science advanced through the twentieth century, so too did pesticide technology. "First generation" pesticides, based on heavy metal compounds, such as lead arsenate used by early settlers, made way for "second generation" compounds the products of research undertaken during World War II. DDT was one such compound, as were the synthetic herbicides 2,4,D and 2,4,5,T.[13]

Recognition of problems resulting from this dependence has been mounting since the late 1950s.[14] Publications such as Rachael Carson's *Silent Spring*[15] were harbingers of the growing environmental damage. However New Zealand farmers tended not to heed these warnings and persisted with chemical applications to enhance production.[16] Eventually the Government partially redressed the problem, limiting first the use of, and then deregistering, some of the more toxic second generation pesticides.[17] The last 30 years of the twentieth century produced a shift in global awareness of environmental problems and issues, and recognition of the finite nature

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[8] Anderson, A "A Fragile Plenty – Pre European Maori and the New Zealand Environment," in Pawson, E and Brooking, T (eds) *Environmental Histories of New Zealand* (2002) 19.

[9] Brooking, T, Hodge, R, and Wood, V "The Grasslands Revolution Reconsidered" in Pawson, E and Brooking, T (eds) *Environmental Histories of New Zealand* (2002) 179.

[10] For the purposes of this thesis, these substances will be referred to as agrichemicals.

[11] Brooking, supra, n 9 at 170. For example, the authors note that the application of superphosphate and an increasing number of variants (particularly serpentine) peaked at over 3 million tones in 1985, or about 2 per cent of the world's total.

[12] Ibid, 171. As a result of the 'grasslands revolution" by the mid 1970s, 51 per cent of New Zealand's surface area had been converted to grasslands, far exceeding the world average of 37 per cent.

[13] Ministry for the Environment, *Towards a pesticides risk reduction policy for New Zealand* (2002) Wellington 56.

[14] Ibid, 58.

[15] Carson, R *Silent Spring* (1962).

[16] Brooking, supra, n 9 at 180.

[17] For example, the Pesticides Board deregistered DDT on 31 December 1989. For discussion see Ministry for the Environment (2002), supra n 13 at Appendix VII. Yet it took until 1997 to phase out use of Dichlorophenoxyacetic, or 2,4-D, see Brooking, ibid.

of resources.[18] This has been reflected in various publications, reports and numerous international conventions.[19] The modern environmental movement was driven by recognition of the interconnectedness of the environment, increased awareness of the relationship of the environment with human wellbeing and predictions that the continued exploitation of physical resources would result in an environmental crisis.[20]

As a result of the trend towards environmental awareness, organic production gained popularity in New Zealand and around the world. Concern for food safety contributed to the growth.[21] Furthermore recognition of significant opportunities to supply overseas markets with organic produce complemented growth in organic production.[22] This led to the entry into the organic market by corporates, such as Heinz Wattie Ltd and Zespri International Ltd, during the 1980s and 1990s.[23]

In 2000, organic production involved between 1-5 per cent of the agricultural sectors of Western countries.[24] The sector was growing at an average of between 25-32 per cent per annum, and average organic price premiums were around 25 per cent.[25] In terms of exports from New Zealand the organics sector has increased nearly ten-fold in the last decade.[26] Currently the New Zealand organics industry earns approximately $70 million in export revenue annually and that figure is expected to rise to $500 million by 2007.[27]

Domestic demand has also increased. A recent survey of the Dunedin food market identified an overall increase in the certified organic retail market of around 600 per cent between 1997 and 2002.[28] The research also recognised a renewed foray by supermarkets into the organic market, such that the supermarkets' share of the

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[18] Williams, D (ed.) *Environmental and Resource Management Law* (1997) 55.
[19] Ibid.
[20] Palmer, supra, n 7 at 11.
[21] Campbell, H and Fairweather, J *The Development of Organic Horticultural Exports in New Zealand* Agribusiness and Economics Research Unit, Lincoln University, Canterbury, (1998) 12.
[22] The Research and Development Group of the Bio Dynamic Farming and Gardening Association in NZ, *A Review of New Zealand and International Organic and Land Management Research* Bio Dynamic Farming and Gardening Association in NZ, (2002) 7.
[23] Campbell (1998), supra n 21 at 12. The research identifies the various factors that influenced entry by corporates to the organic sector.
[24] The Research and Development Group, supra n 18 at 7, referring to Ritchie, M, Campbell H, Sivak, L 2000 *Assessing the Market for Organic Produce: Dunedin, New Zealand and the World*, a paper presented to Organics 2020 Conference, Unitec, Auckland, May 2000.
[25] Ibid.
[26] Trade New Zealand "Industry Profile-Organics" [22 May 2003] <http://www.tradenz.govt.nz/. >
[27] Ibid.
[28] Campbell, H and Ritchie, M *The Organic Food Market in New Zealand: 2002* Centre for the Study of Agriculture, Food and Environment, School of Social Sciences, University of Otago, (2002) 6.

market moved from one-half to two-thirds between 2000 and 2002.[29] The gains in the domestic sector are approaching growth in the export sector, with the domestic retail figure in 2002 of $71 million surpassing the export retail figure for 2001.[30]

1.2 Certification Systems in New Zealand

A concomitant development with the rising popularity of organics has been the increasing awareness of the need to protect the integrity of organic products and the production units from which they spring. In the past, organic products have been bought and sold "on trust". Such products were generally sold from health food stores and cooperatives evincing an alternative philosophy to mainstream agriculture and horticulture.[31] The adherents to this philosophy have been named "committed growers", in contrast to the more recent arrival of "the pragmatic grower",[32] whose emergence can in part be attributed to the attraction of a price premium, and access to markets. The entry of the pragmatic grower, the rise in popularity of organic products and the resulting increase in the volume of sales led to the need for a new, more regulated approach with systems being developed to preserve the integrity of organic products. As noted by Campbell and Ritchie:[33]

> "The ascendancy of the supermarkets is strongly premised on the legitimacy of third party certification and represents the final diminution of the "on trust" system of organic purchasing that formed the primary rationale of early organic food co-ops and specialist shops prior to the establishment of widespread certification systems."

Certification schemes are geared towards providing an assurance that the products and processes certified meet requisite organic production Standards. Increasingly, reliance is being placed on certification of organic goods and processes, to ensure access to markets.[34] Currently New Zealand has 3 major certification systems, a fourth in development, and a further minor player.

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[29] Ibid.
[30] Campbell (2002), supra n 28 at 9.The authors however caution that the domestic retail figures do not reflect accurately the growth of local domestic organic production, as the retail figure includes sales of imported organic products.
[31] Campbell (2002), supra n 29 at 12.
[32] Campbell (1998), supra n 21 at para 8.3, 39.
[33] Campbell (2002), supra n 29 at 12.
[34] For instance, The Organic Products Exporters of New Zealand Inc (OPENZ) requires its members' products to carry internationally recognised certification, see Organic Products Exporters of New Zealand Inc "About OPENZ" [16 June, 2003] <http://www.organicsnewzealand.org.nz >.

1.2.1 BIO-GRO

BIO-GRO is the trading name of The New Zealand Biological Producers & Consumers Council Inc. It was originally formed as an umbrella organisation for organic agriculture. Its current activities include the setting of organic production Standards, certification of BIO-GRO Licensees and Licence Applicants and the promotion of organics and support for organic research and education.[35] The certification system operates by the grant of a licence by BIO-GRO, to enable a producer to use the BIO-GRO trademark in relation to its products or processes. The BIO-GRO trademark acts as an assurance that the licensee is committed to production in accordance with the BIO-GRO Standards and has satisfied regular audits by BIO-GRO's audit service.[36] BIO-GRO currently contracts AgriQuality to provide its audit service.[37] When the BIO-GRO Standards were first prepared in 1984, they were slim, comprising only one page.[38] In the past 19 years the Standards have evolved to become a complex manual detailing required practices and restrictions for diverse sectors ranging from mushroom production to aquaculture.

The Standards detail *guiding principles*, *recommendations* and *requirements* for a certified organic production unit.[39] In order to obtain a full licence, a licensee must first progress through a minimum 36-month certification process. This process is designed to ensure that conversion to organic production is well grounded. Soils, animals and vegetative material may have been compromised by an earlier regime that allowed artificial inputs and non-natural processes. The 36-month transition period gives time for chemicals to work their way out of the system, and for processes to be realigned to match the organic ethic. Residue testing may be carried out during annual audits to ensure compliance with the Standards. Initial and continued full certification is dependant upon meeting the Standards. This means that it is vital to secure the integrity of the unit against internal and external threats.

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[35] BIO-GRO Standards, 1.1.
[36] BIO-GRO Standards, 1.2.2.
[37] In late 2003 AgriQuality was contracted to provide audit services to BIO-GRO. Despite offering its own certification system, AgriQuality will audit BIO-GRO to BIO-GRO Standards. The change arose as result of perceived efficiencies in using a specialist audit service. For discussion see BIO-GRO New Zealand, *BIO-GRO Certification Technical Bulletin, No.4.* (December 2003).
[38] BIO-GRO Standards, 1.1.1.
[39] For ease of reference a certified organic production unit will be termed "an organic farm", although it is acknowledged that not all organic production units are farms.

BIO-GRO is accredited by IFOAM, the International Federation of Organic Agricultural Movements[40] and to the international ISO 1702/EN 45004 standard.[41] International Accreditation facilitates better access for organics exports to overseas markets, as some major retailers such as Sainsburys in the United Kingdom prefer to deal with IFOAM accredited certifiers only.[42] In 2002 BIO-GRO obtained Third Party Agency Approval for the NZFSA Official Organic Assurance Programme.[43] Access to the markets of Europe and the USA is now dependant upon approval pursuant to this programme and Japan is likely to follow suit shortly.[44] Currently access to the Japan market, for edible plant produce, is through the Recognised Certification Organisation with ICS Japan.[45]

1.2.2 Demeter

Demeter was the mythical Greek goddess of agriculture. She was the sister of Zeus and the mother of Persephone. From her happiness sprung bounty and from her sorrow spilt barren devastation. Hence the adoption of the name Demeter by an international biodynamic certification system. This system verifies that the products have been produced using biodynamic methods, and in New Zealand the certifier is The Biodynamic Association.[46] Adherence to the Demeter Standards is arguably more rigorous than to BIO-GRO Standards, as adoption of a "whole farm" philosophy is required, together with the application of Biodynamic preparations and composts based on the research of Dr Rudolph Steiner.[47] A conversion period is also required; this generally takes three years, however whole farm conversion may take up to seven years.[48] Achieving and retaining Demeter certification is dependant upon the farm remaining secure from most artificial and off-farm inputs.

[40] BioGro New Zealand, *Annual Report*, (2003) Wellington, 1.
[41] Ibid.
[42] Bio-Gro New Zealand "Organic Overview" <http://www.biogro.co.nz/files/Organic_Overview.pdf>.
[43] BIO-GRO New Zealand, *BIO-GRO Certification Technical Bulletin, No.4.* (December 2003).
[44] BIO-GRO Standards, 4.9 as amended by variation dated 23.7.03.
[45] BIO-GRO New Zealand, *BIO-GRO Certification Technical Bulletin, No.4.* (December 2003) .
[46] The Bio Dynamic Association, supra n 7.
[47] Ibid.
[48] Ibid.

1.2.3 AgriQuality New Zealand Ltd ("AgriQuality")

AgriQuality is a State Owned Enterprise that had its genesis in November 1998. Its precursors include MAF Quality Management and the New Zealand Department of Agriculture. The New Zealand Government is the owner with there being two shareholders, the New Zealand Ministers of State Owned Enterprises and Finance.[49] AgriQuality has developed a system for organic produce that certifies that products carrying its brand have been produced in accordance with the AgriQuality Standard. The AgriQuality Standard was developed in 2000 and is based on the international Codex Alinorm 99/22.[50] AgriQuality uses the independent agency Certenz as a certifying agency to ensure that all products carrying the brand comply with the AgriQuality Standards. Certenz has obtained, inter alia, ISO 9000 and 14000 accreditation. It has also been accredited by the Joint Accreditation System Australia New Zealand (JAS-ANZ), which has signed a bi-lateral agreement with the European Union for product certification.[51] AgriQuality is attracting support from organic growers, and as at 2001 there were approximately 170 certifications pursuant to the scheme.[52] The certification of any product by Certenz is dependant upon the product being free of any of the prohibited inputs referred to in the Standards, and in compliance with the Standards.

1.2.4 Te Waka Kai Ora

Te Waka Kai Ora is an umbrella organisation established to represent Maori within the organic sector and government departments. The name translates to *carrier of healthy foods*, and Te Waka Kai Ora is seen as a vehicle to strengthen Maori participation in the organic sector. Te Waka Kai Ora has been involved in the working group on the NZ National Standard for Organics. In addition it is a goal of the organisation to produce Maori organic Standards pursuant to which products could be independently certified.[53]

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[49] AgriQuality New Zealand "AgriQuality Who We Are" [2003] <http://www.agriquality.co.nz>.
[50] AgriQuality New Zealand "Going Organic with AgriQuality" [2003] <http://www.agriquality.co.nz>.
[51] AgriQuality New Zealand "Certification by Certenz" < http://www.agriquality.co.nz/ >.
[52] AgriQuality New Zealand "AgriQuality -Organic Facts and figures" <http://www.agriquality.co.nz >.
[53] Roskruge, N "Maori Organics" [2002] <http://www.maf.govt.nz/mafnet/ -05.htm>.

1.2.5 Organic Farm NZ

This scheme can be differentiated from the other schemes in that it is aimed at small-scale growers producing organic product for the local market. The label has funding from the Ministry of Agriculture and Forestry, and was set up by the Soil and Health Association of New Zealand. Product integrity and quality is to be assured via audits by BIO-GRO.

1.2.6 Government Assurances and Standards

Where goods are to be exported, certifiers must also ensure that standards meet or exceed the regulatory requirements of overseas markets.[54] These requirements will vary according to the market accessed. By way of example, the European Union pursuant to European Council Regulation 2092/91, requires all imports of organic products from third countries to be accompanied by assurances provided by the government's competent authority that the product has been produced in accordance with the rules of production laid out in the regulation.[55]

In order to meet this requirement and preserve access to markets, the New Zealand Food Safety Authority (NZFSA) established the Official Organic Assurance Programme (OOAP), and thus avoided the need for exporters to obtain import licenses to individual states within the Union. Under the programme the NZFSA gives government-to-government assurances for consignments of organic products exported to the European Union. In conjunction with OOAP the NZFSA has also developed a programme for the recognition of organic certifying bodies, whereby accredited certifiers are granted "Third Party agency" status.[56] BIO-GRO and Certenz are the two certifiers currently accredited as recognised Third Party Agencies (TPA). As such they can issue certificates that the producer has complied with the separate NZFSA Standard.[57] The Standard was originally developed with access to the European Union

[54] BIO-GRO Standards, 1.1.1.
[55] New Zealand Food Safety Authority "NZFSA Official Asssurance Programme for Organic Products" <http://www.nzfsa.govt.nz/organics/about/overview.htm>.
[56] Food Assurance Authority "Accreditation, Recognition, and Performance Measurement Criteria for Third Party Agencies and their Personnel - Organic Products (OP1)," [March 2001] <http://www.nzfsa.govt.nz/organics/framework/op1.pdf>
[57] Standard OP3 includes criterion relating to Technical rules for Organic Production, and Registration and performance measurement for organic operators – Food Assurance Authority "Registration and Performance Measurement Criteria for Operator - Organic Products (OP3)" [March 2001] <http://www.nzfsa.govt.nz/organics/framework/op3.pdf> and New Zealand Food Safety Authority

in mind, and tailored to meet Regulation 2092/91. The Standard has subsequently been amended to also align with the Unites States National Organic Programme.[58] The NZFSA has recognition from the United States of America for approval of TPAs.[59] Japan has prepared its own organic standard to a large extent relying upon Codex Alinorm requirements, and subsequently entered arrangements with private certifiers in New Zealand to undertake certification activities.[60]

1.2.7 New Zealand National Organic Standard NZS 8410:2003 (NZOS)

In April 2003 the Ministry of Agriculture and Forestry released the Organic Sector Strategy.[61] The Strategy promotes a vision whereby the organic sector in New Zealand would be recognised internationally as a world leader in organic systems and products. It targets a total of $1 billion sector sales by 2013. Strategic issues that the Sector needs to address to achieve this goal are identified. These include the need for a new and well-resourced national organisation to lead the sector. A series of changes is envisaged to strengthen and reposition the sector.[62] Allied to these changes was the preparation of a National Draft Standard for the sector, which was released in November 2003.

The Standard was prepared by Standards New Zealand with the aim of setting out minimum Standards for organic production. The NZOS will now represent the minimum production rules used for domestic organic product. For the meantime, organic products for export will continue to be assessed against the NZFSA Technical Rules for Organic Production. In time there is an expectation that the two will combine.[63] This move by Central Government into the area of organic Standards is a sign of the "coming of age" of the organic production sector. As National Standards are promulgated, private certifiers move to align their Standards with the National Standard. This will potentially standardize some organic production practices that have previously been regulated in an ad hoc fashion, and dependent upon the certifier of choice. This does not mean however, that a producer cannot choose a more

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"MAF Standard OP3, Appendix Two: NZFSA Technical Rules for Organic Production" [November 2002] <http://www.nzfsa.govt.nz/organics/framework/op3.pdf>
[58] Supra, n 55.
[59] Ibid.
[60] Ibid.
[61] Martech Consulting Group, *Organic Sector Strategy* (March 2003).
[62] Ibid, iii.

stringent regime, such as Demeter. A National Standard simply creates a benchmark that a producer may not fall below. Producers for the domestic market are not currently obliged to comply with the National Standard, and consumers will continue to rely on an individual certifier or producer assurance.

Conclusion

Certified organic production units may have their products guaranteed by a range of systems in New Zealand. These systems generally rely upon production Standards and an external review in terms of adherence to the Standards. Failure to comply with the rules results both in a loss of integrity and if detected, decertification.

[63] From information supplied by Jamie Miller, Technical Advisor, (Plant and Organic Products), NZFSA, 7 August 2003.

II. Threats to a organic farm

2.1 The organic farm

2.1.1 Essential elements of a certified organic production unit ("an organic farm")

Understanding how the integrity of an organic farm may be lost or compromised necessitates an examination of a farm's essential elements. The Standards to which an organic producer must adhere will vary, dependant upon the certifier used and the market accessed. For the purpose of this research, BIO-GRO has been selected as representative of New Zealand organic production Standards, and will thus be used in discussion.[64] Clause 2.2 of the BIO-GRO New Zealand Organic Standards ("the Standards") defines the parameters of organic agriculture in general terms: [65]

> Organic agriculture is based on appropriate stocking rates, consideration of animal welfare, sound rotations using diverse stock and cropping strategies with the extensive but rational use of animal manure and other vegetative residues, and the use of appropriate cultivation techniques. It avoids the use of soluble mineral salt fertilizers, nearly all chemical pesticides and all genetically modified organisms. Similar considerations apply, where appropriate, to aquaculture, fishing and wild harvesting.

Chapter 5 deals with Principles of sustainable land management. The introduction states:[66]

> Through an absence of artificial inputs, organic production aims to minimize the potential adverse effects of farming on the environment, both on-farm and off-farm…

The actions required to remain within these parameters are then set out in detail in the subsequent chapters of the Standards. The Standards are divided sectorally, but also have general chapters that apply to all sectors. Each chapter contains separate modules, which detail *Production specifications* by topic. In turn each module

[64] BIO-GRO was chosen mainly due to its strong presence in the market place, and to its rapid alignment with international conditions.
[65] BIO-GRO Standards 2.2.
[66] Ibid, 5.1.

provides: *Guiding principles, Recommendations* and *Requirements of the Standards.*[67] The requirements imposed are extensive and include by way of example prohibition of the use of chemical herbicides, prohibition of the use of synthetic fertilizers, retention of water source purity and prohibition on the use of GMOs. The Requirements also restrict excessive rates of nitrogen from natural sources and raw manures, and detail lists of permitted inputs such as calcium sulphate (gypsum), only of natural origin, feldspar, approved forms of elemental sulphur, rock minerals and seaweed and fish products containing only BIO-GRO approved ingredients.[68] In addition to the sectoral information, Annex Three of the Standards contains a schedule that lists *Permitted and Restricted Materials and Practices* and is cross-referenced to the *Requirements of the Standards.*

An Environmental Management Plan[69] is used as a means to guard against incursions of unwanted substances. Where there is likelihood of prohibited materials entering from neighbouring properties the plan must detail natural and physical barriers. The plan must also provide details of written communication informing neighbours of the potential loss of certification should a contamination event arise. Farms are subject to residue testing at the discretion of the auditor to determine whether the controls required in the plan have prevented drift.

2.1.2 Enforcement of the Requirements of the Standards

The *Requirements of the Standards* gain effect via the operation of a *Licence Agreement and Code of Practice.*[70] Any organic producer, who wishes to obtain the right to use BIO-GRO's trademark must sign the *Licence Agreement* and agree to be bound by its terms. One of those terms is that the parties abide by the C*ode of Practice for Organic Production.*[71] That Code contains a provision requiring the licensee to comply with the current version of the BIO-GRO Organic Production Standards.[72]

[67] By way of example see *Orchard Production Standard* in BIO-GRO Standards, Module 4.1, 6.
[68] BIO-GRO Standards, 3.4.3.h, 3.5.3.h, 3.2.3.a, 3.1.3.l, 3.1.3.f., 3.1.3.m, 4.2.6.b.
[69] BIO-GRO Standards; the plan is prepared upon application and revised for annual audit.
[70] BIO-GRO Standards, Annex 5.
[71] BIO-GRO Standards, 3.1.
[72] BIO-GRO Standards, cl 6 (a), First Schedule, Annex 4.

The Code of Practice allows for suspension or withdrawal of certification in the event of a breach by the licensee of the Standards.[73] There is accordingly a wide range of situations that can lead to revocation of certification. Interestingly, an examination of recent suspensions BIO-GRO indicates the majority arose as a result of breaches "internally" by the licensee, as opposed to instances of breaches arising from external forces.[74] The typical instance attracting suspension was use of a prohibited input on certified land or premises. In many instances the effect of suspension will be the decertification of the area affected for a nominated period to deal with the impact of the unauthorised substance. Certification may be regained once that period has elapsed. The major consequences of suspension or withdrawal of certification will be denial of entry into an intended market, failure to attain a price premium and loss of reputation and goodwill in the marketplace. Possible liability for forward contracts may also be affected. Having identified the essential elements of an organic farm, it becomes necessary to consider what constitutes a threat to those elements.

2.2 Threats to an organic farm

2.2.1 Internal threats

Internally a licensee may guard against these consequences by understanding and carefully adhering to the relevant Standards. Ensuring that all employees and contractors are well informed of the requirements of the Standards is vital to attaining compliance. The vigilance of the relevant certifier will affect the rigor of the system. Lax audit and residue testing procedures can lead to undetected breaches of Standards. This problem is heightened in an organic industry where some pragmatic members are attracted by commercial gain rather than commitment to the organic ethic. The value of an organic trademark or licence is predicated on the reliability of its audit processes. Undetected breaches of Standards by one producer, could lead for instance, to rejection of an export consignment, and a loss of faith in the producer and the certifier. It is therefore in the best interests of all producers to ensure that the chosen organic certifier adopts rigorous and universal audit procedures.

[73] BIO-GRO Standards, c 16 and c 17.
[74] From information supplied by former BIO-GRO CEO, Seagar Mason, October 2002.

2.2.2 External threats

External threat can be defined as any element arising outside of an organic farm that upon incursion of the boundaries of the organic farm could result in a breach of the relevant Standards. In New Zealand threats posed to an organic farm can be divided into four groups:

1. Contamination from a non-organic farming point source, for example, agrichemical drift to land, air or water, wandering stock, or release of genetically modified organisms.
2. Contamination from a non-organic farming non-point source, for example, diffuse land or water contamination from farm run-off, or from a genetically modified organism where the source cannot be ascertained.
3. Contamination from the exercise of a government power, for example, road side weed control spraying, use of aerial pesticides for insect and possum control pursuant to the Biosecurity Act 1992.
4. Contamination from other sources such as domestic weed control by an adjacent or neighbouring land use.

2.3 Threats 1 and 2 - Contamination from farming

2.3.1 Organic Farming and the interface with a non-organic farming

Organic producers make choices that set them apart from other producers in the agricultural and horticultural sectors. They choose to farm by limiting artificial inputs, reducing polluting outputs, and increasing biodiversity and the health of the whole system. Where possible they attempt to avoid adverse effects and limit the impact on the environment resulting from production methods. As a result of these practices negative externalities are less likely to occur and more readily internalised than with non-organic farming methods.

Although organic farmers may be ideologically separate from many other farmers, their landholding may not achieve the same degree of separation. In New Zealand organic farms often adjoin non-organic units. This lack of physical separation can constitute a threat to the integrity of an organic farm.

Many "non-organic" farmers adhere to an ethos similar to organic farmers, and work hard to act as good stewards of the land. Farmers by virtue of place and employment develop an intimate relationship with resources farmed and stewarded. In many instances they have the incentive of a family tradition to uphold. There are outstanding examples throughout New Zealand of forward thinking farmers acting to conserve biodiversity and limit the impact of farming on natural resources. Farmers are also choosing to modify existing farming practices by implementing schemes such as integrated pest management strategies (IPM) and fertilizer targeting.

Despite these improvements and gains, farming practices continue to contribute to various environmental problems.[75] Some commentators even view the impacts of industrial agriculture as threatening the sustainability of the biosphere.[76] Many of these impacts also manifest a serious threat to the integrity of organic production methods.

2.3.2 Farming in New Zealand

New Zealand in recent history has been heavily reliant upon primary production. Agriculture, horticulture and forestry account for about 15 per cent of New Zealand's gross domestic product, employ roughly 13 per cent of the total labour force and make up around 63 per cent of the value of all merchandise exports.[77] The proportion of the country converted to farmland is large by world standards.[78] Pastoral agriculture is the country's main land use.[79] By contrast the amount used for crops and horticulture is a much smaller proportion.[80] The soils in New Zealand are diverse but tend to be thin and prone to acidification, with low nutrient levels.[81] The combination of the conversion of native forest to pasture, the extent of the land use by

[75] Parminter, T "Policy Strategies for Natural Resource Management" MAF Technical Paper No: 2003/1 <http://www.maf.govt.nz/mafnet/. >
[76] Kimbrell, A (ed.) *The Fatal Harvest Reader, The Tragedy of Industrial Agriculture* (2002) 3.
[77] Ministry for Agriculture and Forestry "Submission to the Royal Commission on Genetic Modification" <http://202.78.129.207/mafnet> 2.
[78] Ministry for the Environment, *The State of New Zealand's Environment* Ministry for the Environment, (1997) Wellington 8.6. The Report states that 52 per cent of land is converted to farmland, compared to the world's 37 per cent average in 1993.
[79] Ibid.
[80] Ibid. The area used for crops and horticulture is only 2 per cent of the available land, compared to 11 per cent worldwide.
[81] Ibid, 8.19.

agriculture and the need for pastoral improvement has created pressure on soil and vegetation.[82]

The country supports a range of farming activities varying from extensive to intensive production.[83] Approximately 12 million hectares (44 per cent of the total land area) is used for extensive farming, mainly sheep and some cattle, where there are few animals carried per hectare and the inputs in terms of fertilizer and grass seed are modest.[84] Intensive farming, for instance dairying, covers a much smaller proportion of the land, but requires greater levels of inputs and thereby creates a greater risk of contamination of soil and water.[85]

As a result of removal of government subsidies in the mid 1980s, there has been a move away from extensive farming to more intensive farming, with dairying capturing a large portion of this trend.[86] Coupled with this trend has been an increased use of nitrogen fertilizer to boost grass growth for herd fodder. High levels of nitrogen lead to soil acidification, and are also associated with ground and surface water contamination in conjunction with other artificial inputs.[87] The dramatic decline in water quality in some Lakes in the Central North Island is due at least in part to agricultural practices on farms in the vicinity of the lakes.[88] Agricultural pollution is generally recognised as the main source of ground water contamination throughout OECD countries, and is of increasing concern.[89] In addition to an increase in dairying, the decline in extensive farming led to a rise in plantation forestry, an activity which is reliant upon herbicide use during establishment phase.[90] Although pesticides are used widely in the New Zealand environment, recent studies indicate a trend towards decrease in use.[91] A comparison study concluded:[92]

> Although there were some uncertainties as to the full comparability of the data sets, the overall conclusions were that total pesticide use (excluding mineral oil) grew

[82] Ibid, 8.32.
[83] Ibid, 8.32.
[84] Ibid.
[85] Ibid.
[86] Ibid, 8.33.
[87] Ibid, 8.35.
[88] Parminter "Policy Strategies for Natural Resource Management" MAF Technical Paper No: 2003/1<http://www.maf.govt.nz/mafnet >21.
[89] Fogh Mortensen, L et al, and "OECD Environmental Outlook" The report was prepared by a horizontal task force in the Environment Directorate of the OECD <http://www.oecd.org > 19.
[90] Supra, n 82 at 8.33.
[91] Holland, P and Rahman A, "Review of Trends in Agricultural Pesticide Use in New Zealand" MAF Policy Technical Paper 99/11 [24 September 2002] <http://202.78.129.207/mafnet. >

> between 1984 and 1994 reaching a peak of about 3700 tonnes of active ingredient per annum and has declined to the 1998 total of 3300 tonnes. Herbicides continue to dominate pesticide use (68 per cent) followed by fungicides (24 per cent) and insecticides (8 per cent).

The studies also tracked changes in the classes of herbicide used and found that there were changes which could be attributed to trends in land use (more forestry), cost effectiveness and adoption of IPM.[93] Pesticide use is spread across sectors, with some more reliant upon use than others. Orchard crops tend to have high pesticide usage,[94] although pip fruit and kiwifruit are now well represented in terms of the composition of organic exports.[95] Pastoral farming focuses on herbicides for broad leaf and brush weed control.[96] Process vegetables and plantation forestry tend to use herbicides for weed control at establishment phase, whereas fresh vegetables tend to rely on intensive spray programmes throughout the growing season.[97] The application modes for pesticides vary according to topography and land use. Application by air, machine and hand is common.

In addition to current practices, past practices continue to have an impact on the health of the land. The historical use of sheep dips and the creation of landfills on farms have potentially contaminated several thousand farms, orchards and market gardens. The use of persistent pesticides such as DDT, and fungicides containing heavy metals has also bequeathed a legacy of toxic residue on some lands.[98]

Recently a fresh technological innovation has appeared in the farming context. In the 1970s researchers discovered how to transfer a particular piece of genetic code from one organism to the other.[99] This opened the door to the development of a new genetically modified ("GM") organism ("GMO").[100] By the mid 1990s the technology

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[92] Ibid.
[93] Ibid.
[94] Ibid.
[95] Koops S, *New Zealand Organic Products and Situation Outlook 2002*, GAIN report # NZ2023 prepared by USDA Foreign Agricultural Service, (2002). In the year 2000/2001 71 per cent of New Zealand's organic exports by value consisted of fresh fruits. This category consists of roughly 50 per cent pip fruit and 50 per cent kiwifruit, accounting for NZ$40 million worth of organic exports.
[96] Supra, n 91.
[97] Ibid.
[98] Supra n 82 at 8.6.
[99] Office of the Parliamentary Commissioner for the Environment, *Caught in the Headlights: New Zealanders' Reflections on Possum Control Options and Genetic Engineering* (2000) Wellington 2.5.1.
[100] As defined by s 2 HSNO.

had advanced sufficiently for the first significant commercial sowings to occur.[101] The United States led the way and agricultural production sectors in the States and elsewhere adopted the new technology with a view to obtaining production gains, reducing reliance on pesticides and support chemicals and increasing tolerance to herbicides and resistance to virus.[102] A small proportion of crops are also grown for quality traits such as high oleic soybeans and canola.[103] In 2001 it was estimated by USDA that GMO crops cover a global area of 52.6 million hectares, grown by 5.5 million farmers.[104] The United States, Argentina, Canada and China, grow the majority of GMO crops worldwide, with soybeans, cotton, corn and canola being the main crops grown.[105]

The adoption of biotechnology has not been without controversy. In the international context, some countries have failed to embrace the use of GMO technology in the production of food with the same enthusiasm, and as a result the trade performance of GMO crops has at times been affected.[106]

In New Zealand the public opinion in respect of GMO technology has been sharply divided. There is strong support for the technology from some sectors due to perceived economic and health benefits flowing from its application.[107] In contrast, others are vehemently opposed to the introduction of GMO to the food chain. The issues raised include concerns relating to the technology itself, lack of information regarding the workings of the science, concern about potential unintended adverse effects, (including awareness of effects of earlier technological introductions), and distrust of organizations and agencies responsible for the development and release of GM technology into fields and markets.[108]

Public concern relating to GM technology and application resulted in the Royal Commission on Genetic Modification ("the Commission") being appointed in May

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[101] The European Commission "Economic Impacts of Genetically Modified Crops on the Agri-Food Sector-A SYNTHESIS" [2000] A working document produced by Directorate-General for Agriculture <http://europa.eu.int. >
[102] Ibid, 5.
[103] Ibid, 10.
[104] Campbell, H, et al, "Economic Risks and Opportunities from the Release of Genetically Modified Organisms in New Zealand, Appendix 1,Background Literature Review" A report to the Ministry for the Environment [March 2003] <http://www.mfe.govt.nz/ > 17.
[105] Ibid.
[106] Ibid, 18.
[107] See generally, by way of example, the Interested Person submission of the New Zealand Biotechnology Association [IP47] to the Royal Commission on Genetic Modification 2001.
[108] Office of the Parliamentary Commissioner for the Environment, *Caught in the Headlights: New Zealanders' Reflections on Possum Control Options and Genetic Engineering* (2000) Wellington 2.5.1.

2000. The warrant establishing the Commission directed it to consider the strategic options available to New Zealand in response to issues raised by the arrival of GM technology.[109] The Commission undertook a lengthy process of public consultation, submissions and hearings prior to releasing its report and recommendations in July 2001.[110] The Commission concluded inter alia:[111]

> Genetic Modification has been freely used in New Zealand for more than a decade as a research tool, for medical purposes and in food ingredients. It holds exciting promise, not only for conquering diseases, eliminating pests and contributing to the knowledge economy, but for enhancing the international competitiveness of the primary industries so important to our country's economic well being…
>
> …Our major conclusion is that New Zealand should keep its options open. It would be unwise to turn our back on the potential advantages on offer, but we should proceed carefully, minimizing and managing risks. At the same time, continuation of the development of conventional farming, organics and integrated pest management should be facilitated.

In general terms the Commission concluded that opportunities should be preserved to allow for the adoption of GM technology in New Zealand. It assessed the existing regulatory framework and concluded that with some modification it could adequately address the biotechnology issues.

The Government subsequently issued its initial response to the Report, and supported the overall strategy of preserving opportunities. It however legislated to extend a negotiated moratorium on the commercial release of GMOs into the environment.[112] The moratorium expired on 29 October 2003, and consequently applications can now be made to ERMA, the responsible authority, to release GMOs into the environment. On 18 December 2003 ERMA approved with controls, application GMF03001, by New Zealand Institute for Crop & Food Research Limited to field test onions genetically modified for tolerance to the herbicide glyphosate.

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[109] Royal Commission on Genetic Modification, *Report of the Royal Commission on Genetic Modification: Report and Recommendations* (July 2001) 6.
[110] Ibid.
[111] Ibid, 2.
[112] Ministry for the Environment, *Public discussion Paper-Improving the Operation of the HSNO Act for New Organisms* The Ministry, (September 2002) Wellington 4.

2.3.3 Contamination of an organic farm from farming

Farming produces contaminants. Nevertheless, technically, and often in reality, organic and non-organic farms are completely compatible land uses provided the non-organic farm does not produce contaminants which extend beyond its boundaries.[113] Where a neighbouring land use fails to internalise adverse effects there is a strong likelihood that the integrity of an organic farm will be affected. From the perspective of the organic farmer, it is not vitally important *how* the neighbour internalises the threatening effects. What is important is that the adverse effect is internalised.

To an extent, organic Standards employed in New Zealand recognise that it is impossible to be completely free from residual chemicals in an environment where chemical use is, and has been, pervasive.[114] The BIO-GRO Standards state that the trademark/logo is:[115]

> …a guarantee that the product has been produced according to the BIO-GRO Standards. It is not a guarantee that the product is free from all environmental pollution residues, as background contamination is now so widespread that such an assurance could be misleading.

Accordingly the Standards allow for maximum residue levels in the soil based on 10 per cent of the maximum levels for food listed in the New Zealand (Maximum Residue Limits of Agricultural Compounds) Mandatory Food Standard 2002.[116] BIO-GRO also reserves the right to residue test soil and water if concerns exist due to previous or current practices on the property and/or practices on neighbouring properties.[117] In addition to allowable residues in soil, provision is also made for pesticide residues and heavy metal levels in food products and water.[118] Detection of

[113] It has however been noted that there are inherent difficulties in constructing "healthy" organic farms in degraded landscapes. For discussion see Kimbrell, A (ed.) *The Fatal Harvest Reader, The Tragedy of Industrial Agriculture* (2002) 310.
[114] See for example, BIO-GRO Standards, Annex 2, Residue levels in Certified Products, Water, Soil and Composts.
[115] Ibid.
[116] Ibid.
[117] Ibid.
[118] Ibid, 4.2 and Table 2: Maximum permitted residue and heavy metal levels in food or water. For example, the New Zealand Food Standard maximum for DDT (including all isomers) in meat is 5.0 mg/kg. Consequently the BIO-GRO Standard is 0.5 mg/kg.

contamination in excess of background levels will preclude a property or product from certification.[119]

2.3.3.1 Contamination by agrichemicals

Contamination of an organic farm by agrichemicals results when a chemical application travels off-target. Off-target effects can occur by the chemical travelling through the air, through the ground and soil, and by water.[120] In New Zealand the majority of all documented events occurred via air,[121] although contamination by water has received recent attention in the Privy Council.[122] Widespread contamination from non-point sources is increasingly being recognised as a source of pollution.[123]

2.3.3.2 Contamination by GMO

Under current organic certification systems, latitude in terms of background contamination by GMOs is not entertained. Genetically engineered varieties and seeds are expressly prohibited, and as such, any contamination will result in decertification of product and /or land.[124]

A recent recommendation by the Commission of the European Communities[125] recognises that contamination from adventitious mixture between GMO and non-GMO crops can arise in several situations including:

(a) pollen transfer between neighbouring fields, whether over shorter or greater distances (depending on the species and other factors that may affect gene transfer);
(b) mixing of crops during harvest and post-harvest operations;
(c) transfer of seed or other viable plant material during harvest, transport and storage, and to some extent by animals;

[119] Supra n 114, Annex 2: Residue levels in Certified Products, Water, Soil and Composts.
[120] Agrichemical Trespass Ministerial Advisory Committee, *Final report to the Minister of the Environment* Ministry for the Environment, (2002) Wellington 3.
[121] Ibid. These events are not organic specific.
[122] *Hamilton v Papakura District Council* [2002] 3 NZLR 308 (PC).
[123] See discussion, supra at para 2.3.2.
[124] Supra, n 68.
[125] Commission of the European Communities "Guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming" Recommendation of the Commission of the European Communities [23.07.03] <http://europa.eu.int/ > 11.

(d) volunteers (seeds remaining in the soil after harvest and producing new plants in successive years). The source of admixture may be more important in some crops (e.g. in oilseed rape) than in others, depending inter alia on climatic conditions (e.g. in maize seeds may not survive frost);
(e) seed impurities.

The recommendation[126] also noted that problems of coexistence might arise at different levels including:

(a) GM and non-GM crops produced simultaneously or in successive years on a single farm;
(b) GM and non-GM crops produced on neighbouring farms in the same year;
(c) GM and non-GMO production types used in the same region, but on farms that are separated by some distance.

Though the latter two categories pose a more likely threat to an organic farm, issues in relation to the first category may arise where land is in transition. This would be particularly so in relation to a threat from unharvested dormant seeds. In addition to the direct threat of contamination of a crop, the release of GMOs to the environment may give rise to the following potential hazards:[127]

(a) selective advantage conferred to a wild relative arising from the transfer of genes to sexually compatible plants;
(b) pollen mediated allergenicity and toxicity;
(c) increased survival, establishment and dissemination of GMO plants;
(d) adverse effects on non-target organisms;
(e) toxicity due to direct or indirect effects of the transgene.[128]

The existence and extent of these hazards is the subject of debate, and further crop specific research is required. The measure of the threats will become more apparent as

[126] Ibid.
[127] Department for Environment Food and Rural Affairs, U K "Guidance on Principles of Best Practice in the Design of Genetically Modified Plants" Advisory Committee on Releases to the Environment: Sub-group on Best Practice in GM Crop Design [March 2001] <http://www.defra.gov.uk. > 4.
[128] Ibid, 22. Transgene is defined as: *A gene introduced into an organism (usually originating from a different organism) using recombinant DNA technology. Recombinant technology* is defined as: *A range of biochemical techniques that enable the precise cutting and joining of DNA molecules (genes) at will in a test-tube and their subsequent introduction into organisms.*

further GMO crops are introduced into the environment. By way of example, in western Canada problems with the existence of herbicide resistant canola volunteer plants have been confirmed as increasing.[129]

Another area of concern for organic farmers is the use of the Bt toxin[130] engineered into crops, to reduce attacks by pests. Bt is a bacterium that occurs naturally in soil. Organic farmers employ it as a highly selective biological control[131] acceptable in organic systems. It is feared that the introduction and widespread use of Bt crops will create communities of pests resistant to the toxin.[132] This would result in organic farmers being deprived of one of the few weapons in their arsenal to defeat those pests. The use of insect resistance management plans, which generally require the creation of refugia where non-resistant communities can continue to survive, has been propounded in order to overcome this problem.[133] The implementation of these plans has not been without practical difficulties, and their effectiveness has been questioned.[134]

2.3.3.3 Instances of decertification.

Due to the relatively recent commercial advent of organic farming, there are currently few New Zealand examples of loss of certification arising from the incursion of an external threat.[135] However increasing conversion to organics is likely to trigger further cases of this kind, as organic and non-organic farmers deal with differences created at the interface. Decertification and its consequences, may be relatively novel, however resolution of conflict between neighbouring and spatially grouped activities is not. New Zealand had adopted a wide range of regulatory tools and created liability regimes to deal with many such instances. The common law doctrines of nuisance and negligence and the RMA are each employed to this end These tools are available to

[129] Entz, M and Martens, G "Introduction to on-farm stewardship for co-existence of GM and non-GM crops" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops* (13-14 November 2003) Helsingor, Denmark <http://www.agrsci.dk -03>.
[130] Bacillus thuringiensis.
[131] U.K Soil Association "Seeds of Doubt" <http://www.soilassociation.org> 18.
[132] Ibid.
[133] Ibid.
[134] Ibid.
[135] A rare example is recorded in Anonymous "Spray drift case with a happy outcome" *The NZ Commercial Grower* September 2002 15.In this situation certified organic growers recovered damages in negligence for spray drift to their avocado crop, in proceedings before the Disputes Tribunal. Their land and crop had been decertified as a result of the incident.

organic farmers to resolve the issues presented by incursion, and in many instances the only difference in terms of recovery will be the question of the loss.[136] The adequacy of available mechanisms to recover loss suffered by the organic farmer will be examined in detail in subsequent chapters.

Internationally there are increasing instances of organic farms attempting to either protect themselves from the consequences of external threats created by farming,[137] or alternatively recover for loss suffered.[138] The rise of GMO technology has also given impetus to States to attempt to resolve the difficulties inherent in coexistence between GMO and non-GMO (including organic) crops.[139] Courts are resolving cases relating to the inadvertent co-mingling of GMO product[140] and cases where contamination by GMO has led to decertification of organic farms and product.[141]

2.4 Threat 3 – Contamination from the exercise of a government power.

2.4.1 Government powers

Herbicides are used commonly by local authorities responsible for the maintenance of roads and verges in a district. Regional Councils also exercise powers pursuant to the Biosecurity Act 1993 to control pests.[142] The definition of pests in the Act extends to include weeds, insects, mammals and other organisms.[143] Regional Councils may prepare and execute a Pest Management Strategy.[144] It is common for such a strategy to adopt pesticide applications as measures to control pests such as possums,[145] stoats

[136] For instance spray drift between non-organic farms will result in damage to property (crop), and may impact the ability to export. The same impacts would arise for an organic farm, the main differential being decertification, creating pure economic loss.
[137] For example see: *Tomlinson v East Gippsland Shire Council* [1998] VCAT 111, *Gunns Ltd v Kingborough Council* [2003] TASRMPAT 54 where the effects of plantation forestry upon organics farms in Victoria, and Tasmania, Australia, were examined.
[138] For example see: *Hoffman v Monsanto Canada Inc.,* 2003 SKQB 174.
[139] For example see: Alcalde, E "Co-existence of GM maize in Spain" <http://europa.eu.int>; Christey, M, et al "Coexistence of genetically modified and non-genetically modified crops" Crop & Food Research Confidential Report No. 427, prepared for the Ministry for the Environment, <http://www.mfe.govt.nz >; Lee, M and Burrell, R "Liability for the Escape of GM Seeds: Pursuing the "Victim"?" (2002) 65 The Modern Law Review.
[140] For example, *Kramer v Aventis Cropscience USA Holding* [2002] 212 F. Supp. 2d 828; 2002 U.S. Dist. LEXIS 12791.
[141] For example, *Hoffman,* supra n 138.
[142] Biosecurity Act 1993, Part 5.
[143] Ibid, s 2.
[144] Ibid, s 71.
[145] Office of the Parliamentary Commissioner for the Environment, *Caught in the Headlights: New Zealanders' Reflections on Possum Control Options and Genetic Engineering* (2000) Wellington The principal poison used in New Zealand is sodium monofluoroacetate (1080) applied aerially or

and noxious weeds. The Department of Conservation adopts a similar approach with regard to the conservation estate. Pests, possums in particular, are identified as a serious risk to biodiversity, horticulture, forestry and agriculture. Pest control is accordingly viewed as a vital means of protecting the environment as well as being important for the economy.[146]

In addition to these functions, Part 7 of the Biosecurity Act 1993, provides Executive Government with emergency powers to carry out pest eradication, in situations where discharge permits would normally be required pursuant to the RMA.

2.4.2 Contamination by government power

No matter who executes the activity, introducing into the environment, chemicals designed to eradicate a species, carries with it the risk of unintended consequences. Government powers are as capable of creating external threats to an organic farm as a farmer or other citizen.[147] Indeed the extent of government operations, and the concomitant amount of chemical used heighten the likelihood of incident. Affected communities throughout the country have loudly and consistently expressed concerns relating to contamination by 1080, particularly of water supplies. In part, these concerns have led to a search for alternative methods of possum control.[148]

Widespread aerial spraying for pests pursuant to an emergency power creates a strong threat to an organic farm. The exercise of emergency powers presents a particular problem, in that, in principle it leaves no room for manoeuvre. Whereas an organic farmer may be able to negotiate a solution with the district authority in relation to roadside spraying, it is unlikely that such an agreement would be forthcoming where complete eradication of a pest is intended.[149] It is quite conceivable that the exercise of these powers could, within a very short time frame, effect decertification of an entire region's organic property and crop.

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administered by bait stations on the ground. New Zealand uses 85-95 per cent of the 1080 produced in the world. Other poisons, such as cyanide, brodifacaoum and cholecalciferol, are used to a lesser extent.

[146] Ministry for the Environment, *The State of New Zealand's Environment* Ministry for the Environment, (1997) Wellington, Conclusions on the State of the Environment, 10.8.

[147] See for example, roadside eradication of broom gone wrong in *Attorney-General v Geothermal Produce NZ Ltd* [1987] 2 NZLR 348, CA.

[148] Supra, n 145 at 2.2.3.

[149] In instances such as the 2002 Aerial spray Eradication Programme for the Painted apple moth in West Auckland and Waitakere City, and the 2003 Aerial Spray Eradication Programme for the Asian Gypsy Moth in Hamilton City.

A recent attempt in Hamilton, to prevent by way of injunction aerial spraying of the Asian gypsy moth under emergency powers failed.[150] The Plaintiff, WATCH,[151] sought interim relief pursuant to the Judicature Amendment Act 1972 relying on causes of action based upon breaches of natural justice, legitimate expectation, and of the Bill of Rights Act 1990. Potter, J declined relief on the basis that the causes of action had not be made out; all necessary matters had been carefully weighed prior to the decision to spray, and the decision was not unreasonable. In reaching her decision the Judge took into account that to prevent the spray programme would be extremely detrimental to the New Zealand economy and the population at large.[152]

The organic sector needs to speedily devise a strategy for dealing with circumstances such as these. In the Hamilton example, the spraying affected approximately 1250 hectares of land in the western parts of the city. As such, effects upon organic farmers were limited. Affected organic producers were able to rapidly deploy temporary measures to ensure that organic product was covered, and not sprayed. Furthermore, comparative to some other pest eradication treatments, the application used (Foray 48B), represents a relatively benign form of treatment. In the event of a less responsive pest being discovered in a rural environment, affecting large-scale operations, where containment is not an option, the threat to the organic sector will be heightened. It is imperative that the organic sector enters into dialogue with responsible agencies to develop a contingency plan. In respect of introduced pests, particularly those that threaten horticultural crops, many organic growers will be in the unenviable position of needing to exclude both the pest and the treatment from their farms. Finding pragmatic ways of resolving these issues is a challenge for the sector.

2.5 Threat 4 - Other activities

Organic production units are scattered throughout all regions of New Zealand barring the Chatham Islands.[153] Land use distribution for organic farms tends to resemble

[150] *WATCH v Attorney-General*, unreported, HC, 29 October 2003, (CIV 2003-419-1265). Potter J.
[151] "Waikato Against Toxic and Chemical Hazards, Inc."
[152] Ibid.
[153] Statistics New Zealand "2002 Agricultural Production Census (Final Results): June 2002," [29 October 2003] <http://www.stats.govt.nz > Hectares of Land certified as Organic by Region.

trends for non- organic production.[154] Although there may be some niche areas, where organic production is prevalent, as in Nelson Marlborough, it appears that organic farming locations are more likely to be related to soil type, climate, topography and access to markets. As with non-organic farms this can result in an organic farm being confronted with a wide variety of neighbouring land use activities. Although zoning pursuant to the RMA is likely to apply in all districts, within such a framework there are many different permutations in terms of adjacent or neighbouring activities. The effects based nature of the RMA increases the possible permutations. Many different industrial and domestic activities release substances to the environment that if uncontrolled, could lead to decertification of an organic farm.

Conclusion

A wide range of external activities threatens organic farming. Potentially the most damaging of these are contamination by agrichemicals or GMO. Whether an organic farm can be shielded from these activities, and indeed whether it should be, and to what extent, is the subject of the next enquiry.

[154] Ibid. This report shows the hectares of land certified as organic by Region. For example organic dairy farming is prevalent in the Waikato Region and arable cropping, horticulture and sheep and beef farming are prevalent in the Hawkes Bay region.

III. Protection of an organic farm

3.1 To what extent can an organic farm be protected?

3.1.1 Physical and scientific measures

In answering this question, the spectre of the *boy in the bubble* is called to mind. In a world increasingly filled with contaminants and congestion, is it physically or technically possible to become or remain untainted? Organic standards restrict maximum residue levels (MRLs) to 10 per cent of the general level, and disallow GMO entirely. Before examining legal measures to enable protection of the organic farm, an initial enquiry is as to whether it is physically possible to protect an organic farm.

3.1.1.1 Point source pesticide drift

There is a wide range of practices available to potentially limit or eradicate the effects of spray beyond a property's boundaries.[155] These include:

1. Minimising reliance upon pesticides via management practices such as Integrated Pest Management (IPM) regimes. IPM techniques reduce the level of chemical use in agriculture and horticulture by targeted use of pesticides. Pest life cycles are analysed and beneficial interactions fostered.[156]
2. Minimising and or eradicating drift by application technology and technique, including adherence to the GROWSAFE® CODE NZS 8409, and its successors.[157]
3. Using set back or no spray areas.
4. Use of live or inert buffer zones between properties and around water sources.
5. Spray free zones.

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[155] See Agrichemical Trespass Ministerial Advisory Committee, *Final report to the Minister of the Environment* Ministry for the Environment, (2002) Wellington Appendix 9, 90, for discussion of best practice examples.
[156] Ministry for the Environment, *Towards a pesticides risk reduction policy for New Zealand* (2002) Wellington. 19.
[157] Standards New Zealand "Draft Standard for the Management of Agrichemicals - Draft Number: DZ8409" [2003] <http://shop.standards.co.nz >.

6. Notification of pesticide use.
7. The use of spray plans, applied in particular to identify vulnerable areas.

Similar techniques can be applied to fertilizer drift.[158] That spray drift can be avoided is no longer the subject of much debate. Avoidance of drift is an accepted approach informing the Growsafe Code and several Regional Plans.[159]

3.1.1.2 Non-point source pollution

Contamination by point source pollution is more receptive to the above measures than widespread pollution. Technically, however it is possible by employment of the above measures to also limit the impact of non-point source pollution.

3.1.1.3 GMO

GMOs present a more intractable problem, due to the high risk of widespread contamination. It has been argued that coexistence between organic farmers and GMO farmers is achievable in practice, provided organic certification systems can offer greater flexibility in terms of tolerance levels.[160] A threshold value of 1 per cent in respect of adventitious presence of traces of GMO grain has been put forward as an attainable standard for organic farming.[161]

The issue of whether or not coexistence is possible between GMO and organic crops was the subject of a report ("The European Report") released by a working party for the European Union.[162] The European Report concluded that it would be extremely difficult to achieve the minimal threshold of contamination required for organic agriculture.[163] The European report also considered whether the adventitious presence of GMO crops in organic or conventional crops could be reduced below certain policy-relevant thresholds with changed farming practices.[164] The thresholds

[158] A common technique employed to limit drift by fertilizer is to apply it in slurry form.
[159] Chapters 7 & 8 will provide further discussion.
[160] Alcalde, E "Co-existence of GM maize in Spain" <http://europa.eu.int > 5.Organic Standards currently reflect a zero tolerance level for GMO.
[161] Ibid.
[162] Bock et al "Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture" A synthesis report prepared (IPTS - JRC) for the European Commission Joint Research Centre <http://www.jrc.cec.eu.int >(6.11.03).
[163] Ibid, vi.
[164] Ibid, 2. These policy relevant thresholds (0.3 per cent and 1 per cent) have been integrated in European legislation (for the labelling of GMO food) or are being discussed in the context of future legislation (amendment of seed marketing directive).

applied were 0.3 per cent for seed production of allogamous species (rape) and 1 per cent for maize and potato crops (for food-feed uses). The results depended upon farm-crop combinations, but the report found that the thresholds could be achieved, where supported in some instances by changed farm practices. In some circumstances a change to farm practices on neighbouring farms would also be required to achieve the policy relevant threshold.

Farmers' apparent ability in some scenarios to attain the lower policy related thresholds (1 per cent and 0.3 per cent) discussed above could present problems for organic farmers. Administrators and decision makers will be pressured to create a system whereby all options are preserved. It may be considered that the threshold of 1 per cent, in the words of Lord Justice Simon Brown represents a *perfectly reasonably point at which to strike the balance between the competing interests at play.*[165] Due to the difficulties of attaining a 0.1 per cent threshold (which mimics zero tolerance),[166] a pragmatic decision maker may be inclined to support the lower thresholds of 0.3 per cent or 1 per cent. That would leave organic farmers with the unhappy choice of either accepting the higher threshold or looking for other ways by which to retain integrity.

Achievement of any of the thresholds discussed is plainly no easy matter. The influx of GMO technology and the advent of cross-contamination have given impetus to a flurry of research in relation to crop and location specific coexistence issues to identify wider impacts.[167] These enquiries have acquired greater urgency as situations unfold revealing dire consequences for non-GM farmers as a result.

The experiences of the prairie farmers in Western Canada are sobering.[168] Western Canada is comprised of vast tracts of arable land, supporting approximately

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[165] See the comments of Lord Justice Simon Brown, in *R v Secretary of State for the Environment and MAF, ex parte Watson* [1999] Env LR 310, in reference to an actual 2 km separation distance between crops, where a crop pollination risk had been assessed for a 200m crop separation distance at no greater than 1 GMO kernel in every 40,000.

[166] Supra, n 162 at 2.

[167] See generally: Lutman, P "Co-existence of conventional, organic and GM crops – role of temporal and spatial behaviour of seeds" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops* (13-14 November 2003) Helsingor, Denmark, <http://www.agrsci.dk/GMCC-03/>; Oehen, B and Nowack-Heimgartner, K "GMO residues in organic farming products" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops* (14-15 November 2003) Helsingor, Denmark <http://www.agrsci.dk > ; Van Acker, R et al "GM/non-GM wheat co-existence in Canada: Roundup Ready® wheat as a case study" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops GMCC-03* (13th to 14th November 2003) Helsingor, Denmark <http://www.agrsci.dk>

[168] Entz, M and Martens G, "On-farm stewardship – the case of western Canada" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops* (13-14 November 2003) Helsingor, Denmark, http://www.agrsci.dk>.

120,000 farms, with 1,060 certified organic farmers in the region. GMO canola was introduced to the area and adoption of the technology was widespread. However the adoption was not controlled by a coexistence plan and resulted in extensive contamination of non-GM farms. As a result organic farmers have virtually stopped growing canola.[169] Litigation for damage suffered has proliferated, a class action has been filed on behalf of organic growers against Monsanto and Aventis to gain compensation for losing canola as a crop, due to genetic contamination, and to stop genetically engineered wheat.[170] Other non-GM growers have also had their crops contaminated, with implications for market access and income loss.[171] Significant levels of contamination of the pedigreed seed production system for canola have also been confirmed,[172] which is of concern as the use of the pedigreed seed production system has been put forward as a method to procure coexistence. In addition biotechnology companies are suing farmers for infringement of patent rights arising from the contamination.[173] As a result, serious questions are been raised about the possibility or otherwise of coexistence. A recent report to the Western Australian Government concluded:[174]

> The committee is firmly of the view that if GMO canola is commercially released in WA, GMO and non-GM areas would need to be established to ensure the continued supply of non-GM canola from WA.

In summary, the emerging research tends to suggest that the success of a coexistence programme will turn to a degree on the characteristics of the crops grown. Some crops will lend themselves more readily to coexistence than others.[175] In the search to develop systems whereby opportunities are preserved and the benefits of all technologies reaped, a number of measures to secure coexistence have been advanced. These include:

1. temporal separation,[176] including suitable crop rotation systems

[169] Ibid.
[170] Organic Agriculture Protection Fund "Latest News" <http://www.saskorganic.com/oapf>
[171] U.K Soil Association "Seeds of Doubt" <http://www.soilassociation.org> 5.
[172] Supra n 168 at 180.
[173] Supra n 171.
[174] Parliament of Western Australia "Report No.8 Gene Technology Bill 2001 and Gene Technology Amendment Bill 2001" [11 July 2003] <http://www.parliament.wa.gov.au >.
[175] See generally: Lutman, supra n 167.
[176] Ibid.

2. spatial separation
    i) GE Free zones[177]
    ii) isolation distances between GMO and non-GM fields of the same species and, if appropriate, of the same genera[178]
    iii) buffer zones, as an alternative or complement to isolation distances (including the possibility of farmland retirement and set-aside)[179]
    iv) pollen traps or barriers (e.g. hedgerows)
3. on farm practices to limit contamination by seed and pollen[180]
4. harvest and post-harvest field treatment to minimize seed loss and contamination.[181]
5. dedicated supply chain from field to point of sale [182]
6. the use of technology to:[183]
    i) Avoid or minimize the inclusion of superfluous transgenes or sequences
    ii) Avoid or minimize superfluous expression of the transgene
    iii) Avoid or minimize the dispersal of transgenes in the environment[184]
7. alternative forms of economic organisation such as a regional farmer's organization, control by certification, and complex systems of traceability.[185]

The effectiveness and practicality of several of these techniques is still emerging.[186] Having identified physical measures to protect organic farms, the next issue relates to

[177] Hoppichler, J "GMO-free areas, nature conservation and organic farming- results of a survey of experts' opinion" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops* (13-14 November) Helsingor, Denmark, <http://www.agrsci.dk>.
[178] Commission of the European Communities supra n 125 at 3.2.1.
[179] Ibid.
[180] Ibid.
[181] Ibid, 3.2.2.
[182] Valceschini, E "GMO and GMO free products in Europe: problems of organization in the agricultural sector" in *Papers Presented at the 1st European Conference on the Co-existence of Genetically Modified Crops with Conventional and Organic Crops GMCC-03* (13th to 14th November 2003) Helsingor, Denmark, <http://www.agrsci.dk> 45.
[183] Department for Environment Food and Rural Affairs, U K "Guidance on Principles of Best Practice in the Design of Genetically Modified Plants" Advisory Committee on Releases to the Environment: Sub-group on Best Practice in GM Crop Design [March 2001] <http://www.defra.gov.uk > 1.
[184] Ibid, 11.The report reviews emerging technology that may be applied in designing GMO crops to simplify the assessment of risks to the environment and to reduce the scope for unidentified hazards as well as identified hazards. The technology reviewed includes the use of marker genes, gene excision systems, techniques to control flowering and fertility in plants, seed sterility and plastid transformation.
[185] Valceschini, supra n 182 at 11.
[186] Defra, supra n 183 at 15.

whether in principle an organic farm should be protected. A related issue is who should be responsible for the cost of protection.

3.1.1.4 Cost of protection

We have established that there is a range of options available to reduce or avoid contaminant discharge affecting an organic farm. In relation to GMO the European report on coexistence notes that significant costs are attached to adopting such practices, monitoring them and insuring against the risk of contamination. The economic burdens will vary according to crop and farming scenario.[187] Costs also attach to avoiding spray drift, but to a lesser extent.

The European report did not reach a clear position, but noted that price premiums obtained for organic produce may help to offset the costs of protection. This inferentially places the burden of risk reduction on the shoulders of the organic farmer. Alighting on a price premium to solve an equity issue is troubling. Merely because organic product may currently fetch a price premium does not necessarily rationalize the burden of the cost falling upon the organic farmer. The premium exists because of market demand evidencing consumer preference and/or supply issues. One of the key reasons why consumers purchase organic goods is because they are perceived to be a healthier alternative, and one that represents a choice benefiting the environment. To penalize a sector intent on producing environmental gains appears to fly in the face of reason. It also overlooks the fact that the price premium may have already been allocated to offset the more labour intensive production methods employed by the organic sector. Furthermore, price premiums are notoriously fickle,[188] and thus an unreliable basis upon which to found an equitable system of cost allocation.

The aspect of who should be responsible for costs, in relation to GMO introduction, is the subject of a recent European Commission recommendation on

[187] Bock, supra n 162 at 6.
[188] For instance in the Waikato region for the 2003/4 season organic blueberries are currently fetching a lower price than those grown non-organically, pers.comment Dan Peach, Chairman Blueberries New Zealand, January 2004.

guidelines for coexistence.[189] The recommendation, rather than relying on price premium factors, adopts a first in time, first in right position:[190]

> As a general principle, during the phase of introduction of a new production type in a region, operators (farmers) who introduce the new production type should bear the responsibility of implementing the farm management measures necessary to limit gene flow.
>
> Farmers should be able to choose the production type they prefer, without imposing the necessity to change already established production patterns in the neighbourhood.
>
> Farmers who plan to introduce GMO crops for cultivation on their farms should inform the neighbouring farmers about their intention.

Provided a compatible policy threshold level was applied, this approach would be of benefit to established organic farmers in the short term. It does not however provide beneficial outcomes, in a future where GMO technology expands and establishes more rapidly than organic methods. Once the technology loses the "new" aspect, then others become responsible for limiting the gene flow. In terms of pesticides a first in time approach tends to support entrenched non-organic farmers and reinforce the status quo.[191] The approach would result in the current prevalent use of pesticides in New Zealand overwhelming the burgeoning, and more benign organic sector. The approach has some parallels with the protection of existing use rights[192] under the RMA, but lacks any of the overriding protections for the environment.[193] For the organic farmer the better approach is to require the internalisation of effects that result in decertification, and to require the polluter to bear the cost of protection.

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[189] Commission of the European Communities, supra n 125 at 9.
[190] A similar argument is advanced in the Western Australian GMO context, see supra n 174, and also in relation to pesticides Agrichemical Trespass Ministerial Advisory Committee, *Final report to the Minister of the Environment* Ministry for the Environment, (2002) Wellington 93.
[191] Although it is arguable that non-chemical farmers were in fact first in time, it is likely that the approach would be employed in respect of existing practices.
[192] Sections 10,10A and 20.
[193] Such as those provided for by s 17 of the RMA.

3.2 Should an organic farm be protected?

Is it reasonable for organic farmers to choose to farm free from the contaminants of another activity in the vicinity? To what extent should another be restrained from carrying out a legitimate and customary activity in order to protect the interests of the organic farmer? Are organic farmers simply hypersensitive ideologues out of touch with reality?

In any situation where internalisation of adverse effects is sought, producers of those effects will feel threatened by demands for reduction. This is particularly so in situations where internalisation will be difficult and/or costly. The demands could indicate the need for change in accustomed farming practices and production methods. Some consider that organic farmers, by their refusal to accept GMO contamination, want to impose their system upon every one else.[194] They consider this unfair. The irony in that is that in refuting the position of the organic farmer, they impose their own system on the organic farmer. In failing to internalise the adverse effects of their own production systems, they condemn organic farmers to a state of no choice.

Herein lies the essence of the conflict. It becomes a question of freedom of choice and the shackling of that choice. The resolution of this conflict has several potential permutations:

Outcome 1 - Non-organic farmer internalises effects that would result in decertification of an organic farm. The cost of internalisation falls on producer of effects.

Outcome 2 - Non-organic farmer fails to internalise effects. The cost of neutralizing effects falls on organic farmer.

Outcome 3 - Non-organic farmer fails to internalise effects. The cost of neutralizing effects is shared between producer and recipient

Outcome 1 is the position most favourable to the organic farmer. It involves a non-organic farmer being obliged to internalise effects that could potentially cause decertification of an organic farm, and being responsible for the costs resulting from protection measures. We will explore matters of principle, and the legal framework to

ascertain the extent to which Outcome 1 can be supported in principle, and applied in the New Zealand context.

[194] The Life Sciences Network "Organic growers try to impose their system on all" [4 November 2003] <http: www.lifesciencesnetwork.com >.

IV. Principles and Theoretical Justifications

4.1 Principles and Theoretical Justifications as they relate to Outcome 1

(Non-organic farmer internalises adverse effects that could cause decertification. The cost of internalisation falls on producer of effects.)

As conflict between organic and non-organic farmers can be resolved in 3 different ways, it assists to consider matters of principle to illuminate justification for a chosen outcome. In respect of human interrelationship with the environment, a number of principles or theoretical justifications have evolved that can aid in defining the parameters of the relationship.[195] The principles offer a range of perspectives and justifications potentially available to guide resource use and resolve resource conflict. These principles will be examined to identify support or otherwise for the proposition (1) that organic farmers are entitled to be free of contaminants produced by others, where that contamination would result in decertification and (2) that the cost of internalising the adverse effects should fall on the polluter.

4.1.1 Ethical duties to the Environment

The idea that we as humans should look beyond our self-centred view of the world to consider the wider environment is gaining ground as a leading principle. This shift in perspective results from a developing awareness of the nature and extent of human impact on the environment. It enables acceptance of pure existence value, as opposed to human-based value. Aldo Leopold has been credited with first developing a land use ethic based on an ecological premise,[196] although no doubt many traditional communities could lay claim to practising it. Leopold based the ethic on the assertion that the integrity of the ecosystem as a whole requires protection.[197] He viewed human beings as part of this relationship, with duties to the environment as a result.

Alexander Gillespie charts with clarity the growth of new, non-anthropocentric ideals within international law.[198] He identifies a change in the ethical basis of

[195] See, generally Gillespie, A *International Environmental Law Policy and Ethics* (1997).
[196] Beatley, T *Ethical Land Use: Principles of Policy and Planning* (1994), 119.
[197] Ibid.
[198] Supra n 195 at 127.

environmental law and policy making which change includes the development of a land ethic.[199] He refers[200] to the 1986 *Declaration of Fontainebleau* that states:

> If humanity is to find a way forward, it must base its advance on a code of values that is less aggressive and more caring for the earth. A code that reflects a deep sensitivity to the ecological interdependence of our planet, and a respect for life in all its forms.

The land ethic reflects these sentiments, and has been refined by a number of writers over recent years.[201] Additional principles have been expounded in recognition of the need to resolve competing moral claims, in the application of the ethic.[202] While several of these principles address the conflict between humans and other species, the application to conflicts between human activities is less clear. In general however, the principles support a regime directed towards reducing human impact on the environment. The principle of minimum wrong expounded by Taylor[203] is apposite. This principle recognises the need for people to:[204]

> …choose alternatives which do the least damage to the natural world and harm or destroy the fewest number of organisms.

This is in contrast to the principle of self-defence that:[205]

> Individuals can protect themselves against dangerous and harmful organisms by destroying them.

This latter principle provides some support for the use of pesticides against dangerous and harmful organisms, however its application needs to be balanced against the principle of minimum wrong. Using Taylor's framework there is also a need to differentiate between basic and non-basic human needs; and the extent of the threat to human survival from the other species would require assessment.

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[199] Gillespie, supra n 195 at 135.
[200] Ibid.
[201] Beatley, supra n 196 at 120.
[202] Ibid, 124
[203] Ibid, 120-126.
[204] Ibid, 124.
[205] Ibid.

4.1.2 Application of the ethical duty to the environment and organics

Organic production systems that focus on whole system health, and minimising impacts on the environment, are closely aligned to the land ethic, including the principle of minimum wrong. Interacting in a constructive and life-enhancing way with natural systems and cycles is central to the definition of organic production.[206] So too is the enhancement and encouragement of biological cycles, and the maintenance of genetic diversity of the production system and its surroundings, including the protection of plant and wildlife habitats.[207]

Being in step with the land use ethic constitutes a good reason to develop systems that preserve the integrity of the organic farm. As recognition of the need to choose alternatives which cause the least damage to the natural world grows, it should follow that policy support for aligned systems will also. There is some evidence that this is beginning to happen. The Danish model in relation to chemicals is a good example. Denmark has recognised the threats to the environment from chemicals and since 1986, has instituted a series of initiatives to reduce the threats.[208] Danish policies and legislation encompass the health of humanity and the environment, and are formed from a holistic standpoint.[209] Recognising that increasing organic farming is compatible with achieving environmental benefits, part of the Government's strategy targets an increase in the acreage under organic production.[210] To support this goal the Government also initiated activities designed to intensify organic production and introduced subsidies for development activities within organic production.[211] In tandem, the Government has introduced measures to reduce the pesticide treatment frequency index, protect sensitive areas by reduced usage and buffer zones, and to revise the pesticide approval system. Those measures support and strengthen the organic sector and limit the extent of threat from external contamination.

The use of buffer zones to improve environmental health (in particular the health of water ways) is a method that potentially produces side benefits for organic farming.

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[206] See IFOAM definition of Organic Production and Processing: International Federation of Organic agriculture Movements (IFOAM) <http://www.ifoam.org. >
[207] Ibid.
[208] See generally: Danish Ministry of Environment and Energy "Background report for Action Plan II" [March 2000] <http://www.mst.dk. >
[209] Danish Ministry of Environment and Energy "Chemicals- a Danish Priority" [18.02.03] <http://www.mst.dk/chemi/01020000.htm. >
[210] Supra n 208 at 3.3.
[211] Ibid.

It is also a tool that could be specifically used to protect organic farms. The use of set asides has similar implications. Since 1993 it has been possible under the European Union's agricultural policy to obtain hectare aid for production of certain crops on condition that the farmers' seeking aid set aside from production certain acreage.[212] In addition under the agri-environment measures scheme, buffer zones, where no pesticides or fertilizers may be applied, can be created in sensitive farming areas. Danish legislation has used these instruments to reduce the impact of chemicals along specific watercourses and lakes over 100m².[213] Initially these measures have been voluntary and incentives have been used to induce farmers to implement change. The measures are not universal, and factors such as minimum size requirements and sensitivity may dictate entry to the schemes.[214] Evaluation of progress of the Action Plan is underway, and if targets have not been achieved additional compulsory measures may be introduced.[215]

By these steps the Danish Government has partially assumed the burden of protecting the wider environment from the impact of chemicals. Organic farming is recognised as conducive to the goal of protection and is supported. Avoiding adverse effects on organic farms is consistent with securing the goal of protection, and represents a way in which the ethical duty to the environment can be partially fulfilled.

4.2 Anthropocentrism and the self-interest justification[216]

Placing humans at the centre of the world, but recognising that a healthy environment is vital to human survival and happiness, may in principle lend some support for protecting an organic farm from contaminants. This would only be so if it were recognised that organic farming systems are central to human wellbeing. Recognition of the alignment of organics with the land ethic may assist, however measuring contribution to wellbeing may provoke a contest with non-organic farming. It will be argued that although contribution to wellbeing is important, it may not represent a

[212] Ibid.
[213] Danish Ministry of Environment and Energy "Pesticide Action Plan II" [March 2000] <http://www.mst.dk/chemi > 5.
[214] Ibid, 3.2.1.
[215] Danish Ministry of Environment and Energy "Pesticide Action Plan II" [March 2000] <http://www.mst.dk/chemi/Pesticider/020201100.do> 6.
[216] Gillespie, supra n 195 at 18.

sufficiently finely tuned mechanism for resolving the complex conflict arising at the boundary of the organic farm.

4.3 Utilitarianism

A utilitarian view of the world promotes decision-making on the grounds of utility. Conflicts are resolved on the basis of which option produces the greatest benefits. Generally the benefits are assessed from a human welfare point of view, although there has been much debate about how to measure these benefits.[217] The market model is commonly used to assess the benefits:[218]

> Land is viewed by the utilitarian as essentially a means to an end, to be used to satisfy human preferences (often narrowly defined). The appropriate uses of land in this framework are those that generate the highest return for society, as determined by the pricing signals of a free market economy. The primary value of land is the economic value it holds – dollar values can be attached to land in much the same way that they can be given to toasters, automobiles or pieces of furniture.

A simplistic application of a utilitarian approach to the conflict between the non-organic farmer and the organic farmer, could see the rights of the non-organic preferred due to the large economic returns currently produced society from non-organic farming. This approach however may fail to produce an efficient result due to failure to calculate and account for all costs. The creation of an efficient functioning market requires the operation of well-defined property rights.[219] Tietenberg describes an efficient structure as having three main characteristics: [220]

> Exclusivity – all benefits and costs accrued as a result of owning and using the resources should accrue to the owner, and only to the owner, either directly or indirectly by sale to others.
>
> Transferability – all property rights should be transferable from one owner to another in voluntary exchange.

[217] Beatley, supra n 197 at 33.
[218] Ibid.
[219] Tietenberg, T *Environmental Economics and Policy* (2001) 60.
[220] Ibid.

Enforceability – property rights should secure from involuntary seizure or encroachment form others.

It is upon the characteristic of exclusivity that the efficiency of a market often founders. This is due to the need of an owner to shoulder both the benefits and costs of resource use. Failure to take account of the full costs creates an externality.[221] Air, water and light pollution are classic examples of externalities.[222] The presence within the boundary of an organic farm of contaminants from a non-organic farm falls within this category in that the non-organic farmer benefits from the use of the organic farmer's land without having to pay for it. This effects an immediate redistribution of wealth in favour of the non-organic farmer.[223]

Policies in line with the principle of exclusivity are more likely to correct market failure and create a climate that supports the organic farmer. The wider environment frequently suffers damage in the same way. The environment has traditionally been viewed as providing a free service,[224] without adequate recognition of the benefit donated, or the cost created. The failure of activities to account for the damage to the wider environment, has led to some of the more severe environmental problems we now encounter. Global warming, acid rain and biodiversity loss are clear examples of human failure to account for damage to the wider environment.

For a market to operate efficiently and avoid externalities such as biodiversity loss, and air pollution total costs of production need to calculated and accounted for. This includes not only cost to individuals but also damage to the wider environment. If the value of the damage can be accurately assessed then theoretically it can also be compensated. Debate arises first as to whether the environment is invaluable, and secondly as to whether producers could afford to compensate the environment for damage caused.[225] Recent studies have attempted to put a cost on externalities caused by modern agriculture. A study by Pretty et al,[226] investigated the costs in the United

[221] Ibid, 64. Tietenberg defines an externality as existing *whenever the welfare of some agent, either a firm or an agent, depends not only on his or her activities, but also on the activities under the control of some other agent.*
[222] Beatley, supra n 196 at 37
[223] Ibid, 41. The impact of the Coase theorem will be discussed at para 4.5.
[224] Gillespie, supra n 195 at 34.
[225] Ibid, 34.
[226] Pretty, J et al, "Policy and Practice: Policy Challenges and Priorities for Internalizing the Externalities of Modern Agriculture" (2001) 44(2) Journal of Environmental Planning and Management, 266.

Kingdom, the United States and Germany. The following cost categories were assessed:

1. Damage to natural capital: water (for instance pesticides in sources of drinking water, and nitrate phosphate and soil in drinking water)
2. Damage to natural capital (emissions of methane, ammonia, nitrous oxide and carbon dioxide)
3. Damage to natural capital: biodiversity and landscape
4. Damage to human health: pesticides
5. Damage to human health: nitrates
6. Damage to human health: micro-organisms/disease agents (bacterial and viral outbreaks in food, BSE and new variant CJD, overuse of antibiotics)

From this research it was calculated that the external costs of modern agriculture in 1986 amounted to £49-71/ha ($81-117) of arable and grassland in Germany and the USA, but rising to £208/ha ($343/ha) in the UK.[227] Although the researchers noted that there were many gaps where costs are to still to be calculated,[228] they concluded that the costs represent substantial burdens upon non-agricultural sectors of economies. It also seems clear that the cost burden falls upon sections of the agricultural sectors that are not reliant upon the artificial substances that in many instances represent a prime source of the cost imposed. It is accepted that organic agriculture can have attributed to it some of the damage referred to above, for instance methane emissions from organic dairy farms and externalities arising from cultivation. However many organic practices such as those associated with retention of biodiversity[229] and soil health are expressly targeted at limiting such damage.[230]

Although there is debate about the extent of the benefits provided by organic farming methods, it is clear that benefits do exist.[231] In 1997 a comprehensive review

[227] Ibid, 267
[228] For instance costs from the overuse of antibiotics have not yet been calculated.
[229] See for instance Principles of Organic Production, 2.1.e: *Minimise any deleterious environmental effects of particular management practices, including any that may reduce the natural diversity to the detriment of plant and wildlife habitats*- BIO-GRO Standards, 3.
[230] See for instance Livestock Production Requirements 4.2.3, whereby the preparation of a soil management plan is required, which plan shall detail methods to minimise damage to soil structure and soil compaction, BIO-GRO Standards, Livestock, 7.
[231] See generally Saunders, C Manhire, J Campbell, H and Fairweather, J "Organic Farming in New Zealand: An evaluation of the current and future prospects including an assessment of research needs."

of organic farming in New Zealand concluded that organic agriculture could reduce the level of negative externalities from agriculture.[232] Where regulatory systems permit polluters to discharge pollution with few restrictions, organic farming will provide a clear public benefit. The value of that benefit will reduce as regulatory restrictions increase.[233] Organic farming may also provide benefits in terms of food safety, soil erosion, structure and fertility, biodiversity and animal welfare.[234]

In the United Kingdom, a multi- disciplinary research programme, (the Organic Farming study), involving teams from six scientific establishments, looked at the consequences of converting to organic farming methods. The major findings of the report established inter alia:[235]

> Pollution of air and water is reduced: estimates of whole farm nutrient losses are less under organic than conventional production.
>
> Significantly more butterflies are found on organic farms. Reasons may include greater plant diversity, rotational cropping, hedgerow management, and an absence of pesticides. Spiders that are also important predators of crop pests, are also more abundant.

The study also concluded that the organic farm, upon conversion was more economically sustainable than non-organic farming. It found:[236]

> Once fully converted, gross margins on Duchy Home Farm were up to 15 per cent higher than for a similar conventional farm, assuming present day support policies. This improvement would be increased to around 30 per cent if these subsidies, currently favouring conventional farmers were, removed.

When calculating the cost of agriculture, it is important to factor in the value of positive externalities of farming. Benefits created from agriculture include:[237] landscape and aesthetic value, water supply, nutrient fixation, soil, biodiversity, flood

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MAF Policy Technical Paper No: 97/13, ISSN 1171-4662, ISBN 0-478-07462-X [October 1997] <http://www.maf.govt.nz >.

[232] Ibid, 1.4.7.

[233] Ibid,

[234] Ibid. The report notes however the lack of research specifically confirming some of these benefits in New Zealand.

[235] Ibid.

[236] Ibid.

[237] Pretty, supra n 226 at 268.

control and carbon sequestration. The Organic Farming study estimated the social value of organic farming to be in the range of £75-£125 per hectare per year. On the basis of this calculation, combined with the fact of a greater burden arising from conventional agriculture, the authors of the study concluded that there was a strong case for the subsidisation of organic agriculture.[238] A policy of subsidy was recommended on the basis of recognising the benefits provided by organic farming. The report concluded:

> If Britain is to pay its way towards sustainable agriculture in the 21st century a change in policy and in economic support towards organic agriculture is unavoidable.

A utilitarian approach to land use conflict is one that makes choices based on the highest return to society. Pricing signals of the free market economy are used to govern the choice. Where a market operates inefficiently and externalities arise sound choices cannot necessarily be made on that basis, as important losses remain uncalculated. Where the law anticipates making choices by balancing economic, cultural and social benefits with costs it is important that the full extent of the costs is properly calculated in that conclusion. By virtue of the operation of s 5 of the RMA, decision makers are required to consider a wide range of factors in promoting the sustainable management of natural and physical resources. It has been argued that this calculation, rather than requiring a balancing of competing factors requires a weighting exercise to be carried out, so that the various elements of sustainable management can be weighed in the context of a particular case.[239] Nevertheless, whether weighing or balancing, where the economic benefits provided by non-organic farming are espoused in a conflict with organic farming, to clearly understand the extent of the benefit, uncalculated costs should also be measured. The uncalculated benefits provided by organic farming should also be considered.

Government subsidy has been raised as one method of supporting and capturing those benefits. An alternative or complementary approach to the provision of economic support is the use of rules or incentives that align with the principle of

[238] Cobb, D, Feber, R, Hopkins, A and Stockdale, L "ESRC Global Environmental Change Programme Organic Farming Study" <http://www.sussex.ac.uk/Units/gec/pubs/briefing/brief-17.htm> 4.
[239] Skelton, P and Memon, P "Adopting Sustainability as an Overarching Environmental Policy: a Review of section 5 of the RMA" (2002) Vol X Resource Management Journal 8.

exclusivity and require polluters to take responsibility for damage caused. Where this method is applied to require internalisation of effects in relation to resource use conflict between the organic and non-organic farmer, it obviates the any further need to choose one type of farming over the other, as on this basis both can coexist.

4.4 The Polluter Pays Principle

The Polluter Pays Principle (PPP) is gaining wide recognition and expression.[240] In 1972 the OECD Council adopted the Recommendation on guiding Principles concerning International Economic Aspects of Environmental Policies.[241] In so doing the first formulation of the PPP was created at international level.[242] The Recommendation provides that:

> The principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so called "Polluter Pays Principle". This principle means that the polluter should bear the expenses of carrying out the above –mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services that cause pollution in production and/or consumption. Such measures should not be accompanied by subsidies that would create significant distortions in international trade and investment.

The PPP as first enunciated focused on the need for non-subsidisation to ensure that government's were not carrying the cost of pollution. It was defined in order to support an economic climate where pollution costs were calculated into the price of goods sold. The principle did not necessarily mean that polluters were required to actually pay anything. In time the principle has evolved significantly.[243] The OECD Joint Working Party noted in its report:

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[240] Joint Working Party on Trade and Environment -Organisation for Economic Co-operation and Development "The Polluter-Pays Principle as it relates to International Trade" The report is published under the responsibility of the Secretary-General of the OECD [23-Dec-2002] <http://www.olis.oecd.org > 10.

[241] Recommendation of the Council on Guiding Principles concerning International economic aspects of Environmental Policies (72), OECD, 1972.

[242] Supra n 240.

[243] Ibid, 9.

> The PPP has become a principle whereby polluters bear an increasing share of the costs of the pollution they cause, or risk causing. [Recommendation of the Council concerning the Application of the Polluter Pays Principle to Accidental Pollution (89) 88(Final), OECD, 1989(attached)] The scope of pollution-related costs to be borne by the polluter varies across instruments. Particularly at the domestic level, this scope has increased over time: at first, it involved only the costs of pollution control; later, it came to include compensation payments, taxes and charges, and is now evolving in certain instruments towards encompassing all pollution related expenditure.

Evolution of PPP has created two distinct forms of expression. A *strict sense* and a *broad sense* have been identified.[244] The former accords with the 1972 OECD Recommendation and requires that polluters should be responsible for the costs of pollution prevention and control measures as determined by the public authorities. The *broad sense* extends further to cover other costs including charges, taxes, clean-up costs and compensation.[245] The PPP can be applied at national level either through a regulatory framework, or alternatively through the use of economic instruments. Application of the PPP creates a focus upon the internalisation of effects, in order to avoid the consequences of those adverse effects on those who did not create them. As expressed in the Rio Declaration:[246]

> National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting public interest.

Application of the PPP internationally varies widely. Concern exists in relation to the competitive trade burden it places upon OECD member nations whose application of the PPP is strict and rigorous. The OECD Recommendations do provide for some limited exemptions with regard to subsidies and other forms of assistance.[247] Reduction of reliance on subsidies in agriculture is expressed as a primary aim of the WTO Agreement on Agriculture.[248] Application of the PPP in relation to agriculture

[244] Ibid, 12.
[245] Ibid, 14.
[246] Principle 16, *Rio Declaration, UN.Doc* A/Conf 151/5.1992,7 May.
[247] Supra n 240, 14-16
[248] Ibid, 21.

supports this aim. A recent OECD Joint Working Party on Agriculture and the Environment restated the principle: [249]

> The Polluter-pays-principle states that the polluter should be held responsible for environmental damage caused and bear the expenses of carrying out pollution prevention measures or paying for damaging the state of the environment where the consumptive or productive activities causing the damage are not covered by property rights. This is the principle used for allocating costs of pollution prevention and control measures aiming to ensure a rational use of scarce environmental resources and to avoid distortions in international trade and investment.

As will be seen in a subsequent chapter the concept of PPP informs the RMA, but it is the extent of the application of the principle that becomes the critical issue. Application of the PPP supports an argument that a non-organic farmer should internalise adverse effects and bear the cost of carrying out pollution control measures. The extent to which the principle is applied becomes a policy issue. If a policy climate does not support the principle, then the burden of the pollution and the associated risk falls upon society in general. This has been termed socialisation of the risk.[250] If policy does support the principle, the question arises whether a polluter should be required to internalise *all* adverse effects, or simply achieve a given standard. If a non-organic farmer can internalise effects to a level satisfactory to general society, can organic farmers seek a higher standard? This could be termed the difference between avoidance and mitigation of the effects, and is of vital importance to the organic farmer in terms of achieving a standard that protects organic certification. Avoidance may achieve that standard, whereas mitigation may not. A policy decision favouring internalisation only to a partial level requires the organic farmer to shoulder the balance of the cost of protection.

Further justification for the polluter paying, and the extent to which internalisation should be achieved will be examined in paragraph 4.5. A vital consideration to bear in mind is the consequence of one sector being required to

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[249] Joint Working Party on Agriculture and the Environment, *Improving the Environmental Performance of Agriculture: Policy Options and Market Approaches* [COM/AGR/ENV (2001) 6], (March 2001).

[250] Chen Palmer and Partners and Simon Terry Associates Ltd, *Who bears the Risk? Genetic Modification and Liability* (2001) Wellington, 26.

shoulder the burden of another's pollution. The risk of creating the failure of an entire sector should not be underestimated.

4.5 Property Rights

Property rights are often invoked by those seeking to avoid what they consider to be over regulation by government. In New Zealand Owen McShane is one of the protagonists for that view, which is supported by many farmers who object to the use of private property for public gain, particularly in relation to protection of the landscape and indigenous vegetation. In justification of the minimalist approach reliance is placed upon the works of Locke and Blackstone. Locke argued for the limiting of political power in the public sphere, and sought to maximize individual freedom of choice. On the other hand Blackstone, used religious justifications for asserting a right to private property that entitled the holder to exclude the rights of other individuals.[251]

Barton in a careful examination of the arguments relating to property rights, places them in the context of time and place. Moving through a wide spectrum of political theory and history, he concludes that environmental regulation is justifiable on a range of grounds.[252] Effective environmental regulation may in many instances benefit the organic farmer by reducing or eliminating pollution. Yet ironically, arguments based on property rights may offer an even more fundamental form of protection.

The threat of decertification for the organic farmer arises because someone else uses property in a way that causes harm to the organic property. Underlying property rights offer some justification for restraining that harm. In *The Right to Private Property,* Waldron examines the nature of private property.[253] Referring to the work done by Honoré,[254] Waldron details the standard incidents of ownership as including:

1. a right to possession of X;
2. a right to use X;

[251] Barton, B, "The Legitimacy of Regulation" (2002) 20 3 NZULR 400.
[252] Including the inability of the market to deal with the potential for inefficiency, and environmental "free goods', the benefits of a regulatory system and the extent of the environmental problem.
[253] Waldron, J *The Right to Private Property* (1988), 49.
[254] Honoré A M "Ownership" in Guest (ed) *Oxford Essays in Jurisprudence.*

3. a right to manage X (that is to determine the basis on which X is used by others if it is so used);
4. a right to income that can be derived from permitting others to use X;
5. a right of capital value of X;
6. a right to security against the expropriation of X;
7. a power to transmit X by sale, or gift or bequest to another;
8. the lack of any term on the possession of these rights etc.;
9. a duty to refrain from using X in a way that harms others;
10. a liability that certain judgments against him may be executed on X; and
11. some sort of expectation that, when rights that other people have in X come to term or lapse for any reason, those rights will, as it were, "return" naturally to him.

There is some argument as to whether the prohibition on harm in 9) above fits comfortably within the standard incidents of ownership, or should be more properly recognised as a constraint on action.[255] That aside, recognition of an obligation to refrain from using a thing in a way that harms others may necessitate constraints being imposed upon other incidents of ownership. The obligation to avoid harm to others is a common regulatory justification. Ancient water law restrained upstream users from polluting that destined for downstream. Various common law doctrines evolved to support the principle that property owners in the use of their property should refrain from causing harm, damage or nuisance to others.[256] Utilitarian theory adopted the principle on the basis that its application, although restricting private benefits, it would create greater net social benefits. It was contended that the prevention of harm to others was the only purpose for which power could be rightfully exercised over members of a civilized community, against their will.[257] A requirement to use property so as to avoid harm to others (including the environment) is an evident rationale in modern environmental law.[258]

Using property in a way that harms another may also interfere with that other's right of possession and result in a right to derive income. In this way arguments from property rights offer dual justification and protection for the organic farmer. Property

[255] Supra, n 253 at 49 and 32.
[256] Application of common law doctrines will be the subject of a separate chapter.
[257] Beatley, supra n 196 at 54. Beatley refers to John Stuart Mill and his classic text, On Liberty, (1859).
[258] See for example ss 5 and 17 RMA 1991.

rights can constrain a polluter from causing harm to others. Property rights can also endow an owner with the right to manage and exclude others from that resource.[259]

The United States Supreme Court on numerous occasions has found that the right to exclude others is one of the most important sticks in the bundle of rights that comprise property.[260] It has been contended that this right extends to the right to prevent someone from physically intruding on property by chemical means. Accordingly where pesticides are sprayed on the land of non-consenting owners the spraying creates the conveyance of an easement over the land sprayed.[261] The taking of an uncompensated easement constitutes a violation of the Fifth Amendment's Takings Clause of the United Sates Constitution.[262] Acknowledging that law from the United States offers no direct parallels to New Zealand law, it is important to remember the basic attributes of a property right. Of late in New Zealand, regulations aimed at providing environmental protection have been pilloried on the basis of invasion of property rights. As Professor Gardner reminds us this is a two way street, and property rights may also operate as effective weapons to those who seek protection of the environment.[263]

The exact parameters of a property right are often unclear, and are ultimately defined by the action of a regulatory framework or the common law. Whether harm exists, or the right to exclude has been infringed, will often become a matter for a court to decide.[264] Decisions determining the nature and extent of a property right will be affected by the theoretical foundation upon which the decision rests. Statutory decisions may be guided by a defined statutory purpose, whereas decisions at common law may respond to other rationales. An economic approach to decision making has been promoted as a means of determining resource use conflict. However

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[259] For discussion on the right of exclusion see Tietenberg, T supra n 220 60 and Guerin K "Property Rights and Environmental Policy: A New Zealand Perspective" New Zealand Treasury Working Paper 03/02 [March 2003] <http://www.treasury.govt.nz > 4.

[260] Gardner, R "Invoking Private Property Rights for Environmental Purposes: The Takings Implications of Government-Authorized Aerial Pesticide Spraying." (1999) 18.Stan.Envtl.65 2 and n.13, in reference to *Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 433 (1982)* (emphasizing that an owner's "right to exclude [is] 'one of the most essential sticks in the bundle of rights that are commonly characterized as property'" (quoting *Kaiser Aetna v. United States, 444 U.S. 164, 176 (1979)).*

[261] Any right in New Zealand to acquire an easement by prescription has been extinguished by the Land Transfer Act 1952. For discussion see Pardy, B and Kerr, J "Reverse Sensitivity - The Common Law Giveth, and the RMA Taketh Away" (1999) 3 NZELJ 97.

[262] Supra n 260 at 2. Defences to the claim of taking, including necessity and abating a nuisance are discussed in the paper,

[263] Supra 260 at 2.

[264] For instance in enforcement proceedings under the RMA.

the economic theory of internalisation of effects achieving an economically efficient result was thrown into doubt by the work done by Ronald Coase.[265] Relying on the Coase theorem, a property right could be allocated to either party and an efficient allocation could result.[266] Arguably, if the organic farmer had neither property right nor right accruing from a liability regime, he or she could compensate the non-organic farmer for measures employed to contain pollution. Alternatively if the rights accrued to the organic farmer, he or she could expect compensation from the polluter. Where the transaction costs are too high for a Coasean bargain to be struck the Learned Hand theory propounded by Judge Hand in *U.S v Carroll Towing*[267] would see liability imposed for those situations where the expected loss exceeded the cost of taking care to avoid the loss. However, the question arises as to whether we should be making decisions for economic reasons alone.

What such an approach tends to overlook is the issue of equity.[268] Allocative efficiency may occur, but not equitable distribution. Justice-based theories of liability move beyond economic allocation to consider relative fairness and loss distribution. A libertarian argument could support internalisation of costs of activities due to fairness rather than economic efficiency.[269] However it has been argued by Perry[270] that the libertarian approach is susceptible to the Coase theorem in the same way that the economic approach is; tort losses are caused by the interaction of activities. Perry argues that instead, avoidability should become the touchstone for responsibility for outcomes. In this way foreseeability of harm and the ability to avoid that harm contribute to outcome responsibility, and requirement for compensation will follow where a risk was not only foreseeable but should have been avoided. Perry concludes that the need to avoid foreseeable risks will arise when they are associated with actions that are either negligent or intended to cause harm. Where damage to an organic farm was foreseeable, and avoidable this approach would support recovery for loss suffered.

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[265] Coase, R "The Problem of Social Cost" (1960) in, R, and Alevizatos, D, (eds) *Law and the Environment (*1997: Temple University Press) 44.
[266] Tietenberg, supra n 219 at 77.
[267] (1947), 159 F.2d 169.
[268] Beatley, supra n 196 at 41.
[269] Perry, S "Tort Law" in Patterson, D (ed) *A Companion to the Philosophy of Law and Legal Theory* (1996) 76.
[270] Ibid.

Identifying what degree of harm is to be avoided and making decisions about acceptability of a risk is complex. The argument can be fine, particularly in the area of aesthetics.[271] In terms of harm to an organic farm, property damage caused by toxic spray drift would likely fit comfortably within the concept of harm. However, other actions such as superphosphate fertilizer drift, or pesticide drift at levels acceptable to general tolerance standards, but not to organic standards may be less clear. Superphosphate drift may not be the average farmer's idea of a hazard, yet the consequences of the drift could potentially lead to decertification of the organic farm.[272]

Judging harm from the narrow objective standpoint of the reasonable person or the reasonable community background level alone,[273] presents problems for a vulnerable activity. The vulnerable activity will inevitably require a standard higher than the general, and in this way may never claim the right to have the risk avoided. This approach is insufficiently flexible to deal with the complex realities of the modern world. It fails to recognise other legitimate reasons for the need to avoid harm, such as the value of the vulnerable activity to that reasonable community, the corresponding need to recognise the primacy of a vulnerable activity's right to exclude others from its land and associated airspace, and in this instance the freedom to choose how to farm. It also overlooks the lack of reciprocity as between the polluter and the organic farmer, particularly in a situation where a non-organic farmer could reasonably readily avoid the potentially disastrous effect of decertification of the organic farm. A better approach is one that enables consideration of all conflicting considerations, economic and justice-based. For the organic farmer an approach recognising the primacy of the property right to exclude, combined with the theoretical justification of outcome responsibility could support internalisation of effects causing decertification. Relying upon the concept of avoidability, an exception could arise where there is an inability to control effects, and there are overriding economic and justice-based policy reasons for not requiring internalisation. Due to the significant reduction of the organic farmer's right to use and manage land owned, such exception would only be justifiable in rare circumstances.

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[271] Beatley, supra n 196 at 57.
[272] See for example BIO-GRO Standards, *Requirements of the Standards-permitted fertilizers* 4.2.3.
[273] For discussion of possible approaches to characterization of risks of unintentional harm see Perry, supra n 270 at 78.

In relation to harm caused, or rights reduced, it is open to a non-organic farmer to argue that he or she too is harmed by the presence of the organic farm, in that he or she is restricted from carrying out a legitimate operation.[274] This type of claim has in the United States been used to justify the passage of "nuisance laws"[275] in all fifty States.[276] Generally however the laws have been applied to restrict nuisance-type claims being generated from urban activities, where the interface between rural and urban activities creates conflict. The policy behind the laws is intent to protect from urban newcomers a sector responsible for feeding the nation. The concept of first in time and first in right is evident. This policy does not lend itself so readily to application to the organic farming sector. First, it is also the intention of this sector to feed the nation, and where possible with as limited an impact on the environment as possible. Secondly, it would be difficult to displace organics with a first in time argument, as organic methods of cultivation date back to ancient times.[277] It is also important to contemplate the extent of the reduction of a right. Internalisation of effects merely constrains a contaminating practice, to prevent emanation beyond the boundary. It does not extinguish the right to farm using chemicals or new organisms; merely it avoids the off-site impacts of those practices. By contrast emanation of those substances beyond the boundary extinguishes the ability of a neighbouring farm to employ organic methods.

Should a property owner be obliged to accept contaminant discharge from a neighbour so as to remove the ability to farm organically? The only type of policy that would validate this position is one that confines organic agriculture to the margins. It would fail to capitalize on the benefits presented by organic farming, and would see New Zealand lag behind other international leaders. Such a policy may also have implications for environmental justice, in that it may cause price increases and place organic products beyond the reach of lower socio-economic groups. Adequate recognition of the right to exclude and the duty to refrain from harm would instead be

[274] Beatley, supra n 196 at 58.
[275] Reinert, A "The Right to Farm: Hog-Tied and Nuisance Bound" (1998) 73 N.Y.U.L.Rev, 1694, 1695.
[276] In New Zealand the doctrine of reverse sensitivity has been applied to achieve similar ends. This doctrine will be the subject of a separate chapter.
[277] Palmer, supra n 7.

represented by policy that requires the internalisation of adverse effects that cause decertification, thereby supporting a future for both forms of agriculture.[278]

4.6 Land Use Rights

It contrast to the obligation to refrain from causing harm, it has been argued that there exists a right to be free from environmental harm.[279] Although not expressly stated it would appear that this principle is inferentially accepted by current legislation. The long title of the Smoke-Free Environments Act 1990 records that the intention of the Act is:

> To reduce the exposure of people who do not themselves smoke to any detrimental effect on their health caused by smoking by others; and…

The focus is on keeping people free from detrimental health effects caused by other smokers. In order to implement this intention, s 5 of the Act requires employers to create written policy on smoking that enable common areas to be designated smoke free. The Act contains further prohibitions and restrictions on smoking in public places.[280] The Smoke-Free Environments (Enhanced Protection) Act 2003 has further extended the restrictions.

It is notable that the Act does not require any quantification of smoke (e.g. the impact of 1 cigarette or 10) and accepts the received scientific wisdom that smoking is harmful to health. Accordingly people are entitled to be free from the smoke of another. Upon the introduction of the Act, there was considerable public concern regarding the curtailment of the personal freedom to choose to smoke. However the right of those affected to be free from the harm caused by passive smoking overrode that concern. People remain entitled to smoke in private, and thus their freedom is not entirely impacted.

The extent of harm arising from contaminant discharge may be at issue in any given circumstance, however it is worth considering the relative position of the parties in relation to the right to be free from harm. Requiring non-organic farmers to internalise adverse effects causing decertification enables organic farmers to farm free

[278] For discussion of mechanisms available to deal with the externalities of agriculture see Pretty, supra 277 n at 272 and Parminter, supra n 75.
[279] Beatley, supra n 196 at 83.
[280] Ss.8-13A Smoke-Free Environments Act 1990

of unwanted artificial contaminants. The corresponding right of the non-organic farmer to use the contaminants is only reduced to the extent of ensuring that the contaminant remains within land owned. In contrast to the potential loss of the right to farm organically, the boundary restriction on the non-organic farmer would appear to be a minor curtailment of the rights of the non-organic farmer. The critical question to ask is why should people be forced to smoke, (or be contaminated by pollutants) when they choose not to be?

4.7 The Rights of Future Generations

Although it has been a rather leisurely awakening, humans are recognising the impact that our decisions have on the wider environment, and the need to preserve natural resources. The nature of our destruction was recognised in 1877 by George Perkins Marsh:[281]

> Purely untutored humanity, it is true interferes comparatively little with the arrangements of nature, and the destructive agency of man becomes more and more energetic and unsparing as he advances in civilization, until the impoverishment with which his exhaustion of the natural resources of the soil is threatening him at last awakens him to the necessity of preserving what is left, if not of restoring what has been wantonly wasted.

Exhaustion or destruction of resources presents problems not only for current generations but also for those who have yet to come. The existence of an obligation to provide for future generations is well supported internationally and domestically. Alexander Gillespie charts the trend of concern for future generations in the international environmental context:[282]

> Since the Second World War, States have been expressing concern in international documents for the welfare of future generations. A growing number of international agreement, declarations, charters and the United Nations General Assembly resolutions recognise this justification for many forms of human action.

[281] Perkins Marsh, G "The Earth as Modified by Human Action (1877)" in Percival, R and Alevizatos, D (eds) *Law and the Environment* (1997) 8.
[282] Gillespie, supra n 195.

He notes that the concept is not new and its historical origins go back much further.[283] The idea of providing for future generations is inextricably bound to the concept of sustaining the potential of natural and physical resources. By way of example, the traditional Maori concept of *kaitiakitanga*[284] supports practices that conserve and sustain resources.

The ability of current generations to meet their own needs without compromising the needs of future generations has been termed sustainable development.[285] In worldwide environment and policy discourses, it is a principle that influences many of the decisions made in respect of natural and physical resources. [286]

As a principle, it is not however without problems in terms of interpretation and application. As described by Diane Hunt in *The parable of the well*[287] the principle leaves undefined a number of important questions. For instance: to which generation/s do we owe the obligation? Does the obligation extend to finite as well as renewable resources? How much should we allocate, and should we prefer current generations to future? Should we discount benefits to future generations on the basis that the total benefits to infinite future generations will always exceed any cost to a single current generation?[288]

These are all difficult questions and will fall to the policy makers of the day to decide. However it is fair to say that the enormous rate of biodiversity decrease worldwide and the extent of global pollution are strong indicators to suggest that we have taken this obligation rather lightly.

In relation to the organic farmer, the principle offers a degree of indirect support. This is because organic farming, due to the provision of environmental benefits, presents itself as a vehicle for providing gains to current and future generations.[289] In contrast to this position it has been argued that low-technology agriculture will not produce sufficient crop yields to feed the world's burgeoning population, and that

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[283] Ibid, 111. Gillespie notes that the concept appears within Islamic doctrine and within the Judaeo-Christian tradition.
[284] Section 2 RMA defines kaitiakitanga as meaning: *the exercise of guardianship; and in relation to a resource, includes the ethic of stewardship based on the nature of the resource itself.*
[285] World Commission on Environment and Development *Our Common Future* (1987).
[286] Skelton, supra n 239 at 157.
[287] Hunt, "Responsibility to future people" in Howell (ed) *Environment and Ethics-a New Zealand contribution* (1986) 164.
[288] For discussion see Farber, D and Hemmersbaugh, P "The Shadow of the Future: Discount Rates, Later Generations, and the Environment (1993)" in Percival, R and Alevizatos, D (eds) *Law and the Environment* (1997) 60.

pesticide and technology intensive agriculture should therefore should preferred.[290] On this basis it could be argued that in preferring organic agriculture the needs of future generations are being compromised.[291] It would be fair to say that neither position is unassailable. However in the contest between organic farming and non-organic farming rather than requiring a choice to be made to prefer one form of agriculture over another we should look for ways which enables organic farming to survive and flourish in coexistence with other systems.

4.8 Risk Assessment and the Precautionary Principle

Risk assessment is used by administrators and decision makers to manage the environment by weighing the risks of a particular activity. A 3-phase process is used to measure the risk:[292]

1. Hazard identification (does a substance cause cancer or other adverse effects)
2. Dose-response assessment (how potent a carcinogen is it?)
3. Exposure assessment (how many humans are exposed to the substance, for how long and at what levels).

Having measured the risk, a reduction assessment determines the magnitude of resources required to produce a given reduction of the risk.[293] The process expands upon the more narrow cost/benefit approach to include much broader consideration of relevant social values.[294] Rather than making an isolated monetary quantification of the costs and benefits of regulating the risk, it is prioritized by comparing it to other risks.[295] In many areas the New Zealand Government adopts a managed risk approach that *means using the most cost-effective ways of reducing risk rather than trying to*

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[289] For a display of confidence in the economic viability of organic farming systems in New Zealand and related case studies see Martech Consulting Group, *Organic Sector Strategy* (March 2003) 6.
[290] Kimbrell, A (ed.) *The Fatal Harvest Reader, The Tragedy of Industrial Agriculture* (2002) 6, quoting an old Monsanto web page "Guess Who's Coming to Dinner? 10 billion by 2030".
[291] For discussion of contrasting perspectives see OECD "Adoption of Technologies for Sustainable Farming Systems-Wageningen Workshop Proceedings" A report prepared under the auspices of the Joint Working Party on Agriculture and Environment, following a workshop held in Wageningen, Netherlands, 4-7July 2000 <http://www.oecd.org > 61.
[292] Percival, R and Alevizatos, D *Law and the Environment* (1997) 335.
[293] Stewart, "The Role of the Courts in Risk Management (1986)" in Percival, ibid, 349.
[294] Ibid, 352.
[295] Ibid.

eliminate all risk.[296] This approach will be in sympathy with organic practices insofar as it restricts adverse effects to mere background levels consistent with the requirement of the relevant standard. However, consistently achieving that level via a risk management approach is unlikely, because organic systems in general require a more restrictive standard in terms of residual contaminants, than do general standards. The risk is managed by organic systems to a higher threshold. Many organic farmers will have adopted an organic regime on the basis that non-organic farming systems offer unacceptably high risks to the environment (including impacts upon human health).

Whether or not risk assessment is the best process for achieving sound social decisions is a matter of debate.[297] The Royal Commission Report noted the submission of the Life Sciences Network *which while supporting the effectiveness of scientific risk assessment, also suggested*: [298]

> At its most scientific, risk assessment and management is the process by which people, activities, communities, organisations, countries make informed judgments about proposed activities and actions weighing relative risks and benefits. Having made the assessment it is then possible to ensure a positive balance of benefits over risks is maintained.
>
> However the assessment of risk is only partially scientific and factual. Many risks are unable to be characterized in an objective sense and must be determined and weighed using subjective criteria.

Our ability to assess risk imperfect, as it is contingent upon possession of adequate scientific knowledge. We are capable of committing errors of titanic proportions where that knowledge is imperfect.[299] The Precautionary Principle resulted from an understanding of these shortcomings. Principle 15 of the 1992 Rio Declaration on Environment and Development defined the principle:[300]

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[296] Minister for Agriculture and Forestry "Submission to the Royal Commission on Genetic Modification." [November 2000] <http://202.78.129.207/mafnet> 7.
[297] Royal Commission on Genetic Modification, *Report of the Royal Commission on Genetic Modification: Report and Recommendations* (July 2001) 68.
[298] Ibid, 71.
[299] Green, W *Key Lessons from the History of Science and Technology: Knowns and Unknowns, Breakthroughs and Cautions* Office of the Parliamentary Commissioner for the Environment, (2001).
[300] Percival, R and Alevizatos, D (eds) *Law and the Environment* (1997) 378.

> Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The Principle has been expressed in many different forms, and its role in New Zealand law has been subject of debate.[301] However in all its differing forms there can be adduced a common intention of avoiding risk where there is scientific uncertainty relating to the existence or magnitude of a given risk to the environment.[302] The principle is particularly relevant in relation to the impact of the introduction of contaminants and new organisms into the environment. Applying a precautious approach where there is doubt would in many situations legitimize the use of restrictions. The Royal Commission on Genetic Modification in its Report [303] was *not convinced that a single principle [the Precautionary Principle] could be applied across the board to the use of genetic modification in New Zealand.* It considered:[304]

> Decisions on the use of technology must rest on a number of factors; including the risks and acceptability to the public of the proposed use. They are factors that should inform the process of managing the risk

While it is evident from the Report that the Commission is seeking to avoid a carte blanche application of a sometimes-amorphous principle, there must be room for the application of the Principle when approaching the factors of risk and acceptability.

For the organic farmer the importance of risk assessment and any application of the Precautionary Principle is how those factors work out in terms of restricting contaminant discharge. Where an organic standard demands a threshold higher than one arrived at on a regulatory risk assessment basis, people will manage the risk to the lesser standard. The issue becomes, should a person or a group of people be entitled, or able to manage resources to a higher, more conservative standard? Currently HSNO says yes in relation to hazardous substances, but is silent in respect of GMO. This critical issue we will explore further in relation to the statutory framework. A final and important matter to explore in terms of the relationship of basic principles to Outcome 1 is the Maori world view.

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[301] See generally: Royal Commission, supra n 297 at 65.
[302] Office of the Parliamentary Commissioner for the Environment, *Caught in the Headlights: New Zealanders' Reflections on Possum Control Options and Genetic Engineering* (2000) Wellington 44.
[303] Ibid, 68.

4.9 Maori world view

> The Maori world view integrates well with an organic farming perspective. Knowledge of Maoritanga tends to originate from oral tradition.[305] That tradition speaks of creation processes that in turn anchor the Maori perspective on the environment: [306]
>
> Within the structures of whakapapa, all the elements of the natural world are originally descended from Ranginui and Papatuanuku, the sky and the earth. All living things-trees and plants, fish, birds, insects, people-are connected back to the atua through whakapapa and are thus linked in the bonds of obligations and kinship. This interdependence has, from the beginnings of the living world, been the proper order established by the gods as the basis of coherence and correct functioning of te putaiao, the natural environment.

It cannot be argued that by virtue of this world view all Maori actions in relation to the environment are sustainable. Nevertheless there are aspects of the world view and tikanga that sit comfortably alongside the organic ethic and sustainability. Throughout the world organic farmers are rejecting GMO technology as an option for production. In New Zealand some Maori have adopted a similar position:[307]

> Te Runanga o Ngai Tahu [IP41] expressed its abhorrence to genetic modification and said it believed the benefits and control of this technology would accrue to "national and multinational companies, universities and researchers". It stated that this loss of control would mitigate against its ability and desire "to act as kaitiaki for Te Runanga's taonga".

The Report of the Parliamentary Commissioner for the Environment on the options for possum control,[308] describes the conflict between the traditional Maori perspective and the introduction of genetic engineering and biocontrols. The report considered the impact of GMO on the concepts of mauri, kaitiakitanga, mana, rangatiratanga and tapu. Diminution of the mauri (essential life force) of a resource such as air, soil or

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[304] Royal Commission, supra n 297 at 68.
[305] Patterson, "Maori Environmental Virtues "*Environmental Ethics,* (1994) Vol. 16(4), 397-409.
[306] PCE, supra n 302 at 25.
[307] Royal Commission, supra n 297 at 86.
[308] PCE, supra n 302 at 26.

water is the consequence of pollution or corruption of a resource. In turn, loss of mauri threatens the survival of the resource that in Maori terms would be a taonga (highly prized or special thing). It would also disturb or disrupt the natural order of the world, as established by the legend of creation.

This disturbance of mauri through contamination or mixing with the mauri of another resource was highlighted by Angeline Ngahina Greensill (Tainui), a witness to the Royal Commission on GMO called by Nga Wahine Tiaki o te Ao:[309]

> Everything possesses a mauri or life force and is to be respected. Because everything is inter-related and interconnected, any mutilation, modification or unnatural desecration of any parts affects the whole.
>
> The introduction of GMO technology, or any form of contaminant has implications for health and well being of the entire system. The extent of contamination acceptable is also relevant. On this point many Maori share the same view as organic farmers, and consider the standard should set at zero.[310]

In some instances, such as contamination of water, there is potential for cleansing and reinvigoration, by passage through the ground.[311] The same cannot be said for plants with altered gene codes that would no doubt reemerge from the soil with the alteration intact. In addition GMO technology also presents difficulties in terms of tapu. The concept of tapu goes beyond sacred and *implies a prohibition which if violated would have calamitous consequences; quite possibly death…even though nothing is visible, a person who violates [tapu] knows the awful and inescapable consequences will certainly follow.*[312] It is a concept and practice that serves as a reminder that we must respect the natural environment.[313]

The creation of transgenic animals and plants raises concerns relating to the tapu against cannibalism.[314] Inserting a portion of the human gene into a consumable, risks violating the tapu. For Maori concern also arises as to consequences which may result from human arrogance in altering the natural order of the world.[315] Difficulties

[309] Royal Commission, supra n 297 at 35.
[310] Pers.comment Angeline Ngahina Greensill, November 2003.
[311] *Te Runanga o Taumarere v Northland Regional Council* [1996] NZRMA 77, 85.
[312] PCE, supra n 302 at 26, quoting Manatu Maori 1991: *Maori Values and Environmental Management*. Wellington.
[313] Supra n 305 at 402.
[314] Royal Commission, supra n 297 at 34
[315] Ibid, 34.

relating to the violation of the incest tapu were also raised in submissions to the Royal Commission.[316] These issues are raised bearing in mind the existence of the "pragmatic view" of Maori tikanga that affirms the position that Maori traditional values are dynamic and evolving, and Maori are well capable of grasping new technology and managing them in accordance with tikanga.[317] The impact of this pragmatic view on GMO technology is as yet undetermined.

Modification or contamination of taonga has the potential to impact upon the Treaty of Waitangi relationship. By the Treaty of Waitangi 1840 the Crown confirmed and guaranteed to Maori their existing rights to land and natural resources, including rights in respect of intangible taonga.[318] It is arguable that allowing widespread contamination by GMOs, or any other contaminant, would place the Government in a position of having failed to actively protect the Maori resources, special places and other taonga.[319] In addition impact of contaminants upon indigenous flora and fauna could potentially deprive Maori of rangatiratanga chieftainship over such taonga.[320]

Rangatiratanga and the associated tradition of kaitiakitanga provide motivation for Maori to seek to guard and sustain taonga in the New Zealand environment. Understanding the threats to resources and implementing practices to avoid or limit those threats is central to the concept of kaitiakitanga.

Guardianship of taonga and a strong relationship the natural environment are natural forerunners for the adoption of organic farming techniques. The Royal Commission report noted that some Maori preferred organic methods.[321] The establishment of Te Waka Kai Ora the independent Maori organic certification initiative evidences a trend towards adoption by Maori of organic farming. Formed in 2001,[322] Te Waka aims to carry out the functions of a National Maori Organic Authority. It intends to provide support for organic growing clusters, and to develop

[316] Ibid, 37.
[317] *Te Runanganui O Taranaki Whanui Ki Te Upoko O Te Ika A Maui Inc v Wellington Regional Council*, unreported, EC, 8 July 1998, (W48/98).
[318] PCE, supra n 302 at 27.
[319] See for instance *Te Runanga o Taumarere v Northland Regional Council* [1996] NZRMA 77, 94, and *Ngai Tahu Maori Trust Board v Director General of Conservation* [1995] 3 NZLR 553.
[320] As recognised by the Waitangi Tribunal claim, WAI 262.
[321] Royal Commission, supra n 297 at 88.
[322] Organic Strategy, supra n 61 at 11.

an indigenous brand for product grown under traditional Maori organic practice. Organic farming practices have been identified as being beneficial to Maori:[323]

> The organic sector is providing hope to many Maori in rural areas as a means of providing livelihoods and ways of life that are grounded in tikanga Maori (Maori custom) and enabling Maori to achieve tino rangatiratanga (self-determined development)…
> Maori have retained ownership of their land, much of which remains free of agrichemicals and is well positioned for organic development…
> Organics provides an opportunity to maintain and enhance the vibrancy and health of Maori communities as well as other communities in general…
> Maori are able to trust organics as it is ethically based, whereas many past injustices were based on unethical practices of industries, governments and bureaucracies

It would seem that the Maori world view is in step with organic farming and is represented by the move by Maori into (or back to) organic farming.

Conclusion

The principles explored offer justification for Outcome 1 for different reasons and to varying degrees. As a farming system, which can complement protection and enhancement of the environment, organic farming is in step with ethical duties to the environment and to future generations. Requiring the producer of contaminant discharge to bear the cost of pollution is consistent with the Polluter Pays approach, and represents an opportunity to achieve the efficient operation of the free market. A utilitarian approach based on economic benefits alone, may not be supportive of Outcome 1, due to the need to recognise that at the present time greater economic benefits are flowing from non-organic farming. Yet such an approach is unduly simplistic and fails to incorporate recognition of other justifications. It would work against change, even where that change would introduce benefits for the environment. Adopting justifications that enable a more rounded approach to the problem, are more likely to secure Outcome 1. Arguments from property rights support internalisation of effects where the right to exclude is interfered with and/or the duty to refrain from using property so as to cause harm, is breached. It is the extent of the constraints

[323] Ibid 16.

related to the incidents of ownership that becomes the critical consideration. A risk-based approach may not enable the organic farmer to achieve a higher standard of risk management than the general public. In a similar manner, nor would the application of an objective standard to the concept of harm. Arguments from property rights may constitute sufficient good reason to allow an organic farmer to manage a risk to a higher standard. Where the fundamental right to exclude, is weighed with notions of foreseeability of harm and avoidability it is arguable that sound reason exists for requiring internalisation of effects. This conclusion is bolstered by the other theoretical justifications. It also represents a method by which the Maori world view can find practical expression. The extent to which the law of New Zealand can reflect these principles and achieve Outcome 1 will be considered in following chapters.

V. The New Zealand Framework – Common Law

The objective of this and following chapters is to analyse the New Zealand legal framework to assess whether the law in New Zealand protects organic farms, and the extent to which it enables Outcome 1 to be achieved.

For the purposes of this thesis the main focus will be upon the extent of measures available to contain or limit External threat 1 - Contamination from a non-organic farming point source, for example, spray and fertilizer drift to land, air or water (chemical drift), or release of genetically modified organisms (GMO contamination).

5.1 Common Law

The common law is examined first, as traditionally this has been the mechanism used by property owners to restrain others from causing harm to property and to recover for loss suffered. The value of the remedies in terms of securing the requirements of organic Standards will be assessed. One of the enquiries will be, whether traditional remedies that experienced infancy in the Industrial Revolution,[324] are capable of providing meaningful solutions in the face of the changed world of the twenty first century.

The common law takes effect in different ways. It employs the equitable remedy of injunction to stop or prevent harm occurring and makes provision for damages to compensate for loss suffered. The existence of remedies at common law may also act as a deterrent to unlawful actions. The threat of a suit can result in changes in property use, whereby a neighbouring owner takes care to order activities to prevent damage to another. In this way liability may operate as a pricing mechanism resulting in the internalisation of adverse effects.

The use of common law remedies in response to threats from contamination by agrichemicals and genetically modified organisms has been the subject of several recent publications.[325] These works provide a basis for enquiry and exploration of remedies particular to the organic farm. However, despite widespread searches,

[324] Brenner, J "Nuisance Law and the Industrial Revolution (1974)" in Percival, R, and Alevizatos, D (eds) *Law and the Environment* (1997).

[325] See for instance: Chen Palmer Report supra, n 250; Agrichemical Trespass Ministerial Advisory Committee, *Final report to the Minister of the Environment* Ministry for the Environment, (2002) Wellington, Law Commission, *Liability for Loss Resulting from the Development, Supply or Use of*

judicial consideration of the issues as they relate specifically to organic farms is sparse. In New Zealand the authorities do not pertain expressly to organic farms,[326] whilst in the United States, the leading case was decided over 25 years ago.[327] The Australian decisions tend to consider organic farms as the issues arise in the planning context, and any decisions located by searching United Kingdom databases tended to discuss issues peripherally.[328] Whilst it is clear that the GM issue is creating litigation, these cases are currently undecided. If the law is as yet untested, it is unlikely to be so for long.

5.1.1 Nature of the loss

Loss caused to an organic farm by all external threats can be categorised as follows:

1. Property damage, such as damage to plants or pesticide residues due to chemical drift, or GMO contamination of land, crop, processed foods and other products.[329]
2. Economic loss consequent upon decertification due to contamination.
3. General environmental damage, for instance loss of biodiversity.[330]

Recovery for such loss sounds potentially in negligence, nuisance and the doctrine of *Rylands v Fletcher*. A review of these remedies indicates that some forms of loss will be more readily recoverable by the organic farmer than others and exposes the vulnerable position currently occupied by the organic farm.

Genetically Modified Organisms Study Paper 14, Law Commission, (May 2002) Wellington, New Zealand.

[326] For instance the Privy Council decision *Hamilton v Papakura District Council* [2002] 3 NZLR 308 (PC).

[327] Langan v Valicopters, Inc 567 P.2d 222 (Wash 1977), Koll *H v Cardinia SC* [2001] VCAT 2118, *Giles v Break O'Day Council* [2001] TASRMPAT 117, *Tomlinson v East Gippsland Shire Council* [1998] VCAT 111

[328] *R v Secretary of State for the Environment and MAF, ex parte Watson* [1999] Env LR 310.

[329] Law Commission, *Liability for Loss Resulting from the Development, Supply or Use of Genetically Modified Organisms* Study Paper 14, Law Commission, (May 2002) Wellington, New Zealand.

[330] Ibid. Personal injury and spiritual harm are also documented, but beyond the scope of this enquiry.

5.2 Liability for damage caused by Chemical drift

5.2.1 Negligence

The organic farmer stands in the same shoes as any farmer in respect of recovery for property damage caused by chemical drift. Negligence has been the main ground for recovery in such a situation, although there is also potential for claims based on strict liability and nuisance.[331] To establish negligence a plaintiff must show:[332]

1. The defendant owed the plaintiff a duty of care (that is, the risk of the damage was foreseeable);
2. The defendant has breached that duty;
3. The breach of the duty caused the loss to the plaintiff; and
4. The loss suffered was not too remote.

Recovery for damage caused to property by chemical drift has been viewed as difficult because of the need to establish causation. Commonly drift that occurs is invisible, and unless the event is witnessed and documented there may be insufficient proof of cause and effect. However improved scientific testing procedures have been developed and are more freely available. Where proof of causation is available, New Zealand courts have not found any difficulty in establishing a duty of care in terms of application of toxic sprays and have recognised the risks attached to such practices.[333]

5.2.1.1 The nature of the damage

A particular problem exists however for the organic farmer. Not all chemical drift will necessarily create physical damage so as to render the produce unable to be consumed or sold. Maximum pesticide residues levels (MRL)[334] exist for food safety reasons and apply to all produce. If pesticide drift occurs on a non-organic farm, yet does not exceed this MRL ("the general standard") then arguably the owner of the property has not suffered damage. The position is not the same for an organic farm. Generally the acceptable level for an organic farm will be set at 10 per cent of the MRL.[335] The

[331] *Attorney-General v Geothermal Produce NZ Ltd* [1987] 2 NZLR 348, CA.
[332] Law Commission, supra n 329 at 10.
[333] *Attorney-General v Geothermal Produce NZ Ltd* [1987] 2 NZLR 348, CA.
[334] BIO-GRO Standards, supra n 114.
[335] Ibid.

question arises as to whether or not the property is physically damaged by the presence of a contaminant at levels lower than those tolerated by general society.

From an organic farmer's point of view the property is damaged at any level in excess of the 10 per cent threshold, as the property is rendered unsuitable for organic certification. The first enquiry in this situation is whether physical damage to the property has occurred. The common law establishes that when property is physically changed then it is damaged, however classification is not always straightforward.[336] Where a defendant sprayed with insecticide, crops which were then consumed by cattle so as to create inert chemical residues in the fat of the cattle, the Court found that the plaintiff had suffered economic loss resulting from the damage to the cattle. Due to the presence of the chemical (which did not harm the cattle) any costs from postponement of sale, reduction of price or other associated expenses suffered by the plaintiff could be recovered.[337] Although it is currently unclear how a court will view similar loss suffered by an organic farmer it is possible that where an organic farmer suffers damage to a crop which causes prohibited residues in excess of the relevant organic standard, but less than the general standard, that any claim should be for pure economic loss, as opposed to physical damage. This is arguable and will depend on the extent of the damage, and the view taken by the court of the damage. However proceeding on the basis that decertification may constitute economic loss, recovery for that loss will now be considered.

5.2.1.2 Economic loss

Decertification of an organic farm consequent upon a breach of Standards may create financial loss due to loss of sales, forward contracts and premium. Rejection of general export crops due to excess chemical residues creates similar losses. Recovery may be sought in addition to loss caused by physical damage, or in substitution for it if physical damage is not proved. Damages for loss of profits may also be sought.

Due to policy considerations, relating generally to constraining indeterminate claims,[338] the courts have been cautious of imposing a duty of care where a person suffers pure economic loss that is not the result of injury to person or tangible

[336] Todd, S (ed.) *The Law of Torts in New Zealand,* (2001) 170.
[337] Ibid, 170 discussing *McMullin v ICI Australia Operations Pty Ltd* (1997) 72 FCR 1.
[338] Ibid, 258-259. Other policy reasons include economic interests being viewed as less worthy of protection, and market efficiency arguments supporting insurance of the risk, rather than liability.

property.[339] The law relating to recovery for economic loss is new, and different approaches have been advanced for dealing with situations where there is no legal precedent.[340] In New Zealand there is currently no formulaic approach, beyond general principle, and financial loss is recoverable *as a matter of ordinary principle where policy considerations point to that conclusion.*[341] Recovery is potentially available for both consequential and relational loss.

The High Court of Australia considered the impact of decertification[342] in *Perre v Apand Pty Ltd.*[343] The respondent was a major operator in the potato crisping industry in South Australia and provided potato seed to a number of growers throughout Australia. The seed produced a crop suffering from the disease known as bacterial wilt. Affected growers included the Sparnons. The appellants were all potato growers who conducted their business in close proximity to the affected Sparnon property, as a consequence of which their crops were denied certification due to the risk of infection. Absence of certification resulted in inability to access the Western Australian market. None of the appellants' properties suffered physical harm as a result of the presence of the affected crop. They did however suffer significant financial loss due to the loss of market.[344]

The High Court of Australia allowed the appellants claims to succeed. In doing so, they returned to general principle to support the claim. As stated by McHugh J:[345]

> Para 100 – In determining whether the defendant owed a duty of care to the plaintiff, the ultimate issue is always whether the defendant in pursuing a course of conduct that caused injury to the plaintiff, or failing to pursue a course of conduct which would have prevented injury to the plaintiff, should have had the interest or interests of the plaintiff in contemplation before he or she pursued or failed to pursue that course of conduct.[346] That issue applies whether the damage suffered is injury to person or tangible property or pure economic loss.[347]

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[339] *Perre v Apand Pty Ltd* [1999] 164 ALR 606 (HCA) para 70. McHugh J.
[340] Ibid, para 25. Gaudron J.
[341] Todd supra n 336 at 252.
[342] The decertification arose in the context of biosecurity regulations aimed at controlling bacterial wilt, as opposed to decertification for organic production. Decertification of the potatoes prevented entry in to the Western Australia.
[343] *Perre*, supra n 3339.
[344] Ibid, para 235. Kirby J.
[345] Ibid, para 100.
[346] *Donoghue v Stevenson* [1932] AC 562 at 580 per Lord Atkin.
[347] See *Caltex Oil (Australia) Pty Ltd v The Dredge "Willemstad"* (1976) 136 CLR 529.

In connection with the existence of a duty of care the Justices considered proximity and vulnerability. The fact that the appellants were near neighbours (either adjoining or in the locale) was relevant and affected the duty of care. Additionally the respondent's knowledge of the neighbouring potato growers' vulnerability to the disease, and inability to control it was relevant.[348] The Justices also considered that indeterminacy was not a reason for refusing relief, as those affected were ascertainable. As summarised by Gleeson CJ:

> Para 14 – Furthermore, the combination of circumstances involving the use and ownership or enjoyment of land, the physical propinquity of such land to the Sparnons' land, the known vulnerability of people in the position of the appellants, and the control exercised by the respondent over the relevant activity on the Sparnons' land, is unlikely to apply to an extent sufficient to warrant an apprehension of indeterminate liability.
>
> Para 38 – Where a person is in a position to control the exercise or enjoyment by another of a legal right, that position of control and, by corollary, the other's dependence on the person with control are, in my view, special factors or, which is the same thing, give rise to a special relationship of "proximity" or "neighbourhood" such that the law will impose liability upon the person with control if his or her negligent act or omission results in the loss or impairment of that right and is, thereby, productive of economic loss.
>
> Para 42 – In my view, where a person knows or ought to know that his or her acts or omissions may cause the loss or impairment of legal rights possessed, enjoyed or exercised by another, whether as an individual or as a member of a class, and that that latter person is in no position to protect his or her own interests, there is a relationship such that the law should impose a duty of care on the former to take reasonable steps to avoid a foreseeable risk of economic loss resulting from the loss or impairment of those rights.

In his decision, Kirby J traced the development of the law relating to financial loss and proposed a 3 stage test for deciding whether a duty of care existed in negligence as follows:[349]

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[348] In examining the issue of inability to control, a Court may also consider whether a plaintiff should be required to take reasonable steps by way of self –protection see *Ports of Auckland Ltd v Auckland City Council* [1999] 1 NZLR 601, 159.What is reasonable in any given circumstance becomes a mixed question of science and law.

[349] *Perre,* supra n 339 at para 259.

As an approach or methodology for deciding whether a legal duty of care in negligence exists, I suggested that the decision-maker must ask three questions:

1. Was it reasonably foreseeable to the alleged wrongdoer that particular conduct or an omission on its part would be likely to cause harm to persons who have suffered damage or a person in the same position?
2. Does there exist between the alleged wrongdoer and such person a relationship characterised by the law as one of "proximity" or "neighbourhood"?
3. If so, is it fair, just and reasonable that the law should impose a duty of a given scope upon the alleged wrongdoer for the benefit of such a person?

The third limb of the test brings issues of policy to the enquiry.[350] Kirby J weighed 2 policy reasons that in the past have emerged to justify a rule excluding a legal duty of care to a plaintiff who has suffered no physical damage to its person or property, but only pure economic loss.[351] The first related to indeterminacy and was eliminated on the grounds of ability to ascertain. The second reason was whether to hold the respondent to a legal duty of care would be to unreasonably interfere with its economic freedom, its autonomy and the competitive operation of the market place.[352] In considering this issue Kirby J took into account the fact that the introduction of infected seed to south Australia was illegal, and as such refused to find a good policy reason for excluding the duty. It was undecided as to whether absent such statutory prohibitions, illegality otherwise affecting what Apand did in relation to the Perre interests would have been sufficient in any case to put a limit on Apand's economic freedom.[353] The interface with statute and regulations made thereunder, and the defendant's conduct in relation to them, therefore becomes relevant.

In New Zealand it is well established that statute law will abrogate common law rights where there is inconsistency.[354] Following a similar line, where the law of negligence develops, courts tend to seek consistency with statutes and other legal principles.[355] It could be argued that where statute law does not restrict a defendant's

[350] A similar approach has been adopted by the Supreme Court of Canada in *Cooper v Hobart* [2001] 3 S.C.R. 537, 206 D.L.R. (4th) 193. For discussion see Brown, R, " Still Crazy after All These Years: Anns, Cooper v Hobart and Pure Economic Loss" (2003) 36 U.B.C. L. Rev. 159.
[351] *Perre,* supra n 339 at para 297.
[352] Ibid, at para 300.
[353] Ibid, para 301 per Kirby J.
[354] *Falkner v Gisborne District Council* [1995] 3 NZLR 622, 632.
[355] *Ports of Auckland,* supra n 348.

freedom, then the common law should be slow to impose any limitation. Yet this tends to overlook the plaintiff's freedom to operate within the market, and also any particular exposure or vulnerability a plaintiff may have in relation to its relationship with the defendant. It is accepted that in our free enterprise society competition in the market place will only be restricted on a limited basis.[356] However, in essence this line of policy relates to choice, and the freedom of an individual to exercise that choice without unnecessary limitations. As stated per Mc Hugh J:[357]

> One of the central tenets of the common law is that a person is legally responsible for his or her choices. It is a corollary of that responsibility that a person is entitled to make those choices for him or her self without unjustifiable interference from others. In other words, the common law regards individuals as autonomous beings entitled to make, but responsible for, their own choices…
>
> …In any organised society, however, individuals cannot have complete autonomy, for the good government of a society is impossible unless the sovereign power in that society has power in various circumstances to coerce the citizen. Nevertheless, the common law has generally sought to interfere with the autonomy of individuals only to the extent necessary for the maintenance of society.

McHugh J refers to unjustifiable interference. When placing this notion in the context of a land use conflict, it takes on a similar aspect to a claim in nuisance for unreasonable interference with the use and enjoyment of land. Where the interference constitutes an intrusion onto another's land, consideration of fundamental property rights may assist in defining further evolution of policy in this context. The right to exclude, and/or gain compensation for use is apposite. Should it be the defendant's freedom to operate in the market or the plaintiff's right to choose how land owned is managed which is paramount? This will be discussed further in para 5.2.1.4.1. In considering these issues a final relevant factor is the steps taken by the plaintiff to protect itself from harm As noted by McHugh J,[358] where it was reasonably open to the plaintiff to take steps to protect itself, then this may remove reason for imposing a duty of care. The protective steps contemplated are generally in the form of contractual warranties, but do not normally include a requirement to obtain insurance

[356] The RMA reflects this notion by the operation of s 104 (3)(a), which expressly excludes consideration of trade competition in resource consent decisions.
[357] *Perre*, supra n 339 at para 114.
[358] Ibid, para 118.

to cover the loss.[359] A plaintiff's vulnerability is more likely to arise where it is unable to protect itself by contract.[360]

5.2.1.3 Application to organic farms

Perre v Apand Pty Ltd is useful to organic farmers to the extent that it allows for recovery for economic loss consequent upon decertification. In terms of application to New Zealand law, decisions of the High Court of Australia are regarded as highly persuasive. The factual circumstances of the case are slightly different in that none of the appellants suffered any form of physical damage. It was simply their presence in the locale that led to decertification. For decertification to occur on an organic farm, in relation to chemical contamination, there will be some residual presence or damage from a chemical. Nevertheless, in either circumstance decertification is the consequence.

The issue of damage requires further consideration. Traditionally tort has provided a remedy where a defendant gains by expropriating a resource that a plaintiff has an exclusive right to use.[361] A question to consider is to what extent does the damage represent an interference with a property right exclusive to the plaintiff? Does the presence of the residue impact upon the plaintiff and confer a benefit upon the defendant in a manner that is unfair in the circumstances? To what extent does a property right support a claim for zero tolerance? Should the degree of expropriation in an instance of decertification found a right to compensation?

In resolving these issues a court will examine the position of the non-organic farmer. It will need to weigh the steps taken to avoid harm, the gravity of the risk, the ease of avoidance and the social value of the activity.[362] In this way locality, topography, proximity, land use, type of vegetation and crop, physical and natural barriers, chemicals and methods of application require consideration in determining the existence of a duty of care. Exclusionary factors also require consideration, but a court will need to balance the economic freedom of the defendant against the right of the plaintiff to exclude others from property owned. Efficient allocation in a well-

[359] Ibid, para 130.
[360] Ibid, para 123.
[361] Brown, R " Still Crazy after All These Years: Anns, Cooper v Hobart and Pure Economic Loss" (2003) 36 U.B.C. L. Rev. 159 at para 169.

functioning market economy turns upon the characteristic of exclusivity.[363] By contaminating the property of the organic property, the non-organic grower stifles the freedom of the organic to choose how to farm and how to create an economic gain. A policy choice to disallow recovery for economic loss in these circumstances, also fails to incorporate the Principle of Polluter Pays to a full extent. Evolving policy in a direction away from the concept of Polluter Pays is arguably out of step with domestic and international developments in environmental law.

In relation to establishing a duty of care considerations of known vulnerability and proximity, are key factors. Any neighbour who has received notice of presence from an organic farmer will be aware of the farm's vulnerability to prohibited inputs. That neighbour will not normally be in a contractual relationship with the organic farmer and as such protection via contract is unavailable. Should knowledge of the vulnerability and awareness of appreciable harm give rise to a duty of care? The Court in *Perre v Apand Pty Ltd.* said *yes.* What is unclear however, is whether a spray operator, guilty of causing residues which offend organic standards, but not the general standard, should for policy reasons be excluded from owing a duty of care. It is feasible that the existence of a statutory scheme that expresses tolerances by way of Maximum Residues Levels,[364] or any other tolerance standard, could affect the way in which a court applies the doctrine of negligence. A court may choose to promote consistency with statute and thus align the common law with statute. However it is unlikely that a court would adopt this course where it would cut across other statutory schemes, such as the RMA, pursuant to which more stringent controls upon the use of hazardous substances may be imposed.[365] In particular the provisions of a Regional Plan would require scrutiny to assess the legality of any discharge activity. A Regional Plan directed at controlling chemical drift by avoidance, tied to a rule requiring the preparation of a spray plan identifying sensitive activities potentially removes the barriers of legality and foreseeability and could establish known vulnerability. The framing of a Regional Plan thus acquires real importance in terms of recovery by an organic farmer for economic loss at common law.

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[362] Todd, S "Liability issues involved, or likely to be involved now or in the future in relation to the use, in New Zealand, of genetically modified organisms and products" Submission to the Royal Commission on Genetic Modification [27 April 2001] <http://www.gmcommission.govt.nz/> 11.
[363] Tietenberg, T supra n 219 at 60.
[364]For example MRLs established by the NZFSA or EELS and TELS set pursuant to regulations made pursuant to HSNO, as discussed in Chapter 6.
[365] For discussion see chapter 6.

Recovery by the organic farmer for economic loss is not assured and will depend upon the facts of a given case. There is however, potential for considerations of known vulnerability and awareness of appreciable harm, to override other policy considerations. The critical issue is establishing known vulnerability, and avoidability. Notice of organic status thereby assumes considerable importance. The existence of known vulnerability may also be a ground for defeating exclusion from duty on the grounds of sensitivity.

5.2.1.4 Sensitivity

Upon establishment of the category of damage, the second enquiry relates to the sensitivity of the plaintiff. If chemical contamination causes damage in excess of the general threshold, then an organic farmer is in the same position as a non-organic farmer, and is unlikely to be deemed sensitive. Where however a certification system of any kind sets a threshold higher than the general standard there is potential to be deemed sensitive, where recovery is sought for loss in excess of the general standard. If organic farming systems are deemed sensitive, there is a body of law that suggests that recovery in negligence and nuisance should not be permitted, as it is incumbent upon the sensitive activity to protect itself from harm, The question of sensitivity also affects foreseeablity, and hence the extent of the duty of care.

Hamilton v Papakura District Council[366] a recent decision of the Judicial Committee of the Privy Council deals with the issue of sensitivity. This decision represents a significant but not insurmountable obstacle to activities deemed sensitive. The plaintiffs in this case were not organic growers, but grew cherry tomatoes hydroponically at three properties in Papakura. At two of the properties the water for the hydroponic system was drawn from the town supply, operated by Papakura District Council, and sourced form bulk supplier Watercare Services Ltd. The plaintiffs alleged that the water supplied was contaminated with herbicide levels that were toxic to their plants. The plaintiffs based their case in contract (Sale of Goods Act 1908) and tort (negligence, nuisance and *Rylands v Fletcher*).

The difficulty faced by the plaintiffs was that if the water supply did cause the damage to the plants (which the Court accepted as probable), it was because the tomato plants must have been sensitive and vulnerable to herbicides at very low levels

[366] *Hamilton v Papakura District Council* [2002] 3 NZLR 308 (PC).

in their particular growing conditions. The chemical in question was triclopyr, and it was suggested that the plants were sensitive to the chemical in the range of 1 to 10 ppb.[367] It was acknowledged that triclopyr at 10ppb was one-tenth of the maximum allowable level under the 1995 drinking water standard and, if detected, would not precipitate any monitoring on health grounds.[368]

The Privy Council upheld the Court of Appeal, and dismissed the claim in negligence. The first ground for dismissing the claim was that it was unreasonable to extend the duty of care to all uses, particularly where those uses may have special needs. The Court found:[369]

> [36] If the duty is put in terms of all uses, even all uses known to Papakura, the duty would be extraordinarily broad. For a Court to impose such a duty would be to impose a requirement on water suppliers which goes far beyond the duty met in practice by those authorities supplying bulk water, a duty which has long been founded on the drinking water standards, standards drawn from World Health Organisation guidelines and from other international material and established through extensive consultation. It would impose extras costs on general users which relate in no way to their needs for pure, potable water. No evidence was called to support the imposition of such a wide-ranging, costly and burdensome exercise.

This finding would suggest that where a defendant in its activities achieved a minimum standard defined by general law, then a duty of care in negligence would not extend to a more restrictive standard. The Privy Council approved the view of Gault J who said: [370]

> Those who have particular requirements, and in this case it was a particular requirement over and above water of ordinary standards, must deal with the problem as part of their ordinary operating procedure.

[367] *Hamilton v Papakura District Council* [2000] 1 NZLR 265, (CA), para 40.
[368] Ibid, Para 41.
[369] *Hamilton*, (PC) supra, n 367.
[370] Ibid, para 31, in turn quoting the words of the Supreme Court of Canada in *Munshaw Colour Service Ltd v Vancouver (City)* (1962) 33 DLR (2d) 719 at p 727.

The Court of Appeal concluded that to require a water supplier to ensure that the town water supply had a zero level of triclopyr contamination would be unrealistic in this country with its agricultural based economy.[371]

5.2.1.4.1 Distinguishing features

Hamilton v Papakura District Council relates to water supply for a public purpose. Actionable negligence involves an explicit overall weighing of the costs and benefits generated by the defendant's activities.[372] The policy evident behind the decision is avoidance of the imposition of undue cost upon water suppliers that then flows onto general users. The difficulties faced by a water supplier in avoiding widespread contamination by chemicals of water catchments are no doubt factored into the reasoning. The Court places the burden on the sensitive user to employ measures that protect from this risk.

In relation to a conflict between organic and non-organic farmers it is arguable whether the reasoning in *Hamilton v Papakura District Council* can be extended to apply to point source chemical drift. In the latter situation there is no question of supply to the public, and the issue of indeterminacy does not arise. A non-organic farmer is in a much better position to internalise the adverse effects of chemical drift, than is a water supplier whose catchment area may have a broad reach.

A second point for consideration is the justification for extending policy so as to treat an entire sector as sensitive. The concept of sensitivity may require reshaping in the face of the twenty first century. The growth of the organic sector, environmental benefits produced and the concomitant public support may influence such policy. Cognisance of mounting environmental pressures derived from agriculture and of international measures to actively support organic farming so as to reduce that pressure may have bearing. It may also be helpful to reconsider underlying property rights in this instance. If organic farming is deemed a sensitive activity, an organic farmer's right to exclude others from property owned is diminished. It is arguable that diminution of that fundamental right by reason of sensitivity alone, without recognition of known vulnerability and avoidability is inequitable.

[371] Although as a matter of fact, due to the low residue levels, the water in this case may not have "damaged" organic product, the decision creates a strong impetus for organic farmers to have a hard look at their water supply.
[372] Todd, supra n 336 at 504.

Property rights evolve and change in response to economic, social and environmental pressures.[373] Regarding organic farmers as sensitive gives primacy to the right of non-organic farmers to pollute on grounds of economic and consequent social benefits. It would however, completely fail to respond to the economic and social needs of the organic farmer or arguably the need of the wider environment. It can be argued that such policy infringes the right to be free from environmental harm, as well as failing to provide for future generations. Terming organic farmers sensitive may also be out of step with rules in resource management plans made pursuant to the RMA. Statutory directions to promote sustainable management and to consider the sensitivity of the receiving environment may create conditions where vulnerable activities require protection.[374] There is much at stake in consequence of treating an organic farm a sensitive activity, and a court well appraised of these issues may be reluctant so to do.

5.2.1.5 Foreseeability

The second ground in *Hamilton v Papakura District Council* for dismissing the claim in negligence related to the inability of the plaintiff to show that the loss was foreseeable. Sir Kenneth Keith[375] for the Judicial Committee held:[376]

> [37] The extraordinarily broad scope of the proposed duty provides one decisive reason for rejecting the claims in negligence. A second, distinct reason is provided by the requirement of foreseeability. The High Court in the passage quoted and endorsed by the Court of Appeal (see para [31] above) said that in the circumstances it was unable to conclude that it was or should have been reasonably foreseeable to Watercare, still less to Papakura, that water containing herbicides at a fraction of the concentration allowable for human consumption would cause damage to cherry tomatoes grown hydroponically …
>
> [39] As the Board made clear in *Overseas Tankship (UK) Ltd v Miller Steamship Co Pty (The Wagon Mound No 2*) [1967] AC 617 at p 643, damage is foreseeable only when there is a real risk of damage, that is one which would not occur to the mind

[373] Guerin K "Property Rights and Environmental Policy: A New Zealand Perspective" New Zealand Treasury Working Paper 03/02 [March 2003] <http://www.treasury.govt.nz > 10.
[374] For discussion see chapters 7, 8 and 9.
[375] A New Zealand Court of Appeal Judge, sitting as a member of the Privy Council.
[376] *Hamilton* (PC), supra n 366 at para 37.

> of a reasonable person in the position of the defendant and one which he would not brush aside as far-fetched. The mere fact that certain herbicides may kill or damage certain plants at certain concentrations does not itself establish such a risk…

The Court found that lack of reasonable foreseeablity was firmly supported by the evidence, and the claim in negligence must fail.

5.2.1.5.1 Distinguishing features

The finding on this point is related directed to the susceptibility of the tomato plant to certain herbicides, a fact of which none of the parties (not even the plaintiffs) had knowledge. The position for organic farmers can be differentiated in that notice of organic status can readily be given to neighbours and contractors. In fact in many situations this will be a requirement.[377] Possession of knowledge would affect foreseeability of harm, particularly if notice given were comprehensive. The giving of notice is also critical on the basis that it may ground liability in negligence *if a defendant, with knowledge of the plaintiff's special susceptibility, fails to adopt such reasonable precautions as would have avoided the damage without appreciable prejudice to his or her own interests.*[378]

The scope of *appreciable prejudice* in the context of restrictions on the spraying practices of a farmer is unclear. However, given the techniques available to limit spray contamination of other properties, it is arguable that this could be achieved with minor consequences to the non-organic farmer comparative to the harm caused to the organic farmer. The question to return to is, is there a real risk of damage, and is it reasonable, fair and just to recover the damage suffered? Most reasonable people apprised of the existence of an organic farm on their boundaries would appreciate the risk of causing physical or economic damage to their neighbour by the use of uncontrolled chemical application. The organic sector, in allowing for contamination of up to 10 per cent of maximum residue levels, also recognises the reality of background levels of pollution. What is yet to be decided is whether or not it is reasonable for organic farmers to recover for loss caused above that background level but below the general level.[379]

[377] BIO-GRO Standards 4.2.6.b.iv.
[378] Todd, supra n 336 at 502.
[379] This being for damage created between 10.01 and 99.9 per cent of the relevant maximum residue level.

To disallow recovery on the basis of susceptibility, places, organic farming firmly in the hypersensitive category. Perhaps it is the reality of the modern world that attempting to farm naturally has become unnatural or abnormal. This is a somewhat troubling reflection of the way in which we order this world, and it would also appear to be out of step with international and national policies geared to reducing the externalities of modern agriculture. If the common law fails to provide for organic farms to recover damages for economic loss consequent upon decertification, where there was no physical damage, it leaves organic farming with the following choices:

1. Reliance on the general law, for instance the RMA.
2. Risking contamination for which no recovery will be allowed.
3. Grouping with like activities and creating spatial barriers.
4. Erecting physical barriers
5. Accepting MRL levels as Standards thus diluting if not eliminating the organic standard.

5.2.2 Nuisance

Nuisance is the customary common law remedy employed to resolve land use conflicts.[380] A plaintiff suffering damage to property or interference with the enjoyment of land, without physical damage, may make a claim in nuisance.[381] An encroachment on to land so as to closely resemble trespass may also constitute a private nuisance.[382] Fleming describes the inherent difficulties in the resolution of land use conflict:[383]

> The paramount problem in the law of nuisance is therefore to strike a tolerable balance between conflicting claims of neighbours, each invoking the privilege to exploit the resources and enjoy the amenities of his property without undue subordination to the reciprocal interests of the other.

[380] This enquiry will be directed to the concept of private nuisance, in relation to interference with property owned, in contrast to a public nuisance consisting of interference with a public or common right. For discussion of the distinction see Fleming, J *The Law of Torts* (1998), 459.
[381] Todd Report, supra, n 362 at 10.
[382] *Hawkes Bay Protein Ltd v Davidson* [2003] 1 NZLR 536, HC, para 15.However to result in actual trespass a person must cause some other person or thing to directly intrude on the land, it is insufficient for the encroachment to arise as the indirect or consequential result of the defendant's act, for discussion see Todd, supra n 336 at 456.
[383] Fleming, J, supra n 380 at 467.

In nuisance, liability may be easier to prove than negligence. Once damage to property or loss of enjoyment of a naturally occurring right is proven, the defendant must then raise a defence, for instance that he or she was using reasonable skill and care in the ordinary or natural use of land. The focus will be upon whether or not the defendant's interference was unreasonable in the circumstances, rather than upon whether or not adequate precautions were taken.[384] Fleming discusses the factors to be considered in striking the balance between the conflicting claims by reference to the standard of reasonableness:

> …In striking this balance, a number of factors are given weight in accordance with traditional values relating to private property rights. Little, if any, attention is paid directly to utilitarian criteria like cost or resource efficiency or to the larger considerations of zoning and welfare, which are thought to belong to the province of legislation and planning.

Due to the range of interests incidental to ownership, nuisance liability offers protection against a wide range of harms. The character and duration of harm will determine the existence of an unreasonable interference. The immediate neighbourhood will form the background against which the standard of reasonableness will be assessed.[385] In *Hawkes Bay Protein v Davidson Ltd.*,[386] Gendall J observed:

> [18]…The law requires the standard of comfort and convenience of the average man within the character of the neighbourhood to be taken into account. It is well known if someone lives in an industrial town they cannot reasonably expect the same purity of air or freedom from noise as in a pleasant country locality, or exclusively residential district. But this does not mean that someone who lives in a noisy neighbourhood can never complain of additional noise, any more than someone who occupies an industrial neighbourhood cannot complain of additional excessive industrial disturbances or, in the present case, excessive odours. It is a question of degree and assessment of the extent to which the increased volume of noxious smells, judged by the standards prevailing in that area, is so substantial as to detract from the standard of comfort reasonably to be expected of an occupier of a neighbouring property.

[384] Todd Report, supra n 362 at 11.
[385] Todd, supra n 336 at 504.

The conduct of the wrongdoer need not necessarily be unlawful,[387] and compliance with planning permission does not operate as a defence to a claim in nuisance.[388] Such an approach has parallels to the operation of s 17 of the RMA, which may override lawful activities where an adverse effect upon the environment is evident.[389] It is no defence for the defendant to show that the activity carried out confers a benefit on the public that outweighs the harm done to the plaintiff.[390] Fleming notes that some consideration will be given to the fact that the offensive operation is essential and unavoidable in a particular locality, but warns that the argument should not be pushed too far:[391]

> …it should be remembered that we are concerned with reciprocal rights and duties of *private* individuals, and a defendant cannot simply justify his infliction of great harm upon the plaintiff by urging a greater benefit to the public at large has accrued from his conduct.

Fleming reminds us that "*where the public be interested let the public bear the loss*", a result that he says can be accomplished by holding the defendant liable in the first place and letting him charge the cost to the benefiting public or alternatively conferring statutory authorisation on the enterprise coupled with compensation for damage caused. This approach is consistent with a requirement for internalisation of effects.

In nuisance the focus remains trained upon what is reasonable in the circumstances. It is no defence that the plaintiff came to the nuisance.[392] In this way the common law diminishes a first in time first in right argument. Todd identifies the policy reason for taking the position as *Otherwise one occupier would be able, by establishing his use first, to permanently diminish the value of neighbouring land without providing compensation.*[393] Furthermore in nuisance it is irrelevant that the

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[386] *Hawkes Bay*, supra n 382 at para 18.
[387] Ibid, para 15.
[388] Ibid, para 19.
[389] Where however a defendant's acts are specifically authorized by statute, a plaintiff's claim will fail where the defendant can prove that the creation of the nuisance was an inevitable result of carrying out the authorized activity.
[390] Todd supra n 336 at 504.
[391] Fleming, supra n 380 at 471.
[392] *Ports of Auckland, supra* n 348 at 608.
[393] Todd, supra n 336 at 523.

plaintiff failed to take steps to avoid or minimise the harm,[394] as the focus of the enquiry rests upon the interference. In *Bank of New Zealand v Greenwood* [395] it was held that liability in nuisance arose even in circumstances where a plaintiff could avoid the effects more cheaply than the defendant could eliminate the nuisance, unless the cost of elimination was so proportionately small, so as to lead the court to a conclusion that no actionable nuisance had occurred.

Foreseeability of harm is a requirement and the plaintiff may fail if the activity they undertake is unduly sensitive.[396] In relation to sensitivity, Justice Gendall in *Hawkes Bay Protein v Davidson Ltd.* held:[397]

> [17]…The discomfort must be substantial, not merely with reference to a plaintiff and his/her sensitivities but to a degree that would be substantial to any person occupying the plaintiff's premises irrespective of age or state of health. It must be that it materially interferes with the ordinary comfort expected of occupation in the relevant area according to reasonable standards expected amongst those in that area.

Where however a defendant acts deliberately or maliciously to cause harm to a plaintiff with known sensitivities, those actions may be judged unreasonable.[398] In terms of a remedy an injunction is available to refrain the wrongdoer from continuing the nuisance. Where there is physical damage, damages will be awarded and the measure of damages will be the cost of restoring the land, or the diminution of the value of the land due to the damage.[399] Damage to crop as a result of a nuisance is recoverable, as are the costs of averting a physical threat.[400] Where however a "transitory nuisance" causes the damage, diminution of land value will not be the appropriate measure, as the value of the land will seldom be reduced. Damages for loss of amenity value are more appropriate in these circumstances and should only be awarded for the period during which the nuisance persisted.[401]

Where there is no physical damage, reliance is placed upon the interference with use and enjoyment of the land. This may be reflected by damages for loss of utility or

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[394] *Bank of New Zealand v Greenwood* [1984] 1 NZLR 525 at 534-535.
[395] Ibid.
[396] Todd Report, supra n 365 at 11.
[397] *Hawkes Bay*, supra n 386 at para 17.
[398] *Hollywood Silver Fox Farm Ltd v Emmett* [1936] 2 KB 468.
[399] *Hawkes Bay*, supra n 382 at para 13.
[400] Todd supra n 336 at 529 and *Attorney General* supra n 331.
[401] *Hawkes Bay* supra n 382 at paras 32-39.

amenity value. Damages for loss of profits stemming from the inability to use land may also be recovered.[402]

5.2.2.1 Application to organic farming

At first glance a claim, by an organic farmer, in nuisance for contamination by spray drift looks promising. Where contamination arises in excess of general tolerances, and a link can be made to the wrongdoer, then recovery for loss suffered is likely. Due to the fact that general tolerances are exceeded, the issue of foreseeability is unlikely to arise. The fact that a nuisance-creating farmer is busily engaged in feeding the nation would not operate as a defence in favour of the farmer. Nor would an argument of first in time. It will also be irrelevant that an organic farmer could avoid the effects at a cost lower than that to be paid by the non-organic farmer in eliminating the nuisance.

The situation is less clear, however, where spray contamination creates residues below the general level, but above organic certification thresholds. The ability to claim for interference with the use and enjoyment of land may assist the organic farmer in this situation. It could be argued that the practices of a defendant unduly restrict the ability of the plaintiff to operate an organic farm and thus use and enjoy land in the manner of choice. Damages could be sought for loss of utility as an organic farm. The issue of foreseeability could be overcome in instances where notice of presence of an organic farm had been given. The Court would then have to assess what a reasonable level of interference is.

In relying on the doctrine of nuisance the greatest obstacle is that of abnormal sensitivity. The decision in *Hawkes Bay Protein v Davidson Ltd* suggests that the interference or discomfort need be substantial. This could be difficult to prove where spray drift results in residual contamination, which exceeds the organic, but not the general, standard. In assessing the degree of interference a court would assess what is reasonable in the immediate location. The constitution of the neighbourhood, and spray practices employed would be relevant. The ease and extent of the ability to control the discharge will be weighed as well. Known vulnerability may also be relevant. Where a neighbouring operator has knowledge of a plaintiff's organic status and possesses the ability to control spray practices, it is possible that a Court could

[402] *Clearlite Holdings Ltd v Auckland City Corporation* (1976) 2 NZLR 729.

find that operator to have acted unreasonably in discharging spray in a manner that breached organic certification standards. Although such actions could not be termed malicious, they could be viewed as unnecessary. Toleration of sprays by community and changing industry practice could influence a court's decision in terms of reasonableness

Arguments from property rights may also bolster the organic farmer as discussed in paragraph 5.2.1.5.1. Consideration of the statutory framework may be relevant and a court may also want to consider rules in resource management plans created under the RMA, relating to spray drift and land use when considering whether the activity was reasonable Planning permission will not necessarily operate as a defence to a claim in nuisance. In identifying the balance to be struck between the parties a court will need to conclude whether or not the right to farm organically should be subordinated to the right of a neighbour to discharge chemicals over the organic farmer's land in such a way as to result in decertification. Evolution of policy rejecting this latter position is arguably more consistent with international and national efforts to control the externalities of modern agriculture.

A requirement to internalise effects causing decertification represents one way in which a tolerable balance could be struck between the parties. This would not mean that chemical farming techniques could not be carried out on a block adjoining an organic farm. It would simply mean that anyone applying those chemicals should do so in a manner that does not have flow on effects for incompatible activities. It may have implications for some techniques, such as aerial crop dusting, but leaves open other avenues. Finding sensible solutions that support all forms of agriculture, without rendering one impossible should be the goal for those administering the common law.

5.3 *Rylands v Fletcher*

Reliance upon the doctrine of *Rylands v Fletcher* is another avenue for recovery of damage to property. It is now established that this doctrine is a subset of the nuisance action. The Court of Appeal in *Hamilton v Papakura District Council* assessed the similarities between the causes of action:[403]

[403] *Hamilton* (CA), supra n 371, para 71.

> The similarities between the *Rylands v Fletcher* cause of action and the cause of action in nuisance are clear. *Rylands v Fletcher* deals with an isolated instance of escape while nuisance is concerned with a continuing wrong. The true nuisance should normally have some degree of continuance about it as the plaintiff must show some act of the defendant on his land that disturbs the actual or prospective enjoyment of the plaintiff's rights over the land. However, an isolated escape can give rise to an action in nuisance. Examples include a water main bursting (*Irvine & Co Ltd v Dunedin City Corporation* [1939] NZLR 741), a blocked drain causing a flood (*Pemberton v Bright* [1960] 1 WLR 436 (CA)), and a gas explosion (*Midwood & Co Ltd v Mayor, Aldermen And Citizens of Manchester* [1905] 2 KB 597). This illustrates the close relationship between the law of nuisance and the rule in *Rylands v Fletcher* which originally dealt with instances of the escape of large amounts of water stored on the defendant's land. Lord Macmillan recognised in *Read v J Lyons and Co Ltd* [1947] AC 156 that nuisance is a cogener of the rule in *Rylands v Fletcher*, but the former usually focuses on the acts of the defendant, while the latter always focuses on the event of an escape of some mischievous thing which the defendant brought onto his land.

The Court of Appeal also found that the requirement of foreseeability was a prerequisite to both forms of action.[404] In *Hamilton v Papakura District Council* the requirement for foreseeability was fatal to all three-tort causes of action before all three courts.

A differentiating factor of the rule in *Rylands v Fletcher* is the requirement that the activity carried out by the defendant constituted a non-natural use of land. In *Attorney-General v Geothermal Produce NZ Ltd* [405] the majority were not prepared to classify the use of sprays in that case as non-natural, due to their fairly common rural use in New Zealand and the state of English case law. However Somers J, in minority, took a different view and concluded:[406]

> …To direct a toxic hormone spray capable of drifting considerable distances across the boundary of one's land up to heights of not less than 6 feet hardly seems a natural use of land. I find it difficult to see why the Department should not be liable under the Rule in *Rylands v Fletcher*.

[404] Ibid, para 73.
[405] *Attorney General*, supra n 331.
[406] Ibid, 363.

In the *Hamilton v Papakura District Council* decisions neither the Judicial Committee nor the Court of Appeal refer expressly to the non-natural issue, instead there appears to be implicit recognition that release of toxic sprays into a water supply could constitute either cause of action, in the event that the requirement for foreseeability is fulfilled. It may be that the better view is as expressed by Professor Todd: [407]

> Aerial spraying of weedkillers near sensitive crops on nearby land probably carries sufficient inherent risk of damage from drift to amount to a non-natural use even though it is a reasonably common agricultural practice.

Accordingly there is potential for the organic farmer to recover in nuisance, providing the issues of foreseeability and sensitivity can be dealt with. What is reasonable in the circumstances will come down to a court's decision in terms of the immediate location.

5.2.5 Recovery in the USA

In terms of weighing or balancing the different interests represented by organic and non-organic farmers it is instructive to enquire as to how such conflicts have been resolved in other jurisdictions. The courts in the United States have a degree of experience in resolving these issues,[408] although the existence of extensive right-to-farm laws differentiates the policy climate.[409] The United States however also has a strong organic community, and the rights of organic farmers to protection have been considered. The decision in *Langan v Valicopters, Inc*.[410] is apposite.

The plaintiffs, Mr and Mrs. Langan owned a small organic farm in the Yakima Valley near Washington where they grew organic produce that they intended to market. Their neighbours employed Valicopters, Inc to make aerial application by helicopter of pesticide to their property in order to control a beetle infestation. The plaintiffs alleged that the crop dusting resulted in pesticide residues in their crops. A laboratory test conducted after the spraying indicated the presence of 1400 parts per billion by weight of Thiodan on the Langans' crop tissue. At that time, the United States Department of Health Education and Welfare, Food and Drug Administration's

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[407] Todd, supra n 336 at 552.
[408] Feitshans, T "An Analysis of State Pesticide Drift Laws" (1999) 9 S.J. Agri. L. Rev. 37
[409] Luedeman, R "A Tale of Three States: Liability for Overspray and Chemical Drift caused by Aerial Application in Arkansas, Louisiana and Mississippi" (2000) 10 S.J. Agri. L. Rev. 121.

(the FDA) tolerance standard for Thiodan on tomatoes and beans was 2.0 parts per billion. Consequent upon the test results, the plaintiff's certifier; Northwest Organic food Producers Association (NOFPA) revoked the plaintiffs' certification as organic growers. The existence of pesticides at any level greater than 10 per cent of the maximum pesticide residue allowed by the FDA standard invoked immediate suspension pursuant to NOFPA's bylaws. Due to decertification the Langans did not grow their tomato and bean crops to fruition, but pulled the crops to minimise risk of further contamination to the land.

The Supreme Court of Washington, subsequent to a jury trial where judgment had been entered for the plaintiffs, heard the case. Upon consideration the Supreme Court affirmed the order of the lower court that awarded damages in strict liability and wanton conduct for the crop duster's use of the chemical pesticide on the organic farmers' land. In coming to its conclusion the court applied the Restatement (Second) of Torts §§ 519, 520 (Tent. Draft No.10 1964) ("The Restatement") and asserted that strict liability will arise in situations where risk of harm makes the activity abnormally dangerous. The Restatement applies strict liability for harm to a person who carries out an abnormally dangerous activity even when that person has exercised the utmost care to prevent such harm. Section 520 of the Restatement lists the factors to be used in determining what constitutes an abnormally dangerous activity as follows:

(a) Whether the activity involves a high degree of risk of some harm to the person, land or chattels of others;
(b) Whether the gravity of harm which may result from it is likely to be great;
(c) Whether the risk cannot be eliminated with reasonable care;
(d) Whether the activity is not a matter of common usage;
(e) Whether the activity is inappropriate where it is carried on; and
(f) The value of the activity to the community.

The Restatement offers further guidance in considering these factors, and suggests that one alone may be insufficient to create strict liability, and the *essential question to ask is whether the risk created is so unusual, either because of its magnitude or because of the circumstances surrounding it, as to justify the imposition of strict*

[410] Langan v Valicopters, Inc 567 P.2d 222 (Wash 1977).

liability.[411] In considering the factors the court concluded that crop dusting involved an element of risk of harm, and found on the evidence that in the particular case it was not possible to eliminate the risk of drift in crop spraying. In terms of the gravity of harm the court concluded that this would be dependant on the nature of activities carried out on adjoining land. Different crops types may have spray incompatibility, such as the differences between broad and narrow leafed crops. The court reviewed a number of cases and concluded that there were many different situations where a neighbouring property may be sensitive to and damaged by the spraying activities of the neighbouring landowner. In terms of an organic grower the court assessed the damage as including inability to sell crop as organic due to loss of certification, and consequent loss of premium, and also the inability to sell crops on regular commercial markets due to failure to enter into contracts with commercial produce buyers before the season begins.

The court then turned its mind to whether or not crop dusting was a matter of common usage. It concluded that despite the prevalence of crop dusting in the area, it was only carried out by a comparatively small number of persons and accordingly was not a matter of common usage. As to whether or not the activity was appropriate the court concluded:

> Given the nature of organic farming, the use of pesticides adjacent to such as area must be considered an activity conducted in an inappropriate place

Finally the Court assessed the value of the activity to the community:

> There is no doubt that pesticides are socially valuable in the control of insects, weeds, and other pests. They may benefit society by increasing production. [HN8] Whether strict liability or negligence principles should be applied amounts to a balancing of conflicting social interest – the risk of harm versus the utility of the activity. In balancing these interests we should ask who should bear the loss caused by the pesticides…
>
> …In the present case, the Langans were eliminated from the organic food market for 1973 through no fault of their own. If crop dusting continues on the adjoining property, the Langans may never be able to sell their crops to organic food buyers. Appellants on the other hand, will all profit from the continued application of

[411] Ibid.

> pesticides. Under these circumstances there can be an equitable balancing of social interests only if the appellants are made to pay for the consequences of their acts.

On this basis the court declined to find that the lower court had erred in its instruction to the jury on strict liability. The court took the same view on the wanton misconduct instruction on the basis that the evidence established that the helicopter had flown directly over the Langans property (and over Patrick Langan himself) with the spray turned on.

The factors considered by virtue of the Restatement represent a useful toolbox for analyzing the incompatible interests to be weighed when dealing with resource use conflicts. Of particular assistance to the organic farmer is the factor relating to appropriateness that may be useful in supporting a finding that some harmful activities are inappropriate in a location adjacent to an organic farm, when they cannot control their activities within the boundaries of their own land. The case in point related to application of pesticides by aircraft. An unresolved issue is whether other forms of aerial application would create the same degree of harm, and attract classification as uncommon usage. The Langan decision has attracted comment. One commentator criticized the decision on several counts. He stated: [412]

> This view is one-dimensional and raises the question of whether small scale growers should be required to compensate farmers who might be prevented from destroying harmful pests because of the presence of small organic farms nearby. One wonders whether traditional farmers in Washington or elsewhere ought to be held captive in this fashion by what may be a determined minority of exurbanite weekend gardeners.

It would be fair to say that such comments may well be representative of views held by some stakeholders and associates who view chemical farming as the only system capable of feeding the nation. However the rationale behind the comment appears flawed and anachronistic. It fails to comprehend the depth and the reach of the organic sector, and international policy support for sustainable agricultural techniques. Furthermore, considering chemical farmers as traditional discloses a rather foreshortened historical perspective.

[412] Supra n 409.

What these comments reveal is that the value and legitimacy of the organic sector requires promotion. In negligence social value contributed by non-organic farmers may be weighed, and although it is accepted that a defendant in nuisance may not argue that a social benefit provided outweighs the harm done to a plaintiff, a court may nevertheless consider the utility of the competing positions. It is incumbent upon the organic sector to mobilize, strengthen and advocate. If benefits are to be weighed or balanced it is important to consider all contributing factors.

5.3 Liability for damage caused by GMOs

Due to the recent nature if its innovation, and the existence of historical controls upon general release to the environment, liability for damage caused by GMO has yet to be considered by a New Zealand court. The lifting of the moratorium and a regulatory framework aimed at preserving opportunities creates a climate where liability issues are likely to arise. Failure to comply with rules and controls imposed due to negligence or deliberate action is part of the human condition. So too is overstating benefits without fully understanding the consequences.[413] Damage is likely to occur, and who should be liable for the consequences or cost of prevention rests with the courts to decide.[414]

There has been much argument in relation to a liability regime for GMO damage in New Zealand.[415] The Royal Commission took the view that the liability regime was best left, as it stands shared between statute and common law.[416] The Commission considered that the common law *was well able to mould new remedies for novel situations*.[417] GMO pollution is novel. This section of the thesis considers what protection the common law affords to organic farms. The Royal Commission alluded to the need for:[418]

> …delicate balancing; on the one hand protection of the public and the environment, and on the other the need, in the public interest, not to stifle innovation or drive

[413] Green, supra n 299.
[414] This is in the context of the common law. An enforcement regime is provided for by HSNO where there is a breach of the Act. However gaps in the enforcement regime such as GMO contamination arising where no breach of the Act has occurred will continue to force people to look beyond the statutory regime for a remedy.
[415] See for instance Chen Palmer Report, supra n 250.
[416] Royal Commission, supra n 297 at 328.
[417] Ibid.
[418] Ibid.

away investors by imposing overly stringent conditions on research or economic activity.

The potential for socialisation of unforeseen or unanticipated loss or damage was also recognised.[419] In paragraph 2.3.3.2 we examined the ways in which GMO could contaminate an organic farm. Loss of certification is the most obvious form of harm that would be suffered, but further harm may also occur such as contamination resulting in failed crops or a the colonisation by a GM neighbour requiring changed crop management techniques.[420] Contamination of organic crop and product by GMO presents liability issues in negligence and nuisance in a manner similar to contamination by chemicals. There three discernible differences. The first is that contamination by GMO may well affect general growers wishing to trade as "GE Free" in the same way as organic growers. The second is that the ability to control some forms of genetically modified crops released to the environment is limited. Thirdly it is arguable that toxic chemicals pose a more serious risk of harm to the environment than genetically modified organisms. These three factors may influence decisions in respect of liability at common law.

5.3.1 Negligence

5.3.1.1 Physical damage

Whether contamination by GMO can constitute physical damage raises the same issues discussed in relation to chemical drift. If the contamination causes a change in the nature of the crop, or product it is possible that physical damage has occurred. Where there is evidence of physical damage, a plaintiff will need to prove that a duty of care was owed. In an instance where a crop is known as likely to spread, foreseeability is unlikely to be an issue. The duty may also include a requirement that the crop be grown in such a way as not to cause harm.[421]

[419] Ibid.
[420] Lee, "Liability for the Escape of GM Seeds: Pursuing the "Victim"?" (2002) 65 The Modern Law Review 534, 530.
[421] Repp, R "Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift" (2000) 36 Idaho L.Rev.585 14.

5.3.1.2 Statutory Permission

The issue of statutory permission is relevant to both physical damage and economic loss. The existence of a statutory permission may impinge on whether or not a duty exists, as courts may choose an approach that promotes consistency with statute.[422] In relation to GMO any statutory permission would likely be issued pursuant to HSNO.[423] The relationship between HSNO and the common law has yet to be considered by the courts. In an analogous situation permission granted pursuant to the RMA does not prevent responsibility in tort.[424] It is arguable that this approach should be extended to cover permissions issues pursuant to HSNO. Permissions given pursuant to HSNO have similarities to resource consents granted pursuant to the RMA. Initially HSNO was conceived as part of the RMA.[425] The permissions under each regime are the result of a statutory framework where power is delegated to another body to weigh the interests of the environment and the interests of individuals in deciding how a resource is to be used. Both systems adopt similar purpose clauses, and each focus upon whether a particular activity should be permitted and where necessary prescribe controls upon the exercise of the permission.[426] Administrative decisions under both HSNO and the RMA may extinguish private rights without compensation, and courts have therefore supported the need to retain access to tort remedies regardless of the existence of a statutory permission.[427]

When considering the impact of a statutory permission upon the common law, courts will examine the entire scheme of the legislation. Whilst HSNO does not include a savings provision in terms similar to that of s 23 of the RMA,[428] it is clear that policy makers have assumed that the common law will continue to operate in tandem with statute.[429] Section 124 G of HSNO enables recovery of damages for loss

[422] See discussion para 5.2.1.3.
[423] Although it will be argued that more stringent controls pursuant to the RMA should be permitted in a manner similar to hazardous substances.
[424] *Ports of Auckland,* supra n 348 at 611.
[425] Although it is acknowledged that the legislation was subsequently separated due to the extensive nature of the HSNO regime.
[426] This is in reference to the treatment of new organisms by HSNO, not hazardous substances.
[427] For discussion see *Ports of Auckland,* supra n 348 at 610.
[428] Section 23 RMA states that compliance with the RMA does not affect the need to comply with other legal requirements including *rules of law*.
[429] See comments of Royal Commission supra n 297 at 419.

caused as a result of a breach of the Act,[430] but specifically preserves the right to seek additional recovery by virtue of another cause of action.[431] HSNO is silent in terms of recovery for GMO damage caused in a situation where there is no breach of the Act. If no common law remedy is permitted for such a loss, the result will be that any loss will be socialised, and this loss will fall on those who wish to produce and trade as GMO free. If however the common law provides a remedy in negligence or nuisance irrespective of statutory permission, it will be possible to recover unanticipated losses for which there may be no other remedy.[432]

If statutory permission did not prevent responsibility in tort, it may yet provide an indicator relative to discharge of the burden.[433] A defendant claiming to have "followed all the rules" may receive some sympathy from the courts. This points to the need for authorising agencies to understand coexistence issues, and to have a detailed knowledge of the environment into which the GMO will be released.[434] Failure to comply with the conditions of permission, such as a requirement for buffer zones or separation, is likely to constitute breach of duty, as well as rendering a defendant liable under the enforcement provisions of a statutory scheme.

5.3.1.3 Threshold of contamination

In determining whether harm has been suffered, the courts will have to decide whether a zero tolerance for GMO contamination can sustain an action in negligence. As discussed in paragraph 3.1.1.3, this will depend upon what a court considers reasonable in the circumstances. A pragmatic court may choose to strike the balance at a level higher than the zero tolerance level required for organic farming. On this basis an organic farmer will be left without a remedy.

Compelling organic farms to accept a degree of contamination, even where the contamination is minimal, removes the right to choose how to farm. This loss of

[430] This includes for a breach of controls applied by virtue of an approval or by regulation-see s 124G (1)(c).
[431] Section 124 (G)(3).
[432] The existence of a statutory permission may also impede the granting of an injunction by way of remedy, so as to effectively override the permission. Damages in lieu may represent a more palatable alternative. For discussion see Lee, "Liability for the Escape of GM Seeds: Pursuing the "Victim"?" (2002) 65 The Modern Law Review 534.
[433] For discussion see Repp, R "Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift" (2000) 36 Idaho L.Rev.585 14.
[434] The consequences of the failure to do so are obvious in *R v. Secretary of State for the Environment and MAFF, ex parte Watson* [1999] Env LR 310, where the decision maker was unaware that organic growers were operating in the locality.

choice is a significant, and to be condoned must be justifiable. Those who support the widespread use of GMO argue that contamination will need to be accepted by the organic sector, and infer that the a minimal degree of contamination is appropriate due to the benefits to be provided by GMO.[435] However before a court adopts this approach to the level of harm, it would need to examine closely by what measures the harm could be avoided, the gravity of the risk, and the social value of the activity. Such an enquiry would also want to consider damage caused to non-organic growers who wish to remain GMO Free, and in doing so may want to consider increasing consumer support for the purchase of GMO free products.

Regardless of contamination levels, to succeed in negligence it will be necessary to establish that a duty of care was owed and that the loss was foreseeable. Relying on *Perre v Apand Pty,*[436] factual conditions creating proximity, known vulnerability and ability to avoid may lead to the establishment of a duty. However where there is potentially no other illegality arising in relation to the defendant's conduct, a court may not be prepared to interfere with the defendant's economic freedom in the market place. The right of the defendant to use GMO will again be juxtaposed against the right of the plaintiff to farm organically and exclude unwanted intrusion. This exclusionary factor may mean that an action in nuisance represents a better prospect for recovery. Other policy issues such, as indeterminacy would also require consideration. Widespread contamination by GMOs could potentially render it impossible for any grower to be GMO Free. Potentially there could be a large class of persons seeking redress in this situation, but not necessarily unascertainable

A final issue is that of sensitivity. A claim in negligence could be defeated on this ground, however with GMO the class of potentially sensitive activities, extends beyond the organic sector to include all producers who wish to remain GE Free. In contrast to the single class of hydroponic tomatoes in *Hamilton v Papakura District Council,* this would appear to rather overreach the category of sensitive. This issue will be reconsidered in respect of a claim in nuisance, which is the subject of the next enquiry.

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[435] Christensen, M Horgan, P and Caudwell, A "Genetic Modification: the Liability Debate" <http://www.lifesciencesnetwork.com/Repository/020118_liability.pdf>.
[436] *Perre* (PC), supra n 339.

5.3.2 Nuisance

The issues for consideration are similar to those for spray contamination. One potential difference is whether or not GMOs can have the classification of dangerous applied in a manner similar to the use of toxic sprays.[437] To establish a claim in private nuisance, a plaintiff as owner of land, must prove that the defendant caused physical damage to the land or interfered with the use and enjoyment of the land. Liability is strict, however foreseeability is a prerequisite.[438] The focus will be on the harm suffered by the plaintiff,[439] but the defendant's conduct will be considered in assessing whether the interference was reasonable.[440] The aim of the law will be to strike a balance between the conflicting interests of neighbouring occupiers.[441] The character of the locality can be used to justify the activity only in relation to inference with the use and enjoyment of land, and not in relation to physical damage.

5.3.2.1 Foreseeability

Damage to any GMO free farmer will be foreseeable where notice of that status is given to the GMO farmer.

5.3.2.2 Is the interference unreasonable?

Contamination by GMO, whether as physical damage or as interference with the use and enjoyment of the land could potentially found an action in nuisance. To be successful the plaintiff would have to prove that the activity was unreasonable in the circumstances.

Where an organic farmer has choice of operating an organic farm eliminated by the presence of a contaminating GMO neighbour, the use and enjoyment of the land as organic is clearly interfered with. In an area where organic growing is predominant, or at least well represented, a court may find that the interference is unreasonable. While this may be beneficial for tightly grouped organic growers, it does not necessarily represent a just principle for decision-making. It in effect operates a

[437] For discussion see Jones, A "What Liability of Growing Genetically Engineered Crops?" (2002) 7 Drake J. Agric. L. 621 5.
[438] Todd Report, supra n 365 at 10.
[439] Lee, supra n 432 at 531.
[440] Todd Report, supra n 362 at 10.
[441] Ibid.

principle of first in time, first in right. Such a principle may be initially beneficial to established organic farmers. It may however eventually work against the strengthening of the organic sector, as farmers struggle to find appropriate soil types and climatic conditions in an "organic/GE Free Island ".

5.3.2.3 Balancing interests and the issue of sensitivity

The real issue that a court will have to deal will is again how to strike a fair balance between competing interests in a situation where one of those interests fails to internalise adverse effects and the other is unwilling to accept them. A court will have to consider whether or not the organic sector constitutes a sensitive user. To come to this conclusion a careful assessment of tolerance thresholds for organic and non-organic GMO free producers will have to be undertaken. If all GMO Free producers adopted a similar standard, given the expanding market, it might be difficult to argue that they are all sensitive. If however the organic sector adopts a higher standard, a court favouring the preservation of opportunities, could conceivably apply the label of sensitivity and exclude liability on those grounds. From the organic sector's point of view such a move would destroy the opportunity to be truly GMO free.

It is arguable that classing organics as sensitive is inappropriate in the circumstances. GMO technology is an outstanding example of scientific innovation. Years of research and incalculable sums of money have been invested in the technology. If science is capable of such innovation, then it should also be able to provide technological answers to avoid contamination. The evidence suggests that such techniques are under development and will become available at some time in the future.[442] However in the haste to get GMO products onto the market there seems to be something of a time lag between production and response. If there is the possibility of applying technology that could prevent contamination of organic farms, and indeed of the wider environment, then those who come after us would surely prefer to see opportunities for an uncontaminated environment preserved. Although HSNO will provide relief where a GMO farmer creates contamination in breach of conditions imposed, in the absence of breach of condition, the common law can potentially fill the gap. Where, in these latter circumstances, the ground of sensitivity (or any other) prevents the operation of the common law, no other remedy will exist and loss will be

[442] For discussion see supra n 183.

socialised. This situation threatens the viability of organic, or any other GMO-free, production as currently conceived. A refusal to allow recovery would need to be based on the premise that no one has a right to choose to be GMO Free. Any such decision will provoke the need for growers who wish to be GE free to utilise other measures such as controlled spatial groupings of activities to remain free from contamination. A more flexible approach to land use is one where effects that cause decertification are internalised, and in that way organic and non-organic growers remain compatible and retain choice in terms of location. Application of the common law so as to provide for internalisation of effects will also potentially be consistent with the current approach to internalisation taken by the courts pursuant to the RMA.

5.3.3 *Rylands v Fletcher*

A separate argument could also be raised relying on the doctrine of *Rylands v Fletcher*. One element, which sets the doctrine apart from nuisance, is the requirement that the defendant should be making a non-natural use of land in carrying out the offending activity. Whether or not the escape of GMO contaminating seeds or pollen can be considered non-natural will depend upon the court's assessment of the use of genetically modified plants in farming.[443] The fact that the emanation is from a "natural" source does not appear to be an obstacle. The escape of thistle seeds from a thistle infestation has grounded liability in nuisance.[444]

5.4 Liability of Approving agencies

A final consideration is the prospect of an organic farmer attaching liability to the agency that approved the release of the GMO organism. In New Zealand there is potential for an organic farmer to recover for damage resulting from the exercise of a permission granted by ERMA under the HSNO Act. Liability could arise in nuisance, negligence or misfeasance of public office.[445]

[443] For discussion see Lee, supra n 432.
[444] Todd Report, supra n 362 at 13.
[445] Royal Commission, supra n 297 at 320.

Conclusion

In New Zealand the common law has yet to be rigorously tested in relation to contamination of an organic farm and consequent loss of certification. Though the common law has been held out as providing remedies that support the organic farm in the face of pollution a careful study reveals that clear protection extends only so far as physical damage to a level compatible with general damage. Even in that position, problems with causation are possible. To receive the full protection of the common law, the organic farmer needs to overcome the hurdles of foreseeability, sensitivity, and statutory permission and make an appeal to "reason" for the purposes of survival. Factual conditions creating known vulnerability and avoidability may potentially constitute sufficient reason to overcome those hurdles and enable recovery. Courts will be required to decide whether organic farms are entitled to protection by the common law or obliged to defend themselves by whatever means remaining. Reliance upon regulatory schemes may offer an alternative option for preservation of integrity.

VI. The Regulatory Framework

6.1 The Resource Management Act 1991 (the RMA)

6.1.1 Introduction

The RMA is the principal statute that governs the environment in New Zealand. Introduced in 1991 it has been both lauded and reviled.[446] The RMA has weathered assaults from all sides, the more vocal of which culminated in a reform and amendment process that arguably failed to please anyone.[447] Business continues to consider that the Act as unnecessarily constrains its development interests,[448] whereas conservationists doubt the efficacy of its environmental protection. The RMA by its very nature it evokes an emotional response. People look to the Act to favour their position, whether it is to use or conserve resources. The struggle of the organic sector to be free of unwanted contaminants is representative of other similar tussles between those who desire different outcomes relative to the environment.[449]

The legislation however expresses only the intent to sustainably manage resources. There has been much criticism of the lack of clarity in s 5, in failing to state which interests are preferred. However human interaction with the environment is complex, and a degree of openness in language allows for a full consideration of all conflicting interests. To survive and flourish we need to use and develop resources and we need to protect the environment. It is the weight or importance given to these relative factors that ultimately charts the way forward. It is unarguable that via s 5 of the RMA constraints are placed upon the use and development of resources, yet it is the extent of these constraints that is of real concern to the organic sector.

A focus of this thesis is to ascertain what the RMA can deliver to the organic sector. This delivery is influenced by the Act's general implementation. Recent research[450] questions the effectiveness of the Act, and suggests shortcomings

[446] Salmon, P "Access to Environmental Justice" (1998) 1 NZELJ 4.
[447] Hawkins, R "The Resource Amendment Act 2003: Does it give comfort to anyone?" (2003) Resource Management Journal Issue 2 Volume XI, 5.
[448] Rennie, H "Viewing the RMA as creating a legitimate property market, rather than blackmail" in *Papers Presented at the Working with the RMA* (2003) Wellington 2.
[449] For case studies discussing contrasting stakeholder positions in discrete areas of New Zealand (Far North, Tauranga, Queenstown and Tasman Districts) see Eriksen, N et al, *Planning for Sustainability: New Zealand under the RMA* (2003).
[450] Ibid, 283.

including problems with mandate design, lack of funding to build capacity and implement plans, and inadequate guidance and support from Central government. The effectiveness of any measures evaluated will be against this general backdrop. In terms of assessing whether the RMA can be used to secure Outcome 1 the key considerations are:

1. Can the RMA be used to regulate chemical drift and GMO contamination? This involves an examination of RMA powers and functions. In particular it necessitates an examination of the interrelationship of the RMA and the Hazardous Substances and New Organisms Act 1996 (HSNO). This will be the subject of Chapter 6.

2. Where the RMA can be used, does the Act in principle support avoidance of adverse effects, where the presence of those effects would result in decertification of an organic farm? This will be the subject of Chapter 7.

3. What are the techniques or methods available pursuant to the RMA to best achieve Outcome 1? This will be the subject of Chapter 8.

6.2. Can the RMA be used to regulate chemical drift and GMO contamination?

6.2.1 Framework

The RMA creates a framework for the use and protection of natural and physical resources. As described by Justice Barker: [451]

> Part II of the Act sets out its governing purposes and principles which infuse its decision-making and policy-formulating procedures. Of these, the purpose (being the promotion of sustainable management as defined in s 5) is paramount. At each operational level, policy statements, plans and rules promulgated under the Act are linked back to the core provisions of Part II. Moreover Part II must be considered in determining any resource consent application…

[451] *Falkner v Gisborne District Council* [1995] 3 NZLR 622, 632.

> …This represents a relatively new form of statutory organisation; the Act is structured around a fundamental purpose and various principles which function as substantive guidance to decision makers at a localised level…
>
> …The Act prescribes a comprehensive, interrelated system of rules, plans, policy statements and procedures all guided by the touchstone of sustainable management of resources. The whole thrust of the regime is the regulation and control of the use of land, sea and air.

Section 5 of the Act focuses on managing effects of activities to enable people and communities to provide for their social cultural and economic wellbeing and health and safety. In dealing with the competing interests encapsulated in s 5, the courts have adopted a pragmatic approach. Refusing to adopt a doctrinal position that may favour one position over another, current judgments reflect *the overall broad judgment approach.*[452] As expressed by Sheppard J: [453]

> The method of applying s5 then involves an overall broad judgment of whether a proposal would promote the sustainable management of natural and physical resources. That recognises that the Act has a single purpose (…). Such a judgment allows for comparison of conflicting considerations and the scale or degree of them, and their relative significance or proportion to the final outcome.

The RMA mandates the preparation of plans at central, regional and district level as a means of achieving the purpose of the Act.[454] The focus of the RMA is upon controlling the effects of activities, rather than the activities themselves. The intention was to create a flexible framework, whereby innovation and technology drove environmental choices, as opposed to rigid categorisation linked to wise use and control.[455] The aim was maximum environmental benefit with minimum environmental regulation of the market.[456] The Act segregates resource use by type,[457]

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[452] For further discussion see Skelton, supra 240, and by way of contrast see Upton, S, Atkins, H and Willis, G "Sections 5 re-visited: A Critique of Skelton and Memon's analysis" Resource Management Journal X: November 2002, 10.
[453] *North Shore City Council v Auckland Regional Council* [1997] NZRMA 59, 94.
[454] For empirical research and discussion on the effectiveness of the plan making process see generally Day, M, Backhurst, M., and Ericksen, N., et al., "District Plan Implementation Under the RMA: Confessions of a Resource Consent." Hamilton: The University of Waikato, The International Global Change Institute (IGCI), Second PUCM Report to Government. [April 2003] http://www.waikato.ac.nz/igci.
[455] Eriksen supra n 431 at 12.
[456] Ibid.

and allocates responsibility for each resource group to local and central government agencies.[458] Resource use rests upon a foundation of presumptions[459] designed to infuse flexibility and efficiency in managing the environment. In particular, a permissive presumption applies to land use activities,[460] in that activities are presumed to be permitted unless controlled by rules in a Plan. By way of contrast, most discharges are presumed to be prohibited unless expressly allowed by a rule in a Regional Plan or resource consent.[461]

Effects of activities are controlled by classification of activity types[462] via a relevant plan, and an associated resource consent process.[463] Public participation is provided for by way of consultation and submission at both plan making[464] and resource consent junctures.[465] At resource consent stage, an applicant is obliged to produce an Assessment of Environmental Effects,[466] detailing effects and proposing ways of avoiding, remedying or mitigating those effects.[467] The Act also makes detailed provision for enforcement and monitoring.[468]

6.2.2 Land use under the RMA

In general, territorial authorities via a mandatory District Plan, control land use.[469] The ability of the authority to make rules is governed by its functions set out in s 31 of the RMA. These functions include the control of any actual or potential effects of the use, development, or protection of land, including inter alia for the purpose of the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances. Although this latter function is shared with the regional authority, where responsibility is not specified in the Regional Policy

[457]Part III, Duties and Restrictions, ss 9-15, Land use, (including existing use rights and subdivision), coastal marine, river and lake beds, water and discharges.
[458] Part IV.
[459] Set out in ss 9-15.
[460] Section 9.
[461] Section 15.
[462] Section 2 and Part VI section 77B.The categories of activities are: permitted, controlled, restricted discretionary, discretionary, non-complying and prohibited.
[463] Part VI.
[464] First Schedule.
[465] Sections 93-95.
[466] Section 88.
[467] Fourth Schedule.
[468] Part XII.
[469] Section 73.

Statement the territorial authority will be primarily responsible for hazardous substances and the Regional authority for natural hazards.[470]

The scope of a territorial authority's role is very broad. Control of the use of land in respect of hazardous substances is explicit. Although not so unambiguous in respect of genetically modified organisms, the function to control effects of land use and development would readily contemplate the control of genetically modified organisms, as it does the myriad of other activities carried out on land in New Zealand. A problem arises however when separate legislation exists to control the activity in question. The extent, to which the exercise of functions of local government under the RMA is fettered by HSNO, will be the subject of a later section of this thesis.

When creating a plan the territorial authority must carry out an evaluation pursuant to s 32 of the RMA to scrutinize the effectiveness of the plan. In doing so the authority must consider the extent to which each objective is the most appropriate way to achieve the purpose of the Act; and whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.[471] The evaluation must take into account the benefits and costs of policies, rules, or other methods and the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.[472] A plan may be challenged on the basis of an inadequate s 32 evaluation, but only by way of a submission during the plan making process.[473]

A District Plan must identify the significant resource management issues of the District, and define objectives, policies, methods, reasons and results anticipated in respect of such issues. District Plans offer significant potential to resolve conflict or incompatibility between land use activities. Zoning and related performance standards are common tools used in Plans to achieve compatibility between activities. Layered upon and connected to these mechanisms is the consent process,[474] which offers further methods of control via approval or otherwise and the imposition of a wide range of conditions pursuant to s 108.

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[470] Section 62 (2).
[471] Section 32 (3)(a) & (b).
[472] Section 32 (4)(a) & (b).
[473] Section 32A.
[474] Part VI.

6.2.3 Discharge under the RMA

Pursuant to s 30 of the RMA Regional Councils have a wide range of responsibilities including: the control of discharges of contaminants into or onto land, air, or water and discharges of water into water,[475] and the control of the use of land for the purpose of the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances.[476] A regional authority must prepare a Regional Policy Statement in accordance with its functions.[477] The Statement must identify the local authority responsible for specifying inter alia the objectives, policies, and methods for the control of the use of land to prevent or mitigate the adverse effects of the storage, use, disposal, or transportation of hazardous substances.[478]

Preparation of Regional Plans is voluntary,[479] yet it is unusual to find a regional authority without some form of plan in place.[480] The plans are often prepared in chapters linked to function. A s 32 evaluation is required in a similar manner to District Plans. Section 65 (3) defines circumstances when consideration should be given to preparation of a Regional Plan and these include where there exists 1) any significant conflict between the use, development, or protection of natural and physical resources or the avoidance or mitigation of such conflict and 2) Any actual or potential adverse effects of the storage, use, disposal, or transportation of hazardous substances which may be avoided or mitigated.

Section 15 of the RMA controls the discharge of contaminants. The definition of contaminant is broad.[481] The breadth of the scope of the definition would readily contemplate agrichemicals. Accordingly Regional Plans can and do regulate the discharge of agrichemicals into the environment. It is less clear whether the definition of discharge extends to new organisms.[482]

We have examined the ways in which GMO contamination can arise. These include pollen transfer, mixing of crops, transfer of seed, volunteers and seed

[475] Section 30 (1)(f).
[476] Section 30 (1)(c)(v).
[477] Section 61(1).
[478] Section 62 (1)(i)(ii).
[479] Section 65(1).
[480] Pursuant to s78A a local authority may now combine district and Regional Plans and or policy statements into 1 document.
[481] Section 2.

impurities. Whether the transfer of heritable material, such as pollen or seed, to air water of land constitutes a discharge is arguable. The term discharge includes emit, deposit, and allow to escape.[483] Case law has established that the word discharge is to be extended to cause to discharge.[484] Failing to take adequate precautions to prevent the escape of a contaminant will equate to allowing to escape.[485] A causal connection must be established between the person and the discharge.[486] It has been argued,[487] that the inability to control pollen release in general farming conditions, suggests that there can be no discharge of a GMO contaminant. This is a troubling conclusion, and if accepted could lead to an inability to regulate some of the more pervasive environmental threats such as many non-point source discharges. Should the escape of pollen or seed to the environment be treated differently to the escape of animal effluent or gas?

Lack of control is considered in relation to offences pursuant to the Act. Although an offence will be one of strict liability,[488] the Act provides a number of statutory defences,[489] which includes a defence of inability to control an event or action. The defence provides:[490]

> (b) That the action or event to which the prosecution relates was due to an event beyond the control of the defendant, including natural disaster, mechanical failure, or sabotage, and in each case ... –
>
> (i) The action or event could not reasonably have been foreseen or been provided against by the defendant; and
>
> (ii) The effects of the action or event were adequately mitigated or remedied by the defendant after it occurred.

The categories referred to in (b) above are inclusive and cover natural disaster, mechanical failure or sabotage. Although not closed, it cannot be said that the categories would readily contemplate GMO contamination via "natural" processes. Natural disaster is undefined by the Act, but may have some correlation to the s 2

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[482] Cooney Lees Morgan, *Role of RMA in controlling Genetically Modified Organisms* Legal opinion provided to the Chief Executive, Environment Bay of Plenty Regional Council, (April 2003) 2.
[483] Section 2.
[484] *McKnight v NZ Biogas Industries* [1994] NZRMA 258 at 265 (CA).
[485] Ibid, 267.
[486] Ibid, 265.
[487] Cooney Lees Morgan, supra n 482.
[488] Section 341(1).
[489] Section 341(2).

definition of natural hazard that includes a range of atmospheric or earth or water related occurrences that adversely affect human life, property or other aspect of the environment. In ordinary language, it could be argued that the event of a natural hazard occurring will lead to a "natural disaster". It is arguable that pollen or seed transfer is insufficiently elemental in nature to qualify within the definition. Furthermore the term disaster suggests a calamity or catastrophe that causes great destruction or ruin.[491] Although GMO contamination can cause great destruction, whether such an event could be considered a catastrophe is arguable.

In addition reliance upon the defence, or lack of causal connection, rests upon the assumption that pollen and seed transfer cannot be controlled. This may be true in some situations, but not necessarily all. Emerging research and associated techniques are identifying a range of ways of preventing contamination.[492] In a situation where a producer knew of the ability of a crop to create pollen or seed transfer which could contaminate neighbouring crops, and where mechanisms for control were available, it would appear unreasonable to extend the defence of inability to control.

In the event that a discharge is proven, the next obstacle is to consider whether a GMO can be considered a contaminant. Whether gene transfer between microorganisms and organisms, could constitute contamination is unclear, and will become a mixed question of science and law[493] in relation to the particular organism.

In terms of organic farming, one of the greatest threats is presented by incursion of GMO seed or pollen, from neighbouring farms.[494] The word contamination is commonly used in relation to GMO, but capture by the RMA definition is open to argument. As the definition of contaminant is inclusive, it could include any natural and ordinary meaning of the word. The definition of contaminant extends to cover any substance including *micro-organisms* which when discharged will change the physical, chemical, or biological condition of the land, air or water. The term *micro-organism* is undefined in the Act, but its dictionary meaning is: *any organism, such as a virus, of microscopic size.*[495] In turn organism is defined as *any living animal or*

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[490] Section 341(2)(b)(i).
[491] McLeod, W (ed.) *The New Collins Dictionary and Thesaurus* (1992) 279.
[492] Defra, supra, n 183.
[493] Cooney Lees supra n 482 at 3.
[494] The experience of Canadian organic farmers in the Western provinces is a clear example of such a threat.
[495] Collins Dictionary supra, n 491 at 630.

plant, including any bacterium or virus.[496] Whether the seed or pollen of an organism will qualify as an organism is not clear from the Act, and in other areas such as intellectual property rights in plants, is the subject of debate

The escape of viable seed and pollen is capable of creating an organism, but this may be inadequate for the purpose of the definition. The dictionary definition of seed is: *a mature fertilized plant ovule, consisting of an embryo and its food store surrounded by a protective seed coat.*[497] The point at which an embryo becomes an organism is a question of science as yet unresolved by the Courts. A recent Amendment to HSNO[498] sheds some light on the matter. It contains a definition of the term *genetic element* as follows:[499]

> "**genetic element**, in relation to a new organism, means---
> heritable material; and
> any genes, nucleic acids, or other molecules from the organism that can, without human intervention, replicate in a biological system and transfer a character or trait to another organism or to subsequent generations of the organism.

Heritable material is then defined as:

> "**heritable material,** in relation to a new organism, means viable biological material, including gametes and spores, arising from the organism that can, without human intervention, regenerate the same organism or reproduce anew generation of the same species as the organism.

Although caution needs to be exercised when drawing implications from other statutes, where a definition is undefined by one, and expressly defined by the other, the latter may be of some assistance. The scientific nature of the definition could possibly also support adoption of the definition. If the definitions were adopted in the context of the RMA, it would become difficult to argue that seed or pollen constitutes an organism or micro-organism. Rather seed or pollen would be treated as heritable material of an organism. Exclusion from the term micro-organism is not fatal, as it

[496] Collins Dictionary supra, n 491 at 698.
[497] Collins Dictionary supra, n 491 at 903.
[498] Hazardous Substances and New Organisms (Genetically Modified Organisms) Amendment Act 2002
[499] Section 5 Hazardous Substances and New Organisms (Genetically Modified Organisms) Amendment Act 2002.

remains possible to define the material as a *substance,* which has a very wide dictionary definition:[500]

> **Substance** *n.***1.** the tangible basic matter of which a thing consists.

Pollen is clearly defined in the dictionary as a substance:[501]

> **Pollen** n. a substance produced by the anthers of seed-bearing plants, consisting of numerous fine grains containing the male gametes.

Whether a seed has the same elemental nature is open to argument. Pollen (and possibly seed) is therefore within the reasonable contemplation of the definition of contamination, provided that it can be proved that the escape *changed the physical, biological and chemical condition of the land*.[502] It is arguable that when a seed is introduced to soil and grows that it changes the condition of the land in all three ways. As for pollen its mere presence may effect change,[503] but the greater change is wrought when the pollen changes the physical, biological and chemical condition of what is growing on the land. Can crops be considered part of the land, or are crops simply a use of the land? Land is defined by the RMA[504] to include *land covered by water and the air space above land.* This is a broad, inclusive definition, and it is unclear whether the definition extends to cover plants grown on the land. Section 9 does not specifically contemplate crops as being part of the land, although the removal of a tree has been considered as consistent with subsections (b) and (c) above, thus constituting a use of land in terms of s.9.[505] However the situation is not entirely clear as on appeal the Court of Appeal discussed the use in terms of someone being on the land with a chainsaw, as opposed to removing the tree.[506]

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[500] Collins Dictionary supra, n 491 at 1001.
[501] Collins Dictionary supra, n 491 at 765.
[502] Section 2, definition of contaminant.
[503] *Works Infrastructure Ltd v Taranaki Regional Council* [2002] NZRMA 517 (HC). In this decision the High Court found that in relation to a discharge of bitumen a substance was defined as a contaminant if it caused any change to the condition of the land. The extent of the change was immaterial. A claim of de minimis for the purposes of s15 (1)(d) failed.
[504] Section 2.
[505] Supra, Williams n 18 at 124, with reference to *Smith v Auckland City Council* [1996] NZRMA 276 (HC).
[506] Smith, ibid.

Generally unless a statute expressly adopts a definition, that definition is unlikely to apply.[507] However given the broad and inclusive nature of the definition in the RMA, reference to other statutes may not necessarily be ruled out. The Land Transfer Act 1952 is the principal statute in New Zealand governing dealings with land. Land is defined by s 2 of the Land Transfer Act 1952 to include plantations, gardens, mines, minerals, and quarries, and all trees and timber thereon. If the RMA definition was deemed to extend to the Land Transfer Act 1952 definition, then it could readily be argued that pollen (and seed) transfer is capable of altering the chemical, biological and physical condition of the land. Accordingly it could be argued that transfer by either GMO pollen and seed constitutes a discharge of contaminants pursuant to s 15. This would enable a regional council to regulate the discharge of new organisms, in addition to the functions of a territorial authority.

One of the main difficulties with such a conclusion is that the definition would not necessarily be exclusive to GMOs. Potentially the discharge could extend to transfer of all heritable material, GMO or not. Whether a court would consider such a definition desirable, as a matter of policy, remains to be seen. However there is a common law parallel, in terms of the ability to create a nuisance by virtue of spreading thistle seeds.[508] The key issue would be to ascertain a clear cut off point in terms of what is reasonable.

6.2.4 Discharge and presumptions

The presumptions at work below the surface of s 15 vary according to the nature of the discharge. In relation to discharges to water, and all those from industrial or trade premises, the presumption applying is restrictive. Those discharges cannot occur unless expressly permitted by a rule in a plan or resource consent. Where a discharge to air occurs, that is not from an industrial or trade premise, the permissive presumption will apply, and consent will only be required if a rule in a plan is contravened. However, if the discharge is applied in a manner that may result in the contaminant entering water, the restrictive presumption, will apply.

[507] Burrows, J Statute *Law in New Zealand* (2003) 289.
[508] Todd Report, n 362.

The definition of industrial and trade premises, expressly excludes production land.[509] The effect of this exclusion is that discharges into the air from agricultural, pastoral, horticultural and forestry production are subject to the permissive presumption. Only where an activity contravenes a rule will consent be required. Where the Plan is silent, (unless the Plan itself reverses the presumption),[510] an activity is presumed permitted. In this way the provisions of a Regional Plan assume great importance in terms of discharges to air. The same importance need not necessarily attach to discharges to water, or land where it may enter water, due to the fact that if the Plan is silent, then the activities are presumed prohibited unless consent is obtained.

Where resource consent is required for a discharge permit, considerations supplementary to s 104 apply in terms of the granting of the consent.[511] The consent authority must consider the nature of the discharge and the sensitivity of the receiving environment to adverse effects, the applicant's reasons for the proposed choice and any possible alternative methods of discharge, including discharge into any other receiving environment. This is useful for organic farms. Provision for focus on the sensitivity of the receiving environment must by its nature contemplate protection of that environment. The extent of potential protection will be considered in chapter 7.

Pursuant to s 108 of the RMA conditions may be attached with a view to avoiding, remedying or mitigating adverse effects. In relation to discharges these may include conditions that requires the consent holder to adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of the discharge, and other discharges (if any) made by the person from the same site or source.[512]

In addition, s 108(8) requires the consent authority; prior to granting a discharge permit subject to a condition pursuant to s 108(2) (e) to be satisfied that the inclusion of that condition is the most efficient and effective means of preventing or minimising any actual or likely adverse effect on the environment. In considering this, the authority should have regard to the nature of the discharge, the receiving environment and other alternatives, including any condition requiring the observance of minimum

[509] Section 2.The definition of industrial and trade premises previously included factory farms, but this provision was deleted by the Resource Management Amendment Act 1997.
[510] Pursuant to s 68 (5)(e) a Regional Plan rule may require a resource consent to be obtained for an activity causing, or likely to cause, adverse effects not covered by the plan.
[511] Section 105(1)(a).

standards of quality of the receiving environment. Provision for the adoption of the best practicable option may in some circumstances support mitigation of an effect rather than avoidance. This is not necessarily supportive of the organic farmer achieving Outcome 1, unless the mitigation was sufficiently rigorous to reduce contamination below certification levels. However due to the need to consider the sensitivity of the receiving environment, the presence of an organic farm in the vicinity may dilute the threat posed by the best practicable option. Reference back to s 5 may be the decisive factor.

As the principal statute regulating the environment, the RMA has the scope to regulate threats posed to an organic farm to the extent consistent with the purpose of the Act. In terms of threats regulated, territorial authorities control land use, and this could potentially extend to control in relation to effects from the use of hazardous substances and GMO. Regional authorities have clear powers in relation to discharge of chemical contaminants, although power in respect of new organisms is not certain. This will depend not only on whether: 1) the transfer of heritable material can constitute a discharge; 2) genetic material can be termed a contaminant, but also upon the extent to which the operation of the RMA is circumscribed by HSNO. That is the next issue for consideration.

6.3 The Hazardous Substances and New Organisms Act 1996 (HSNO)

6.3.1 Hazardous substances

The Act sets out a complicated regime for the approval and control of hazardous substances. The part of the Act controlling hazardous substances came into force in July 2001. The Act is currently in transition, during which time existing substances will be transferred to the new regime.[513] New substances will be subject to the controls described below and existing substances will be dealt with pursuant to the transitional provisions in Parts XI-XV of HSNO. Section 28 of HSNO provides for applications for approval to import or manufacture hazardous substances.

[512] Section 108(2)(e).
[513] Agrichemical Trespass Ministerial Advisory Committee, *Final report to the Minister of the Environment* Ministry for the Environment, (2002) Wellington 32.

In order to determine approval ERMA must first classify the substance. A series of regulations has been promulgated to add operational detail.[514] Initially the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001 are applied to ascertain whether or not a substance is hazardous. When one or more of the thresholds of hazard are met, then the Hazardous Substances (Classification) Regulations 2001 apply.[515] These regulations assign classes of hazardous properties to each substance.[516] A substance can receive more than one classification, and controls will be based on both properties.[517] Once classified, controls upon the use of the substance are then set by the Hazardous Substances (Classes 1-5 Controls) Regulations 2001 and the Hazardous Substances (Classes 6, 8 and 9 Controls) Regulations 2001. These regulations allow for the setting of exposure limits that are designed to reduce or avoid adverse effects on the environment.[518] The exposure limits operate to specify acceptable concentrations of a hazardous substance in the environment.[519] The Regulations[520] require that acceptable daily exposure values be set in relation to a substance. An acceptable daily exposure value (ADE) is defined[521] as exposure to an amount of a substance for each unit of body weight each day that would not result in an appreciable toxic effect on a person over a lifetime of daily exposure to that substance.[522] The potential daily exposure value (PDE) is then calculated from the acceptable daily exposure value by taking into account different ways or routes by which a person may be exposed to the substance each day.[523] One of the routes for exposure is food, and for pesticides and veterinary medicines, the PDE for food

[514] Ministry for the Environment "Acting together-links between the HSNO Act and the RMA -A Training workshop -workshop manual" [May 2003] <http://www.mfe.govt.nz/publications> Module 3, Table 3.4
[515] Ibid, Module 3, para 3.2.2.
[516] Regulation 5 identifies 9 categories as follows: 1-explosiveness, 2-flammability, gases, 3-flammability, liquids, 4-flammability, solids, 5-capacity to oxidize, 6-toxicity, 7-unallocated, 8 -corrosiveness and 9-ecotoxicity.
[517] Supra n 515 at Module 3, para 3.2.2.
[518] See for instance Regulation 11, Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001that requires that acceptable daily exposure values be set for a substance with an appreciable toxic effect, likely to be present in the environment, in food or to be ingested.
[519] Supra n 515 at Module 4, 4.2.2.
[520] For example the Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001.
[521] For example see Regulation 3, Interpretation, Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001.
[522] From information supplied by John Reeve, Programme Manager (Toxicology and Residues), Agricultural Compounds and Medicines Group, NZFSA, (23.01.04). The ADE is established from mammalian toxicology data.
[523] For example see Regulation 3, Interpretation, Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001.

defaults to 50 per cent of the ADE unless there is reasoned argument to the contrary.[524]

From these 2 values are then derived the Environmental Exposure Limit[525](EEL) and the Tolerable Exposure Limit[526](TEL) for a substance. An EEL is described as representing:[527]

> … the maximum concentration of an ecotoxic substance (or ecotoxic component of a substance) in an environmental medium that will present a low risk of adverse environmental effects to organisms in non-target areas. It establishes the maximum concentration of a substance legally allowable in a particular (non-target) environmental medium (e.g. soil or sediment or water), including deposition of a substance onto surfaces such as in spray drift deposition.

In contrast to the EEL's application to the wider environment, the TEL has specific application to impacts upon humans. It has been described as:[528]

> …the level below which a toxic substance, or component of a toxic substance, in an environmental medium (air, water, or soil) is unlikely to cause an adverse effect in a human. A TEL therefore represents the maximum allowable concentration of a substance legally allowable in a particular environmental medium, to protect humans from any adverse effects.

In addition to controls related to classification and exposure limits, regulations provide for controls on the life cycle of a substance to ensure that the substance is managed well throughout the life cycle. These controls include packaging labelling and disposal requirements, emergency management rules, requirements to track certain substances and rules requiring handlers to obtain relevant handling training.[529]

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[524] From information supplied by John Reeve, Programme Manager (Toxicology and Residues), Agricultural Compounds and Medicines Group, NZFSA, (23.01.04).
[525] Defined by Regulation 3, Interpretation, Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001,as: *means a concentration of a substance in an environmental medium as set in accordance with Part 3.*
[526] Defined by Regulation 3, Interpretation, Hazardous Substances (Classes, 6, 8 and 9 Controls) Regulations 2001,as: *means a concentration of a substance in an environmental medium as set in accordance with regulation 23.*
[527] Supra n 515 at Module 4,73.
[528] Ibid, Module 4,74.
[529] Hazardous Substances (Packaging) Regulations 2001, Hazardous Substances (Identification) Regulations 2001, Hazardous Substances (Disposal) Regulations 2001, Hazardous Substances (Emergency Management) Regulations 2001, Hazardous Substances (Tracking) Regulations 2001, Hazardous Substances (Personnel Qualifications) Regulations 2001.

Failure to comply with controls imposed by HSNO or regulations, (or acting in contravention of the Act in a variety of other ways), will result in an offence being committed pursuant to s 109 of the Act. Section 114 of the Act creates penalties in respect of offences and allows for the imposition of a sentence of imprisonment or a fine not exceeding $500,000.

6.3.1.1 Agrichemicals, HSNO and organics.

Most agrichemicals, with biocidal action, will fall within the definition of hazardous substance under HSNO.[530] Accordingly, depending on the toxicity of the substance, and the ability to create adverse effects on the environment controls may apply to any given chemical. Such controls could range from exposure limits that may not be exceeded, to requirements that those applying the substances have approved qualifications and are not using leaky equipment.[531] The Act thus focuses upon managing the effects to an acceptable level as opposed to avoiding effects on the environment. Focus is upon the avoidance of appreciable harm to humans and limiting impacts on the environment. There may be situations where all effects of a substance on the environment need to be entirely avoided, however this will be toxicity dependent, and judged on tolerance levels.

In most situations, however, TELs and EELs will be used to manage substances to the acceptable exposure level. These levels acquire significance for organics due to the relationship with maximum residue levels (MRL). Agrichemicals present a threat to an organic farm where the use will result in excessive residue levels of agricultural compounds in organic produce.[532] Generally the organic standard is 10 per cent of the applicable MRL.[533] The MRLS are defined by the New Zealand (Maximum Residue Levels of Agricultural Compounds) Food Standards 2002. The NZFSA, as the agency responsible for food production, sets the MRLS to the equivalent level of a TEL (Tolerable Exposure Limit) for food set by ERMA pursuant to HSNO. A MRL may not exceed the potential daily exposure value (PDE) established by ERMA for food, and all decisions on MRLs by the New Zealand Food Safety Authority will be subject

[530] ATMAC, supra n 513 at Appendix 6, as per the definition of agrichemical contained in the committee's terms of reference: *any substance manufactured for the purpose of causing mortality, inhibited growth, or inhibited reproduction in an organism*–a term which corresponds with the term biocidal action in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.
[531] Ibid 74.
[532] Supra, n 114.

to audit by ERMA upon full transfer of veterinary medicines under HSNO. Exposure levels therefore translate to maximum residue levels (MRL), and further similar controls are also established under the Agricultural Compounds and Veterinary Medicines Act 1997.[534]

6.3.1.2 HSNO, Hazardous Substances and the Interface with the RMA

Parliament has specifically dealt with the relationship of HSNO to the RMA in terms of hazardous substances. Section 23 of the RMA provides that compliance with the RMA does not remove the need to comply with other Acts. The RMA contemplates that the RMA will work in conjunction with other legislation. Section 142 of HSNO expressly enables the RMA to work in conjunction with HSNO, and where necessary in respect of hazardous substances to impose more stringent controls. Section 142 provides:

> **142. Relationship to other Acts---**
>
> (2) Every person exercising a power or function under the Resource Management Act 1991 relating to the storage, use, disposal or transportation of any hazardous substance shall comply with the provisions of this Act and any regulations made under the Act.
>
> (3) Nothing in subsection (2) of this section shall prevent any person lawfully imposing more stringent requirements on the storage, use, disposal, or transportation of any hazardous substance than may be required by this Act or regulations made under this Act where such requirements are considered necessary by that person for the purposes of sustainable management.

Pursuant to this requirement plans prepared under the RMA and consents issued would need to be in compliance with controls established under HSNO. Where it can be shown to be necessary for the purposes of sustainable management more stringent requirements may be imposed via the RMA. The issues therefore become:

1. Do organic farms require more stringent protection in terms of hazardous substances?

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[533] Ibid.

[534] This Act controls the use of agricultural compounds and veterinary and requires that agricultural compounds must be used in a manner so as not to exceed MRLS in domestic food residues.

2. If yes, then is provision of the protection necessary for the purposes of sustainable management?

These two issues will be addressed in turn.

6.3.1.3 Do organic farms require more stringent protection?

Due to organic Standards being matched to a tolerance level of 10 per cent of the maximum residue levels[535] set by the New Zealand (Maximum Residue Levels of Agricultural Compounds) Food Standards 2002, an organic farm will require more stringent protection than that provided by HSNO. If additional protection is not afforded by the RMA, then organic farming as currently defined, is unlikely to be able to flourish. This is because matching physical protection levels to achieving MRLS (or equivalent TELS or EELS) is likely to produce higher than acceptable residue levels in organic produce. This is simply due to the lower threshold of contamination provided for by MRLS. There may be rogue situations or types of substance, the use of which produce off-target residues to a threshold acceptable to organic standards. Yet, where controls do not match standards to be achieved there can be no guarantees. Matching RMA controls to require all producers to comply with levels equating to the MRL of a substance, does not equate to avoiding effects or internalising them. It has the effect of placing the onus on organic farmers to protect themselves to a 10 per cent of MRL standard, and fails to adequately address the sensitivity of the receiving environment.

The same issues arise in relation to any substance that is not captured by classification as a hazardous substance, yet remains prohibited in an organic regime. Failure to control via the RMA will potentially result in breach of organic standards. On that basis organic farms need more stringent controls.

6.2.1.4 If yes, then is provision of the protection necessary for the purposes of sustainable management?

The term necessary has been viewed by the courts as one of *somewhat protean dimensions*.[536] Included within the definition could be something indispensable or

[535] This representing the standard applied generally in organic farming systems, for discussion see supra n 114.
[536] *Environmental Defence Soc v Mangonui County Council* [1989] 3 NZLR CA. 280

something requisite or needful.[537] Protecting activities vulnerable to hazardous substances is an instance where additional controls pursuant to the RMA could be necessary to overcome resource use conflict. The different positions occupied by the relative statutes clarify the existence of the need. HSNO's focus is directed to the substance as opposed the environment. The methods available under HSNO to achieve the purpose of the Act include the ability to classify and apply controls. As these controls apply universally to a substance once categorised, control is exercised across the board wherever the substances are transported, stored, used or disposed of. In terms of classification, location has no impact, although the media to which the substance is introduced to may affect classification or control.[538] By contrast the RMA, through its reliance upon Regional and District Plans can create rules that can apply on a location basis.[539]

In this way the RMA provides an additional dimension, in that it can contemplate and protect, on a regional or district basis, the environment into which the substance is being introduced. We have seen that contemplation of the sensitivity of the receiving environment in relation to discharge is a requirement of the RMA. This dimension is critical to retaining the integrity of an organic farm. Upon identifying sensitive receiving environments such as an organic farm or groupings of vulnerable activities, the RMA can tailor measures to protect that particular environment. With HSNO's focus bent upon a particular application avoiding appreciable harm to people, it is, unable in many instances to adequately cater for those who wish to obtain a higher standard of security. In this way protection via the RMA becomes necessary to fill the gap. It will be argued in chapter 7 that avoidance of adverse effects in order to preserve the integrity of an organic farm is consistent with promoting sustainable management. Where HSNO controls are insufficient to protect a vulnerable activity to the requisite degree from hazardous substances, protection pursuant to a resource management plan represents a method by which preservation can be achieved.

Additional controls via the RMA are clearly contemplated in terms of hazardous substances, but additional control in relation to new organisms is not explicit. The addition of a new category of GMO release has further obscured this issue.

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[537] Ibid, 280.
[538] For discussion see Ministry for the Environment Workshop, supra n 515.
[539] Central Government also has the ability pursuant to Part V of the RMA to create National Environmental Standards and National Policy Statements, which enable the creation of universal Standards that are not necessarily location dependant.

6.3.2 New Organisms

HSNO regulates genetically modified organisms. The part of the Act dealing with new organisms came into force on 29 July 1998. It created a regime whereby ERMA was responsible for considering applications for importing of genetically modified organism into containment, developing any GMO, conducting contained field trials and releasing any contained or imported GMO.

The Act was supplemented by way of amendment on five further occasions. The Amendment in 2002 was notable for the imposition of the moratorium in relation to approval to import or release new GMO. The moratorium enabled the Government to undertake some of the changes recommended by the Royal Commission. One of the recommendations related to a new category of approval entitled conditional release.[540] This new category of release was provided for by way of the Hazardous Substances and New Organisms Amendment Act 2003. The addition of the new category pursuant to s 14 of the Amendment Act gave greater scope to ERMA to control and manage an organism upon release, a power previously lacking.

Originally when the Act was introduced, release without controls was envisaged as the only practical alternative. This was due in part to the perception that once released, it would be difficult to control an organism. Apparently due to the recent commercialization of GMO, the potential range of uses of GMO technology had not been contemplated, nor the associated ability to control.[541] With the growth of technology came awareness that some GMOs may be able to be released, controlled and monitored, hence the need for the new category.[542]

The management of new organisms is governed by the same purpose and principles in HSNO as relate to hazardous substances. All applications for importation or release must comply with the minimum standards set out in s 36 HSNO. Section 36 provides that ERMA must decline any application if the new organism is likely to cause significant impacts on native species and habitats, human health and safety, genetic diversity or cause disease or be parasitic.[543] In addition ERMA must have

[540] Recommendation 6.8 (Conditional Release) Royal Commission supra n 297 at 338.
[541] Ministry for the Environment, *Public discussion Paper-Improving the Operation of the HSNO Act for New Organisms* The Ministry, (September 2002) Wellington 20.
[542] Ibid, 21.
[543] For a full description refer to s 36 HSNO.

regard to the ability of an organism to create an undesirable self-sustaining population and the ease in those circumstances with which the organism could be eradicated.[544]

With the addition of the conditional release category, further matters are required to be considered by ERMA in granting release or otherwise. These include weighing whether or not the positive effects of the organism outweigh the adverse effects of the organism, having taken into account all the effects and all the controls that would be imposed.[545] This will include consideration of whether the controls are likely to be effective in meeting the objective of the controls.[546] Section 38D sets out the parameters of the controls that may be attached to a conditional release approval.

A conditional release approval may be further constrained by a date of expiry,[547] and by provision to review controls imposed,[548] in certain circumstances. Any application made for a conditional release approval is required to be publicly notified,[549] and notification has been extended to include any local authority that, in the opinion of the Authority, is likely to have an interest in the application.[550] As with hazardous substances, an enforcement regime under HSNO applies in the event of a breach of the Act. Strict liability applies to some offences,[551] which include failure to comply with conditions imposed by ERMA and non-observance of a compliance order. Part 7A also provides for pecuniary penalties and civil liability for breaches relating to new organisms. To the latter strict liability applies, and any proceedings are in addition to any other cause of action.[552]

There has been much debate relating to the scope and effect of the liability regime for GMOs.[553] Despite the general threat posed to the organic sector by the release of new organisms, the recent Amendments to HSNO have strengthened ERMA's ability to protect non-GMO farmers. In particular provision for conditional release is likely to be an improvement although the efficacy of the new category is yet unproven. However consequent upon the lifting of the moratorium it is incumbent

[544] Section 37 HSNO.
[545] Section 38 C (1)(c) HSNO Amendment Act 2003
[546] Section 38(1)(a) HSNO Amendment Act 2003.
[547] Section 38F HSNO Amendment Act 2003.
[548] Section 38 G HSNO Amendment Act 2003.
[549] Section 53 HSNO
[550] Section 53(4)(c) HSNO as amended by s32 (5) HSNOAA 2003.
[551] Section 108 HSNO.
[552] Section 124G HSNO Amendment Act 2003.
[553] For example see Chen Palmer Report, supra n 250 and Christensen, supra, n 435.

upon the organic industry to work to ensure that the system operates to preserve whatever opportunities remain.

To enable controls to be applied, pursuant to HSNO to protect organic farmers it will be necessary to show that such controls are consistent with the purpose and principles of the Act. It will be necessary to prove that contamination of a non-GMO crop by a new organism is an adverse effect on the environment,[554] and that controls are required. Claiming that low-level contamination of organic produce by GMO constitutes an adverse effect upon the environment may yet be disputed. Even where adverse effects are proven, they will still need to be weighed against any positive effects. This net benefit approach may yet fail to protect the position of the organic farm. Although the explanatory material accompanying the HSNO Amendment Act 2003 clearly contemplated that the new category of release would by its successful operation protect organic and other non-GM human food producers,[555] the extent and effect of protection for vulnerable activities is by no means assured. The intention to "preserve opportunities " may yet weaken any protection provided to organic farmers. Thresholds and extent of contamination will become relevant in the context of each application for release. It will be important for the organic industry to have an effective voice any application.

Potential controls to shield organic farms include controls to limit the extent and purposes of the use of the organism; to impose an obligation to comply with a coexistence standard,[556] or to limit its proximity to other organisms, that may be at risk. Although it is unarguable that some types of crops can coexist in certain circumstances, there will be other situations where the risk of contamination is so high that declining the application will be the only sensible option. Close scrutiny of the organism, its characteristics and a comprehensive understanding of the nature of the environment to which it will released, are basic requisites to achieving coexistence.

Any assessment would be upon an organism-by-organism basis, and driven by the mode of application sought by the applicant. Although there is opportunity for public comment, the system leaves little room for a community to plan for the preservation of opportunities. Decisions will arise on an ad hoc basis, and will be fuelled by market pressures of the day. Whether this represents an adequate way in

[554] Section 4 HSNO.
[555] New Organisms and Other Matters Bill 2003, Explanatory note, General policy statement.
[556] Of which there are currently none.

which to decide where and how GMO should be released to the environment of New Zealand is the subject of much debate.[557]

A summary of submissions compiled in relation to improvement of HSNO shows that some members of the science/research community universities and agribusiness/forestry occupy one position in this debate.[558] They tend to consider that the apolitical environment in which decisions are made by ERMA, the expertise held by the authority, efficiencies to be gained by single agency involvement and the existing opportunities for public comment are sufficient reason to support the involvement of ERMA as the sole agency. Others from the Maori community, local authorities and the organic sector do not agree.[559] They take the view that ERMA should be required to recognise the decisions of local authorities made in respect of the release of GMO to a particular environment. They support the use of the RMA to construct such controls. This brings us to the interface of the RMA with HSNO.

6.3.2.1 HSNO, new organisms and the interface with the RMA

HSNO is silent in relation to provision by the RMA for more stringent controls upon new organisms, although the interface was the subject of debate in the lead up to the 2003 Amendment.[560] The explanatory note to the New Organisms and Other Matters Bill discussed the interface:

> The Resource Management Act 1991 (the RMA) has not been used to control the effects of GMOs or new organisms to date. With the introduction of conditional release under HSNO, local authorities may be asked to consider introducing additional controls under the RMA. Section 32 of the RMA will require a local authority to demonstrate why any such controls are necessary and what effects they are addressing that have not already been dealt with under HSNO. However conditional releases are a new provision, and the Ministry for the Environment will monitor how the interface between the RMA and HSNO is working.

Due to the lack of expression, the extent to which the RMA can be used to provide additional controls in respect of GMO becomes a matter of statutory interpretation.

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[557] Ministry for the Environment, *Summary of submissions: Improving the Operation of the HSNO ACT for New Organisms* The Ministry, (February 2003) Wellington 33.
[558] Ibid, 32.
[559] Ibid.
[560] Ibid.

Where inconsistencies or overlap exist between statutes, the Courts have developed several approaches to resolve the conflict. Initially the courts will enquire as to whether there is in fact any inconsistency between the Acts. If there is inconsistency the courts will attempt to determine which of the two statutes was intended to govern.[561] Burrows asserts that in determining inconsistency the Courts will try to find a construction which will allow provisions to stand together.[562] In the Canadian context,[563] this assertion is expressed as the presumption of coherence. Courts will be extremely reluctant to rule that there is conflict between statutes, and so long as overlapping provisions can apply, it is presumed that they will apply.[564] In New Zealand, where it is reasonably possible to consider the provisions, so as to give effect to both, that is the construction a court will prefer.[565] Only where it is clear that the two statutes are entirely inconsistent or repugnant to each other will the doctrine of implied repeal operate so that the latter statute repeals the earlier.

The ability of two statutes to stand together is a complex issue, and depends to a degree upon whether one statute represents an exclusive code, precluding the operation of the other.[566] The issue of whether a statute could impose more restrictive safety requirements was considered in *Director of Civil Aviation v Planning Tribunal.*[567] The High Court considered the interface between the RMA and the Civil Aviation Act 1990 and identified the different functions imposed by each regime. It is noteworthy that the Court contrasted the role of the Director of Civil Aviation and the Planning Tribunal, and found that whilst it was the function of the Director of Civil Aviation to set minimum air safety standards, the Planning Tribunal was entitled to take a more particular look at the communities affected. Due to the differences in roles the Court was able to give effect to each statute without creating conflict. The extent to which HSNO represents an exclusive code, in respect of the use of new organisms, ousting the jurisdiction of the RMA is therefore at issue.

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[561] Burrows, supra n 507 at 319.The courts will look at the policies and purposes underlying the provisions, and consider extrinsic evidence where necessary.
[562] Ibid, 308. Burrows cites *Re Silver Brothers Limited* [1932] AC 514 at 523.
[563] While not binding on New Zealand courts, Canadian authority can be persuasive,
[564] For full discussion see Barton, B, *The Powers of the Nunavut Planning Commission to Regulate Land Use in Relation to the Use of Land for Mineral Purposes.* A Report prepared for the Nunavut Planning Commission, (December 2001).
[565] *Hornby Trust v Christchurch City Council* [1992] NZRMA 170.
[566] Burrows, supra n 507 at 15.
[567] *Director of Civil Aviation v Planning Tribunal* [1997] NZRMA 513, (HC). For discussion see Cooney Lees, supra n 482 at 7.

6.3.2.2 Inconsistency

The first question to resolve is: is there inconsistency? Does one Act say one thing, and the other say something different? Does the operation of one exclude the operation of the other? In the face of the ability of the RMA and HSNO to co-regulate in terms of hazardous substances it is difficult to argue that the Acts are so inconsistent as to be unable to stand together. Clearly they stand together in terms of hazardous substances and were intended to do so.

The majority of HSNO's provisions apply equally to new organisms and hazardous substances,[568] with independent provision where necessary. One exception is ERMA's ability to approve a new organism via the controlled release category. What differentiates this category from other types of release pursuant to HSNO is the ability to control the location of the release, as opposed to the substance or product. Does the existence of this category create an inconsistency with the RMA, such that the jurisdiction of the RMA should be ousted?

We have already examined the extent of controls that may be imposed pursuant to controlled release. The RMA may impose more stringent controls, yet this does not necessarily mean that the regimes are inconsistent and cannot stand together. It may instead show that they simply have a different focus. This difference in focus is a valid reason to support the Acts standing together.

The RMA is a comprehensive and far-reaching statute intended to govern the use and protection of natural and physical resources in New Zealand. Permission to grant a permit for a new organism has parallels to the grant of resource consent under the RMA. Decision makers are compelled to take into account a wide variety of factors prior to making a decision pursuant to each regime. Whilst not identical, some of the factors are similar, such as the need to protect the environment,[569] to consider social economic and cultural wellbeing and the needs of future generations,[570] and to carry out weighting exercises in terms of outcomes.[571] However, there is a vital mechanism missing. Use of resources in New Zealand pursuant to the RMA is fundamentally supported by resource management plans which guide and direct activities on national, regional and district levels. By virtue of these plans New Zealand people

[568] See for example Parts I, II, III, IV, V and VI to X.
[569] Section 4 HSNO, s 5 RMA.
[570] Section 5 HSNO, s 5 RMA
[571] Section 38 C HSNOAA 2003, and s 5 as interpreted by the Environment Court.

have the opportunity to scope the use of resources in the districts and regions that they inhabit to reflect their interests, beliefs and desires to the extent consistent with sustainable management. The value of the ability to plan for resource use is widely recognised as a pivotal means of achieving sustainable management.[572]

It is accepted that HSNO makes provision for the public to comment on an application for conditional release, and has created a link to local government by providing for notification to the local authority. These opportunities arise however in the context of a single application for approval for a new organism on a controlled basis. Consideration will be ad hoc by nature, and related to the intentions and requirements of the applicant. Without the backdrop of a hierarchy of resource management plans, focus under HSNO moves away from the community and the environment to centre upon the applicant. It is arguable that this piecemeal approach does not represent an optimal way in which to plan for the release of GMO to a nation, region or district. Strategic planning,[573] in contrast to planning via approval, offers a community the opportunity to consider how it best views all of the resources of the area to be used or protected.[574] A long-term view is enabled. The extent of participation and the matters considered will have greater depth and breadth. Robust public participation procedures produce better decisions,[575] and in the search for solutions to environmental issues we should be looking for the best decisions. Who these decisions favour is immaterial.

The issue of coexistence is at the centre of these considerations. The controls available pursuant to s38 D of HSNO contemplate application of controls tied to a plan or standard, such as one relating to coexistence. However, the preparation and nature of such a document is not assured by legislation. Coexistence between GMO and non-GMO farmers is a classic example of land use conflict. Resolution of resource use conflict is a key reason for existence of the RMA. Resource management plans are principal means used in this resolution. By contrast, the HSNO framework lacks a robust and farsighted procedure by which a community can explore opportunities in an integrated and resource oriented fashion. Integration is a key issue

[572] See generally Eriksen, supra n 449.
[573] As provided for by the plan making capabilities of the RMA.
[574] For discussion of this issue, and of public participation in general see Barton, B, "Underlying Concepts and Theoretical Issues in Public Participation in Resources Development" in D Zillman, A Lucas and G Pring (eds), *Human Rights in Natural Resource Development: Public Participation in the Sustainable Development of Mining and Energy Resources* (2002) 77.
[575] Ibid.

in terms of resource use and protection in New Zealand under the RMA. Commentators have viewed s 5 as requiring substantive integration across all environmental assets.[576] The need for integration has been identified as deriving from several critical factors including; the interconnectedness of environmental assets; the interrelationship between human society and the natural environment; the need to prioritise environmental problems and to achieve efficiencies and costs savings.[577] To consider new organisms as a discrete package, outside of the RMA, would therefore require a strong rationale.

Such a rationale does not arise readily from the debate surrounding this issue.[578] One of the initial reasons, advanced by way of submission, for making ERMA the sole agency is summarised as:[579]

> …release [of new organisms] should be apolitical and based on sound risk management and scientific criteria and that ERMA has the expertise.

Other agencies were perceived as lacking necessary expertise, and it was expressed that the role of controlling new organisms should be left to the expert and apolitical ERMA under the special legislation provided for by HSNO. This suggests a somewhat paternalistic attitude that assumes that some matters are best left to those who know better. The contention infers (if not expresses) that agencies other than ERMA are insufficiently skilled to make decisions in respect of new organisms. It also infers that other agencies might bring matters to the table beyond sound risk management and risk criteria. It seeks to avoid politicising the issue. It seems to assume that "political issues" will invade and overwhelm "scientific truths". This is an uneasy position to adopt in the context of new organisms where the science itself is at times conflicting and consequences of release not always readily ascertainable. Why new organisms should be singled out for such treatment is unclear. Hazardous substances, pollution discharges, and electromagnetic radiation (amongst a host of others) all bring complex scientific and technical issues to the doors of our local authorities and Courts via the RMA. However, in the context of plan preparation and resource consents, the statute equips those agencies with the power and ability to

[576] Ibid, 18.
[577] Klein, U "Integrated Resource Management in New Zealand - A Juridical Analysis of Policy, Plan and Rule Making under the RMA" (2001) NZELJ 1, 5.
[578] As summarised in MOE Summary, supra n 557 at 32.
[579] Ibid, 33.

resolve complex issues. The Courts have consistently displayed the ability to do so in an independent, dispassionate and scientific manner.[580] Clearly new organisms are new, but novelty presents a good reason for dual scrutiny. Scientific uncertainty and unascertained consequences are common in the realm of new organisms. It can be strongly argued that a community should be entitled to take a conservative approach, where the potential for adverse effects can be proven. It has been suggested[581] that the RMA by construction entitles communities to take a more conservative approach to risk than HSNO. That this is so is attributed to the difference in the purpose sections. HSNO refers to preventing or managing adverse effects whilst the RMA includes reference to avoiding effects.

In terms of hazardous substances, controls that are more stringent may be applied via the RMA. The question arises why this should not be so for new organisms. In relation to liability it has been reiterated on several occasions that there is nothing so radically different in genetic modification as to require new or special remedies.[582] It raises the issue of why new organisms should be so radically different in terms of the operation of the RMA.

Communities, districts and regions throughout the world are invoking the right to be GE Free. If the application of the RMA is so restricted New Zealand people are denied a similar option. The option is denied, based on the need to preserve opportunities. However, in the context of a single application there is neither a wide reaching nor integrated method by which to determine which opportunities should be preserved and which should be denied, and how the resource represented by new organisms should be sustainably managed. In this way the mantra of preserving opportunities may overwhelm sustainable management without clear identification of the opportunities lost or won. Under the RMA any attempt to establish a GE free area or sensitive zone would need to be justified in terms of sustainable management. Decisions would be guided and controlled by policy and rules decided at national, regional and district level. If the protection was not justifiable it could not be established. Approval pursuant to HSNO lacks this depth and represents an inadequate method for defining the opportunities.

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[580] See for example *Shirley Primary School v Telecom Mobile Communications Ltd* [1999] NZRMA 66 EC, where the Environment Court declined to find that community fear constituted an adverse effect in the absence of scientific evidence to support reason for fear.
[581] Cooney Lees, supra n 482 at 9.
[582] See for example Royal Commission, supra n 297 at 328.

Using the RMA in addition to HSNO should not be a cause of great concern. Decisions under the RMA are not immutable, and in time as technology advances can be fine-tuned. Concerns about excessive compliance costs stemming from a dual system have been raised. It is arguable that such costs are readily justifiable due to the novelty of the technology and the potential for wide spread damage. The RMA provides a wide range of options in terms of GMO and the application of zoning and performance standards. Where there is no or little risk in relation to an organism, controls under the RMA could be readily adjusted, to avoid excessive compliance costs. That was a particular aim of the RMA in its inception. Compliance costs appear an insufficiently compelling basis upon which to base the ousting of the RMA.

There is a clear gap in the HSNO regime in terms of integrated management of a resource. This provides a good reason for dual protection pursuant to the RMA. The question arises as to whether there are any other reasons that might displace this reason?

It could be argued that the silence of the legislation in respect of provision pursuant to s 142 for more stringent controls presents one. Making provision in respect of hazardous substances and not for new organisms may infer intent on behalf of Parliament to create an exclusive code in terms of new organisms. However this needs to be considered in the light of the explanatory note to the Bill, which envisaged the use of s 32 of the RMA as the decisive factor in terms of control. Furthermore, whether silence is sufficient to express the intent of Parliament is arguable. Section 23 of the RMA provides that the RMA does not remove the requirement to comply with other laws. The Act was clearly intended to work in conjunction with other frameworks. To oust the jurisdiction of the principal environmental statute, intended to govern in respect of all natural and physical resources,[583] would require explicit language.

It may also be suggested that judicial comment points to HSNO operating as a specific piece of legislation, in the context of environmental protection. As noted in *Bleakley v Environmental Risk Management Authority*:[584]

> [116] Given that the authority found there was no such danger of escape, there was no obligation in law and it certainly was not appropriate for the authority to venture

[583] With some express reservations, for instance the exclusion of minerals from s5 (2)(a) RMA.
[584] *Bleakley v Environmental Risk Management Authority* [2001] 3 NZLR 213 HC.

> into more orthodox pollution issues. It is true that the Act has an environmental protection purpose, as does the Resource Management Act, however, that prima facie wide purpose is to be read in the context of its subject matter and specifics. It is to protect the environment against hazardous substances and organisms, and not on a wider scale. The wider scale is the role of others under general legislation in the RMA. Thus, if spraying milk on pastures were to raise a concern that heritable material might escape, that would be a concern for the authority. If after authority action, there was no risk of escape of heritable material but there remained a risk of another environmental character e.g. destruction of aquatic life in stream that would be a concern to be dealt with under the Resource Management Act. It would not be an authority matter, despite the breadth of the opening sections of the Act. It is a not unfamiliar judicial problem to reconcile legislation relating to specific activities, and a general legislation in the Resource Management field.

Where one provision or regime is specific and one general the courts may apply the rule *generalia specialibus non derogant* to enable the specialist provision to override the more general.[585] The comment of McGechan J infers that the RMA has a wider range than HSNO in terms of environmental protection, and that it is the role of HSNO to protect the environment against hazardous substances and new organisms. It could thus be argued that HSNO ousts the jurisdiction of the RMA. However when considering the comments of the Judge, it is important to bear in mind that the comments were made in the context of whether or not HSNO could extend its reach to venture into more orthodox pollution issues. The contrasting position of the RMA regulating new organisms was not at issue.

The third ground that may support an exclusive code argument is that as the later and more specific piece of legislation HSNO should override the earlier and more general RMA.[586] The need to override will however depend upon the degree of inconsistency. Given that it is not apparent that inconsistency exists, and in the light of the preference of the courts to enable the statutes to operate together, insufficient good reason exists to suggest that HSNO should override the RMA. A better option would be to enable dual operation.

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[585] Burrows, supra n 507 at 314.
[586] For discussion on the operation of this maxim in the context of the Court of Appeal decision *R v Pora* [2001] 2 NZLR 37 see Burrows, supra n 507 at 321.

6.3.2.3 Are further controls necessary?

If the RMA can be used to control GMO, the operation of s 32 would require an evaluation of any rules created. It could be argued that the ability to release GMO subject to controls overrides the need for rules in a plan. However the argument advanced in paragraph 6.3.2.2 militates against such an assumption. Rules in a plan are made in an integrated, holistic and region or district based manner. This approach underpins the attainment of sustainable management and cannot be replicated by virtue of controls applied pursuant to a single application. Absence of the ability to plan in an integrated manner necessitates the consideration of further controls.

In this chapter we have examined the application of the RMA and HSNO in relation to hazardous substance and GMO. The analysis shows that the RMA can control hazardous substances and may where necessary make provision for more stringent controls than those provided pursuant to HSNO. The provision of location specific controls that can protect vulnerable activities presents good reason for additional protection, and is supported by the requirement of the RMA to consider the sensitivity of the receiving environment. Chapter 7 will examine situations where it may be reasonable for those additional controls to require internalisation of adverse effects.

In respect of GMO, although the analysis leads to less clear results, potential for control by the RMA exists. By virtue of the ability to control land use, a territorial authority may be able to control the location of GMO crop plantations, provided that the interface with HSNO can be interpreted as permitting this. There are good reasons for so doing, not the least being the need for integrated management of natural and physical resources. Whether Regional Council can control the release of genetically modified heritable material depends upon whether the release can be defined as a discharge of a contaminant. Although there are some interpretational difficulties relating to inability to control the discharge, and the nature of a contaminant, a case can be made that the escape of GMO pollen, in particular, is capable of constituting a discharge of a contaminant enabling control by the Regional Council. As with land use, there is good reason to support additional control by the RMA of GMO contaminant discharge due to the supplementary dimension provided by the RMA to enable a community to plan for and manage the use, development and protection of

all natural and physical resources in an integrated manner, so as to promote sustainable management.

The extent to which the RMA supports the managing of resources in such a way as to avoid effects that will result in decertification of an organic farm is the subject of the next enquiry.

VII. Using the RMA to protect organic farming.
Support in principle for the avoidance of adverse effects

Introduction: Outcome 1 – Non-organic farmer internalises adverse effects. Cost of internalisation falls on producer of effects.

Outcome 1 is the position identified as producing the most favourable outcome for the organic farmer. The focus of this chapter is to determine whether the Act in principle, supports avoidance of adverse effects, where the presence of those effects would result in decertification of an organic farm. The focus of the chapter will be upon 2 main threats – the incursion across the boundaries of an organic farm by agrichemicals and genetically modified organisms. Matters of principle could however extend to other categories of threat.

7.1 Support in principle for a organic farm

7.1.1 Purpose and Principles

Numerous commentators have endlessly dissected s 5 of the Act since the time of the Act's inception.[587] Accepting that there is debate, this discussion will accept the overall broad judgement approach, acknowledging the approach currently favoured by the administering courts.[588]

Section 5 (2) enables people to manage, use and protect resources whilst meeting the combined requirements of s 5 (2) (a-c). Chemical and or GM farmers and organic farmers are each managing and using resources. A conflict arises when the use of those resources contaminates the organic farm with potential loss of organic certification. How far should the chemical or GM farmer be required to go in terms of limiting the adverse effects of their farming activities?

[587] See supra n 452, and by way of further example Grundy, K "In Search of a Logic: s. 5 of the Resource Management Act" [1995] NZLJ 40; Fisher "Clarity in a Little 'While" Terra Nova Nov 1991 50; Harris B, "Sustainable Management as an Express Purpose of Environmental Legislation: The New Zealand Attempt" (1993) 8 1 Otago Law Review 51.

[588] Recent decisions reinforce the lack of priority between the competing factors of s 5 and remind of the need to examine the factual circumstances of each case in order to determine the relative weighting to be applied to each element. See for example: *Kiwi Property Management Ltd v Hamilton CC*, unreported, (A045/2003).

The definition in s 5 is geared towards the use and development of resources. At the same time the antithetical[589] protection of resources is required. No one factor is given priority; competing forces are to be weighed.[590] The definition affords no one or thing absolute protection. Even matters of national importance defined by s 6 may be set aside in the interests of a nationally suitable proposal.[591] Moreover s 5(2)(c) allows for alternatives in dealing with adverse effects; mere mitigation of effects may be adequate as opposed to avoidance or remedying. Kenderdine J interpreted the consequence of this approach as follows:[592]

> The idea of "mitigation" is to lessen the rigour or severity of effects. We have concluded that the inclusion of the word in s 5 (2)(c) of the Act, contemplates that some adverse effects from developments such as those we have now ascertained may be considered acceptable, no matter what attributes the site may have. To what extent the adverse effects are acceptable, is, however a question of fact and degree.

The Act contains other indications that further support this view, such as rules relating to minimum water and discharge quality in ss 60 and 70, and allowances for best practicable options and for minimum standards in plans.[593] The courts have interpreted the presence of an allowance for best practicable option, by way of resource consent condition, as an indication that the legislature clearly contemplated *that there must be circumstances where the best practicable option will only minimise adverse effects on the environment. It will not obviate them entirely*.[594] The "acceptability of the effect" is a critical consideration for organic farmers. An initial question to ask is whether the effect is adverse or not.

7.1.2 When will an adverse effect be acceptable?

7.1.2.1 Adverse effect

Case law has evolved which assists in identifying whether an effect is adverse or not. A related issue is whether an effect is sufficiently offensive, noxious, objectionable or dangerous as to give rise to a duty pursuant to s 17. Section 17 of the RMA creates a

[589] *Friends and Community of Ngawha Inc v Minister of Corrections* [2002] NZRMA 412, 413.
[590] Skelton, supra n 239.
[591] *New Zealand Rail Ltd v Marlborough District Council* (1993) 2 NZRMA 449.
[592] *Trio Holdings v Marlborough District* [1997] NZRMA 97, 116.
[593] Williams, supra n 18 at 81.

general duty that requires all persons to avoid, remedy or mitigate *adverse* effects on the environment. Although not enforceable itself,[595] the enforcement provisions provided for in Part XII of the RMA may be used to restrain an activity which is noxious, dangerous, offensive, or objectionable to the extent that it would have an adverse effect on the environment.[596]

In defining an adverse effect an initial issue is that it must be perceptible. To be perceptible Treadwell J, determined in *Marlborough District Council v NZ Rail Ltd* that the effect must *not be the type of effect that one might normally experience in the day-to-day activities of society.*[597] In attempting to determine whether an effect is sufficiently offensive or objectionable, to such an extent that it is likely to have an adverse effect on the environment, a Court must take an objective approach.[598] It must *consider the relationship between the objector and the subject-matter and all other features of the case to justify the objector's contention on the one hand or not justify it on the other.*[599] The Court must consider a range of issues as directed by statute, *weigh up all the relevant competing considerations and ultimately make a value judgement on behalf of the community as a whole.* [600] Issues of health and safety will be relevant as well as social, cultural and economic wellbeing.

In considering all relevant factors, the nature of the environment will be germane as to whether an effect is adverse. Amenity standards in an urban area may differ from those in a rural area, where some noise and odour from farm animals may be considered part of the normal environment.[601] For the organic farmer some amenity standards will be more important than others. Noise, odour, traffic and visual effects, whilst possibly troubling, do not affect certification of an organic farm in the same way that contaminant discharge does. Organic farmers, just like their non-organic counterparts are farmers. The issue for organic farmers does not extend to the whole of the rural environment, only those aspects that if not adequately controlled could cause decertification. Furthermore adequate control of contaminant discharge is not only an issue for organic farmers, but for any producer who has chemical or GMO

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[594] *Medical Officer of Health v Canterbury Regional Council*, unreported, EC, (W109/94) 28.
[595] Section 17(2).
[596] Section 17(3).
[597] *Marlborough District Council v NZ Rail Ltd* [1995] NZRMA 357 at 370.
[598] *Minhinnick v Watercare Services Ltd* [1998] 1 NZLR 294, 304 CA.
[599] Ibid, 305.
[600] Ibid.
[601] *Darroch v Whangarei DC* [1993] 2 NZRMA 637, EC.

residues scrutinized as part of an export or domestic production regime. Accepting that contaminant drift is part of the normal rural environment may have been a reflection of community tolerances in the 1950s, but it is unlikely to find universal favour in the twenty first century. The direction contained in s 105(1)(a) to consider the sensitivity of the receiving environment, when a consent authority makes a decision in relation to discharges, may also indicate support for differentiation in approach in relation to contaminant discharges.

Contaminant drift causing residues in excess of MRLs or general standards is likely to be considered adverse. Contamination below general standards is more difficult. In terms of a hazardous substance it could be argued that once the effect of a contaminant is below the level authorized by general law then it no longer constitutes an adverse effect. Thus the need to avoid remedy or mitigate it is obviated. Such an interpretation does not sit comfortably with the HSNO instruction that more stringent controls may be applied via other legislation. The Act envisages circumstances where more stringent controls will be necessary. This could imply that in certain circumstances, an adverse effect continues to exist regardless of the thresholds established by other legislation

In considering the issue of adverse effect, it may also assist to reflect on when the law will deem a person as "affected" by an adverse effect. For the purposes of considering notification of resource consents, a line of jurisprudence developed in relation to determining whether an effect is minor or not.[602] The Court of Appeal in *Bayley v Manukau City Council* distinguished between identifying whether an adverse effect upon the environment was minor and whether a person was affected by an effect in terms of the requirement to obtain consent pursuant to s 94(1)(c)(ii).[603] For the former category the permitted baseline test was applied to ascertain whether or not the effect was minor. The Court accordingly made a comparison of the activity for which consent was sought with what was either being lawfully done on the land or could be done as of right.[604] In terms of concluding whether or not a person was affected by an adverse effect the Court concluded it could only disregard such effects, as will certainly be de minimis. De minimis correlates to negligible, and an argument could be made that although organic standards set a threshold higher than the general

[602]See for example *Bayley v Manukau City Council* [1998] NZRMA 513, CA, *Arrigato Investments Ltd v Auckland Regional Council* [2001] NZRMA 481, CA.
[603] This is a reference to the Act prior to the 2003 Amendment.

standard, the effects regulated by the organic standard are greater than negligible, slight or trifling. The application of the concept of de minimis may have been useful to the organic farmer, in that only the truly inconsequential are excluded in that context.

Later decisions extended the reach of the permitted baseline test to substantive decisions under ss 104 and 105, including applications for non-complying activities.[605] This has since been altered by the introduction of the 2003 Amendment to the RMA. The amendment codifies the permitted baseline and applies it at notification stage, to determine not only whether an effect is minor, but also whether or not a person is affected. In this way the operation of the de minimis concept is obscured.

The changes made by s 94B remove the distinction between considering whether an effect is minor and whether a party is adversely affected at notification stage. The permitted baseline may now be applied to both, and an adversely affected person *may be treated as not being adversely affected if, in relation to the adverse effects of the activity on the person, the plan permits an activity with that effect.*[606] Attention will turn to the plan to assess exactly where the baseline is, and plan definitions will have a strong bearing on when a person is affected and what a court will consider minor. The implications of the permitted baseline call for careful development of plans with a view to avoiding unintended consequences. Tolerance of agrichemical drift in provisions in a plan may equate to the organic farmer being considered not adversely affected. In addition the operation of the permissive presumption in respect of agricultural discharges and use of land can create a similar standard of tolerance. Plan silence will constitute permission, and activities would then only be restrained by the operation some other form of regulation. In this way, other schemes such as that provided for by HSNO apply by default. If the restrictive presumption were at work, this can reduce the operation of the permitted baseline, due to the fact unless matters are expressly provided for they are not permitted without consent.

If contamination below the general standard does not constitute an adverse effect, there is potential for the organic community to be marginalised because of their requirements for a higher standard than that tolerated by the general law. There are

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[604] *Bayley,* supra n 602.
[605] *O'Shea v Auckland City Council* [2002] NZRMA 117, referring to *Smith Chilcott Ltd v Auckland City Council* [2001] NZRMA 24, CA.

some strong policy reasons not to support such an outcome, and these will be discussed in the context of internalisation at para 7.1.2.4.

There are also some practical considerations. It has been said that the terms avoid, remedy or mitigate represents a continuum.[607] When applied to an effect that continuum becomes obvious. A discharge could be progressively mitigated until it is avoided. At some points prior to avoidance, there exists the probability that an effect ceases to be adverse. Just where and when may in practical terms be difficult to ascertain or monitor. A requirement to avoid may represent a more certain and enforceable standard. Internalisation of contaminant discharge, with a flexible approach as to how the polluter achieves this, represents a solution that would enable the coexistence of all. Developments in the law to date will be examined to analyse compatibility with this approach.

7.1.2.3 Extent of requirement to avoid remedy or mitigate adverse effect

The case law establishes that the requirement to avoid adverse effects will turn on the circumstances of a case. Instances of resource consent applicants being required to avoid all adverse effects of a given class,[608] whether actual or potential, are not uncommon and will continue to arise. The factors likely to influence decision makers to require avoidance of adverse effects include; a proposal's compatibility with ss 6, 7 and 8,[609] other matters of national importance,[610] the extent to which adverse effects can be avoided or mitigated by conditions,[611] the economics of implementing such measures,[612] Plan provisions and zoning,[613] economic consequences for a region or nation,[614] the duration of a consent and imposition of review conditions.[615]

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[606] Section 94A(a) and s 94B(3)(a).
[607] *Winstone Aggregates Ltd v Papakura District Council*, unreported, EC, (A049/02), para 24.
[608] The decision by the Environment Court in *Hill v Matamata Piako District Council*, unreported, EC, (A065/99), confirmed the approach, when it required all objectionable odour emissions to be confined to the site.
[609] *Trio Holdings v Marlborough District* [1997] NZRMA 97, 111.
[610] For example in *Trio* ibid, 114, the anti-cancer properties produced by the sponge, or the Inter Island Ferry link in *Marlborough District,* supra n 597, 384.
[611] *Royal Forest & Bird Protection Society v Manawatu-Wanganui Regional Council* [1996] NZRMA 241, 270.
[612] *Winstone Aggregates Ltd v Papakura District Council,* unreported, 14 August 1998, (A96/98) para 40, Whiting J.
[613] *Te Aroha Air Quality Protection Appeal Group v Waikato Regional Council (No.2)* (1993) 2 NZRMA 6.
[614] *Canterbury Regional Council v Selwyn District Council* [1996] NZRMA 25, EC.
[615] *PVL Proteins Ltd & Anor v Auckland Regional Council*, unreported, EC, (A61/2001).

7.1.2.4 Internalisation of adverse effects

Avoidance of adverse effects will in many situations equate to internalisation of adverse effects.[616] Recent cases have considered the extent to which the RMA requires internalisation.[617] It has been argued that the RMA follows a "polluter pays" approach, requiring creators of adverse effects to internalise those adverse effects rather than forcing the rest of society and the environment to bear the burden of dealing with them.[618] This position supports Outcome 1. The High Court, in an early decision under the RMA,[619] discussed how the approach taken by the RMA in relation to sentencing was aimed at not only punishing offenders, but also at achieving economic goals:

> As to the economic aspect, the economic reason why society may not in the absence of regulation strike a proper balance between economic output and environmental quality is that the costs of pollution are not borne by polluters but by somebody else. As a result, these "external" costs will, not, in general be taken fully into account by those who cause pollution. Insofar as pollution costs are not borne by those who cause pollution, or by the purchasers of their products, some part of the total benefits resulting from economic activity in the community is wrongly redistributed away from the victims of pollution to other groups in society. In order to correct this market failure, the government must intervene to impose financial costs or penalties which bring the external costs back to the polluter. These concepts were discussed in the First Report of the United Kingdom Royal Commission on Environmental Pollution, Cmnd No 4585 at 4-6 (1971) and are now encapsulated in Principle 16 of The Rio Declaration on Environment and Development adopted at the United Nations Conference on Environment and Development, Rio de Janeiro 3-14 June 1992, [1992] International Legal Materials 876, 879. New Zealand has signed the Declaration. Principle 16 states:
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> > National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of

[616] There may however be situations where avoidance can be distinguished from internalisation in that choices made avoid the effect occurring, rather than the effect occurring and being controlled or managed so as to avoid an externality.
[617] The factors referred to above in terms of avoidance, have similar application to internalisation.
[618] *ARC v ACC* [1997] NZRMA 205, 214.The Court notes that in making the argument counsel for the Respondent, Mr Kirkpatrick, accepted that the approach described was not absolute.
[619] *Machinery Movers Ltd v Auckland RC* [1993] 2 NZRMA 661 (HC).

> pollution, with due regard to the public interest and without distorting international trade and investment.

The court then went on to consider the ways in which the RMA explicitly recognises the importance of having laws that are economically efficient. These included the provisions in s 7(b) for efficient use and development of natural and physical resources, in s 24 for the use and development of economic instruments, in s 32 for cost-benefit analysis and in s 108 in relation to financial contributions.

The discussion in Machinery Movers was in the context of illegal activities. However, reference to Principle 16 of the Rio Declaration clearly extends the scope of the discussion to include lawful activities. What is not immediately apparent from the discussion is the extent to which internalisation is required, and differentiation of those situations where risks or effects are to be socialised.

Recent decisions of the Environment Court have tended to adopt a pragmatic approach to internalisation.[620] *Winstone Aggregates Ltd v Papakura District Council* ("No.2"),[621] concerned a reference to the Papakura District Plan, in relation to which a quarry owner addressed submissions in relation to the concept of internalisation. It was argued that a prior interim decision of the Environment Court[622] had by referring to internalisation, added an unnecessary gloss to the requirement to avoid remedy or mitigate adverse effects in s 5 (2)(c). In the interim decision the court had concluded that territorial authorities should impose restrictions requiring activities to internalise adverse effects as much as reasonably possible. The appellant quarry owner had sought provisions, including buffer zones, in the plan to restrict the encroachment upon the quarry of incompatible activities. The court, in the interim decision had, found that such provisions should only be applied in situations where it was not reasonably possible for an activity to internalise effects it created. The court concluded:

> [98] We consider that in controlling undesirable effects, territorial authorities should impose restrictions to internalise adverse effects as much as reasonably possible. It is only where those effects cannot be reasonably controlled by restrictions and controls aimed at internalisation, that the sort of restrictions on other sites (as sought

[620] See for instance *Winstone* (No 1) supra n 612, and *Adams Landscapes Ltd v Auckland City Council*, unreported, EC, 15 May 2002, (A108/2002) Newhook J.
[621] *Winstone* (No.2), supra n 607.

by the appellants) might be appropriate. Those are relatively rare circumstances and will vary from site to site.

In the later decision the parties had submitted a consent order to the court, agreeing to plan provisions relating to the controlling of adverse effects, and others providing for the protection of the appellant's operation. The Environment Court approved the order, yet took the opportunity to clarify its earlier comments in relation to internalisation. The court reviewed relevant cases and concluded that although the words avoid, remedy or mitigate appear to follow a continuum, they are in fact to be read conjunctively with equal importance. The court went on to consider the concept of internalisation and concluded:

> [33] In our view the avoidance of adverse effects by the imposition of conditions means that the cost of avoidance is borne by the organisation that generates them. It is a matter of judgment as to whether in a particular case the adverse effects are such that the cost of avoidance will be totally internalised. It is a question of what is reasonable in the circumstances.
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> [34] While we have focused on avoidance there are many places where mitigation measures to reduce adverse effects are all that is required. There are many examples that include noise and dust mitigation measures as well as, of course many others.

The court discusses the term reasonable internalisation as used in the interim decision, and concluded that the phrase did not create a separate duty or obligation, rather it represented a method of complying with the Act's requirements to avoid, remedy or mitigate adverse effects. The court held:

> [43] The application of section 5(2)(c), therefore, must necessarily involve a consideration of all aspects of a proposal within the broader context of sustainable management dependent upon the factual matrix of each circumstance. This calls for an assessment to be made in terms of the scale and degree of those effects and their significance or proportion in the final outcome. It is a pragmatic approach to sustainable management, and also one that is designed to achieve an outcome that is fair and reasonable in each particular circumstance.

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[622] *Winstone* (No.1), supra n 627.

The court applied a two-step process to evaluate whether or not a buffer zone to protect the quarry should be imposed:

> [46] …The first part of the consideration is to require emitters to take all reasonable steps to internalise effects. Only those effects which cannot be reasonably internalised provide the basis for constraints on nearby land-use activities. This method thus incorporates the 'polluter pays" approach, in conjunction with a practical evaluation of who can reasonably mitigate. This is analogous to the duty to "avoid, remedy or mitigate", in that if an effect cannot be avoided, then, the emitter must remedy or mitigate through conditions of consent. "Internalise" is not to be interpreted as "internalise at all costs".

In a subsequent decision, *Adams Landscapes Ltd v Auckland City Council,*[623] Newhook J considered the *Winstone Aggregates Ltd v Papakura District Council* decisions. The appellant sought an air discharge permit from the Auckland City Council in respect of its existing concrete crushing and recycling business in Mt. Wellington, Auckland. Two local territorial authorities actively promoted the use of the appellant's products in roading and construction works as providing an alternative to disposal to landfill. The contaminant for which discharge consent was sought was dust, and extensive evidence was given in relation to dust effects.

Those who opposed the application were in general neighbouring business operators, who had sought internalisation of the dust effects by the appellant. The court found that the adverse effects arising from the operation were similar to those generated by a quarry. The court indicated that there were a number of factors to be weighed, but declined to do so until such time as further evidence was provided in terms of recent "significant"[624] efforts to mitigate the adverse effects and the success or otherwise of such measures. The court did however observe that it recognised the benefits[625] of the operation. This indicates that these are factors to be weighed in making its decision. The court also concluded that past poor behaviour of the appellant would not be used to penalize the appellant.

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[623] Supra n 620.

[624] These measures included the operation of Nalfoam and Dust Ban systems, the operation of an anemometer-driven automatic sprinkler system, manual wetting systems, maintenance of stockpiles below bunker wall level, weekly street clearing operations and maintenance of detailed records [Para 95].

The recognition of benefits provided by the polluter, is a factor which should be treated with caution, and placed in the context of s 5 where the exercise of the overall broad judgement will see that factor weighed with all others. A recent decision of the Environment Court *Bodle v Northland Regional Council*[626] considered the conflict between agrichemical users and organic farms in the context of a reference to the Regional Air Quality Plan for Northland. The decision related to a request by a referrer for the imposition of buffer zones to protect certified organic properties from agrichemical spray drift. Much of the argument related to the imposition of mandatory buffer zones and the impacts that would have on the Northland agricultural and horticultural communities. The court disallowed the request for the imposition of mandatory buffer zones and concluded that a properly constructed rule using NZ Standard 8409: 1999 (Agricultural Users' Code of Practice) would be *an appropriate tool for limiting harm to minimal proportions*.[627]

In reaching its decision the court gave consideration to the need for internalisation of adverse effects under the RMA. The Court did not make a clear finding on the need to internalise agrichemical sprays, rather it chose application of the Standard as a method preferable to application of mandatory buffer zones for limiting harm to minimal proportions. It was the buffer zones that were at issue rather than the internalisation. However in discussing internalisation the Court recorded that it perceived *an important difference between controlling the use of agrichemical sprays in Northland and controlling quarry activities in the Papakura District*[628] In this way it was inferred that the approach taken to internalisation in *Winstone Aggregates Ltd v Papakura District Council* would not necessarily be appropriate in relation agrichemical discharges in Northland. The extent of the land to be sprayed, the topography and the meteorological conditions were considered relevant. The Court felt bound to also consider expert evidence concerning relevant aspects of ss 5, 6 and 7. It held:

> [25] We accept that in the context of the present case the avoiding, remedying, or mitigating of adverse effects on the environment is an extremely important aspect of

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[625] *Adams,* supra n 620, para [90]. The Court recognised the fact that the demolition materials were recycled, the lower price attached to recycled materials, the enhancement of sustainable management of quarry stone and the saving in transport costs attached to the central location of the operation.
[626] *Bodle v Northland Regional Council*, unreported, EC, (A 225/2003) Newhook J.
[627] Ibid, 22.
[628] Ibid, 9.

> s.5, especially given the nature of many agrichemical sprays which can be harmful to human and animal health, and to ecosystems. However we are also required to have appropriate regard for other aspects of Part II as we have said.
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> [26] Our duty, having drawn together those matters, will then be to consider what form of rule will best achieve the sustainable management of natural and physical resources as defined.

The Court however did not articulate the matters it weighed in considering all aspects of Part II, and relevant discussion tended towards disadvantages encountered by the application of mandatory buffer zones rather than internalisation by other means. At the end of the day the court simply viewed application of the Standard as the best way to limit harm to minimal proportions. Due to the finding on the Standard the court stated that it did not need to balance the interests and issues of the organic and non-organic producers.[629] Application of the Standard would appear to be the Court's chosen method for avoiding, remedying or mitigating adverse effects of spray drift. It represents the yardstick in effects management. The parties have yet to finalise the wording of any rule.

The requirements of the Standard in terms of minimising and avoiding spray drift are extensive. Certainly in many instances the practices designated will be sufficient to avoid damage to organic produce. Currently clause 5.8 of the Standard requires any person applying agrichemicals to minimise spray drift hazard taking into account amongst other things weather conditions and sensitive areas. It urges utmost care when applying agrichemicals. However in order to be of real effect in achieving protection of an organic farm, application of the standard should be tied to a rule in a Regional Plan requiring avoidance of contaminant drift.[630] In this way certainty can be achieved, with appropriate methods attached. The Draft NZ Standard DZ8409 (Management of Agrichemicals) appears to recognise this position by requiring in the section on Agrichemical Use:

> 5.3.4.3 Sensitive areas
> Applicators shall identify any sensitive areas and describe any situations likely to result in a drift hazard on a property spray plan. The property spray plan shall describe the measures to be taken that will avoid the drift hazard. Class 6.1 A, B or

[629] Ibid, 22.

C agrichemicals shall not be applied in such a way as to land on any other person not wearing the required protective clothing. (Refer Appendix H.)

With the combined use of notification, spray plans and application techniques identified in the Standards, it is apparent that the Draft Standard accepts that spray drift is an effect that can and should be avoided where there is conflict with sensitive areas. This is a sensible approach, and one that would enable coexistence between chemical and non-organic farmers.

Is such an approach reasonable and consistent with the promotion of sustainable management? The Judge in *Bodle v Northland Regional Council* seems to infer in the decision that agrichemical use should not be treated the same as quarries due to the fact that the use of chemicals is widespread. This may be a reason for the non-imposition of mandatory buffer zones due to the extent of land that could effectively removed from production. But is not apparent that it constitutes a sound reason for requiring that a non-organic farmer not avoid adverse effects upon sensitive or vulnerable activities. What that achieves is the removal of land from organic production. This seems an unlikely goal for a nation presenting itself to the world as clean and green.

The non-internalisation approach tends to represent entrenchment of the status quo. It takes support from the fact that chemical farming benefits the Northland Region by providing employment and contributing to the GDP. In terms of s 5 it would be argued that chemical using stakeholders in Northland provide benefits to social cultural and economic wellbeing.[631] A purely utilitarian view may promote this argument, yet it fails to adequately consider the other elements of s 5. Supporting chemical farmers to the exclusion of organic farmers erodes the environmental and economic benefits that may be provided by a burgeoning sector. A sector that is actively promoted in other countries to provide social, cultural and economic benefits. We need to find an equitable solution where both types of farming can coexist, and the internalisation of contaminant discharge can achieve this. Where internalisation can be achieved (as accepted by the Draft standard and several Regional Plans), and the presence of a vulnerable activity is known, this option should be preferred.

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[630] To be discussed in chapter 8.

[631] See for example, *Te Kotahi Mahuta v Waikato Regional Council*, unreported, EC, (A91/98), where the Environment Court took into account the positive contribution which the dairy industry makes to community well being.

The High Court in *Ports of Auckland* [632] has also given consideration to the interim Winstone decision,[633] and the requirement that territorial authorities impose restrictions to internalise adverse effects as much as reasonably possible. Baragwanath, J in considering this issue identified 8 constraints on adjudication. These constraints included the inability to relocate the port, the need to operate the port 24 hours per day, and the removal of the railway yard buffer as a result of rezoning. As a result of the constraints the Court considered it unreasonable for the port to be expected to reduce or internalise its noise.[634] A similar approach was taken in *Wellington International Airport v Wellington City Council,*[635] which recognised that benefits provided by a regionally significant resource, such as an airport, may call for costs to be imposed on the public, in order to maintain the resource.

The approach taken in the *Ports of Auckland* case has led some commentators[636] to conclude that key physical resource such as ports, airports and quarries, unable to contain all effects, require protection via the application of reverse sensitivity principles. They argue that a requirement for all activities to internalise adverse effects would require a substantial re-think and re-draft of the RMA.

These decisions indicate that there may be times when complete internalisation is required in order to fulfill the requirements of s 5(2)(c), that rather than being a separate concept, internalisation is a method or tool to be used to achieve sustainable management. The extent of internalisation will depend upon the circumstances of each case and what is "reasonable in the circumstances". Benefits provided by the activities may also be considered, and key physical resources may require added protection in situations where factual constraints render it unable to internalise effects. Such situations do not however constitute the norm, and should be regarded as rare.

Whether or not the current approach to internalisation under the RMA can secure Outcome 1 for organic farmers will depend entirely upon what a court views as "reasonable in the circumstances". This deference to reason has shades of the common law, but may introduce an element of uncertainty. When considering these

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[632] *Ports,* supra n 348 at 609.
[633] *Winstone* (No.1), supra n 612.
[634] Ibid, 611.
[635] *Wellington International Airport v Wellington City Council*, unreported, EC, 19 November 1997, (W102/97) Kenderdine J., and for further discussion see Ghaemaghamy, S *Reverse Sensitivity-the interface between public and private law in the context of the Resource Management Act 1991*, (1999) LLM Thesis, Auckland University.
[636] Nolan, D and Somerville, R "Reverse sensitivity" in *Papers Presented at the NZ Law Society Resource Management Act Update Seminar* (2001) Hamilton.

issues it is helpful to bear in mind the words of Judge Whiting in *Winstones* that is only where effects cannot be reasonably controlled by restrictions and controls aimed at internalisation, that other measures be considered appropriate. Such circumstances will be relatively rare circumstances and will vary from site to site. In this way there is a presumption of internalisation that can be rebutted in the face of reasonable inability to control. There are some who disagree with such an interpretation. It is therefore important to consider principle or policy within and beyond the RMA that supports this interpretation.

Sections 6, 7 and 8 of the RMA define principles to be applied in the pursuit of sustainable management of natural and physical resources. Where internalisation of adverse effects enhances the quality of the environment and amenity values ss 7(c) and (f) will have application. The same is so in respect of kaitiakitanga and the ethic of stewardship defined in ss 7(a) and (aa). In terms of the efficient use and development of resources,[637] operation of the polluter pays mechanism is recognised as an efficient method of resolving environmental externalities. The mechanism recognises that where internalisation is not achieved, compensation for harm suffered from the pollution should be paid. This supports an outcome whereby the "victim" of pollution is not required to take the burden of another's pollution. We have seen that economic efficiency is bound to exclusivity. Allowing contaminant drift erodes exclusivity. It could be argued that according to the Coase theorem, either the organic or the non-organic farmer bearing the cost of the externalities produced by the non-organic farmer could achieve economic efficiency. Yet this approach fails to incorporate the concept of polluter pays, Making the organic sector bear the cost of another's pollution effectively hobbles the organic industry and will impede progress of an sector capable of bringing not only economic, but also environmental gains.

In terms of efficiency it has been suggested that organic agriculture does not represent an efficient option for food production. Such claims have utilitarian overtones in terms of the search for optimum returns. However, as the organic sector gains commercial strength and productivity matches non-organic, these claims become less supportable. Such claims also need to be placed in the context of international initiatives. A recent review of European Union pesticide policies revealed that Denmark, Sweden, Netherlands, Germany, France and Italy had each

[637] Section 7 (b)

initiated active research on integrated and biological farming, and provided economic support to convert to organic farming.[638] Denmark and Germany had gone one step further to provide economic support for spray free zones.[639] Recognising the benefits of organic farming does not mean that other forms of farming cannot continue. However to enable the organic industry to develop other forms of farming may need accept restraints on the extent to which they can contaminate another person's property and the environment in general. The rise of IPM shows that there are many in the agricultural and horticultural communities who accept this fact.

Property ownership conveys basic rights, some of which are recognised with little abrogation by the RMA. The existence of the right to manage a thing is inherent in the definition of s 5, and limited to the extent consistent with the purpose. The right to compensation is constrained by the operation of s 85 in respect of the imposition of plan provisions.[640] Accordingly compensation for property used or taken in any other way may be justified, and where necessary formalized by way of easement or restrictive covenant. The right to exclude is apparent in the requirement to avoid adverse effects upon the environment. That right is reduced by the alternative requirements to remedy or mitigate. The extent of the reduction should be measured with the nature of the basic right in mind. A requirement for internalisation respects underlying property rights, and where conditions of foreseeability and avoidability exist, can be justified on the basis of outcome responsibility. It is also potentially consistent with the evolving common law doctrine in relation to known vulnerability.

Where provision is made in a plan for internalisation, a s 32 evaluation will consider efficiency, and the benefits of the provision will be weighed against the costs resulting from imposition of the provision. Loss of the ability to farm organically is a significant reduction of the right to choose how to manage property owned. Protection of that right provides environmental, social and economic gains. Permitting a non-organic farmer to produce contaminants, which cause decertification of an organic farm, would require strong justification. Furthermore, it is reasonable that any such allowance be accompanied by a right for compensation accruing to the organic

[638] Wossink, G and Feitshans, T "Pesticide Policies in the European Union" (2000) 5 Drake J.Agric.L.223 14.
[639] Ibid.
[640] Section 85 removes the right to claims for compensation in respect of controls imposed on land by plan. Where the control renders any land incapable of reasonable use, and places an unfair and unreasonable burden on any person having an interest in the land deletion of the particular provision may be sought.

farmer, for the loss of the use of the property. A less complicated approach is to require polluters to order their activities and choose locations, to ensure such effects are internalised.

The directions contained in s 105 to consider the sensitivity of the receiving environment, in relation to discharges can also be applied to support avoidance of adverse effects on an organic farm. The extent of the restrictions imposed would be assessed on the basis of whether they represented the bpo. The pervasive use of agrichemicals in rural areas, frequency of application, potential for environmental harm, and general non-natural nature are all reasons to support internalisation.[641]

To the extent that internalisation of effects would be consistent with recognising and providing for the relationship of Maori with the environment, s 6 (e) may offer support. In addition where internalisation is consistent with principles established pursuant to the Treaty of Waitangi, s 8 would have application. Evidence of alignment in principle with organic methods, and of widespread adoption or acceptance by Maori of the organic ethic may trigger protection pursuant to the Treaty. In particular courts would need to consider whether anything less than full internalisation in terms of chemicals and GMO would be consistent with the duty of active protection or recognition of rangatiratanga.

There are many reasons to support internalisation of adverse effects. It is also true that there will be some situations where effects cannot be internalised. The Ports of Auckland activity[642] is a good example. Where an activity would experience difficulty avoiding adverse effects generated by it, the concept of the reverse sensitivity effect has developed to protect that activity.[643] A reverse sensitivity effect is one that arises when the existence of a sensitive activity may lead to demands for restraints upon a pre-existing activity.[644] The concept has been the subject of much debate.[645] Some

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[641] *Ravensdown Growing Media Ltd v The Southland Regional Council*, unreported, EC, (C194/2000) 17, where bog particulate emission was mitigated due to the effect's short and infrequent duration, natural quality of the emission and the absence of evidence of adverse or environmental health effects.
[642] As described in *Ports*, supra n 348.
[643] For instance as in: *McQueen v Waikato District Council*, unreported, PT, 20 June 1994, (A45/94), *ARC v ACC* [1997] NZRMA 205.
[644] *ARC v ACC*, ibid, 206.
[645] For discussion see Casey, M "Backing off Reverse Sensitivity" in *Papers Presented at the Resource Management Law Association Conference* (1998) ; Pardy, B and Kerr, J, "Reverse Sensitivity - The Common Law Giveth, and the RMA Taketh Away" (1999) 3 NZELJ 93; Ghaemaghamy, S, *Reverse Sensitivity-the interface between public and private law in the context of the Resource Management Act 1991*, (1999) LLM Thesis, Auckland University, Nolan, D and Somerville, R "Reverse sensitivity" in *Papers Presented at the NZ Law Society Resource Management Act Update Seminar* (2001) Hamilton;

have viewed it as an erosion of common law rights, in particular of the established principle that claiming the plaintiff came to the nuisance is no defence.[646] They argue that, for instance, a requirement to establish buffer zones on lands other than the established use constitute the grant of de facto rights over that land in favour of the polluter.[647] Not only would this compromise the use of the buffer land, the value of that land may also be reduced without compensation. In response to such concerns other commentators have quoted the Coase theorem and argued that we should not necessarily prefer the rights of the "victim" of adverse effects above the rights of the source of the adverse effect.[648] However the lack of reciprocity in such a relationship creates inequity. That is not to say that the concept of reverse sensitivity does not have a place. Rather, any place it does occupy should be utilised with caution, and with recognition of the consequences upon those against whom it is wielded. Kenderdine J in *Wellington International Airport Limited v Wellington City Council* described the situation in this way:[649]

> …But, like any other "effect," reverse sensitivity needs to be considered in the context of all effects.

In general the concept has been used to protect "key physical resources",[650] such as quarries and ports. The latter two examples are unlikely to cause a serious threat to the integrity of an organic farm. A far greater problem arises where the concept is used to protect those discharging contaminants from agricultural or horticultural activities. In *McQueen v Waikato District*[651] the concept, in one of its earlier expressions, was applied to prevent a nudist camp from receiving resource consent, where the camp would be adjacent to an orchard from which chemical sprays could emanate. Sheppard J held:

> We find that there would be a potential effect on the environment, including people engaged in orchards as part of the ecosystem, of allowing the proposed activity.

Thomas, P, Foster, C and Van Voorthuysen, *Managing Rural Amenity Conflicts* Ministry for the Environment, (2000) Wellington .

[646] Pardy, supra n 662 at 96.

[647] Ibid, 100.

[648] Nolan, supra n 662 at 87.

[649] *Wellington International Airport Ltd v Wellington City Council*, unreported, EC, 19 November 1997, (W102/97) 44.

[650] Nolan, supra n 636 at 79.

[651] *McQueen v Waikato District Council*, unreported, PT, 20 June 1994, (A45/94).

> That effect would be that those orchardists in the vicinity would be restrained from managing their orchards with chemical sprays at the times and in the ways that they might otherwise do, because of the risk of harm to people using the applicant's property for recreation.

The rationale behind this finding appears to relate to zoning and place. The orchardists in the vicinity are fulfilling a legitimate role in a rural zone, whereas the nudist camp is considered recreational. The inferential policy intent aligns with policy in relation to right to farm laws; the need to protect legitimate rural industry. Application of the concept to the organic sector could thereby be distinguished. The organic sector fulfils a role similar to the orchardists. Hence any rationale for protection is weakened. In addition *McQueen v Waikato District* was decided 10 years ago, and is now potentially out of step with general tolerance of spray drift. Most Regional Plans now reflect the change in attitude and regulate spray drift from commercial operations.

As well as offering protection to legitimate industry the concept of reverse sensitivity carries with it the notion of "first in time first in right". The common law rejects this notion as a legitimate defence to an action in nuisance. So too does the RMA to the extent provided by the operation of s 17 in circumstances where the activity is sufficiently noxious, dangerous, offensive, or objectionable so as to constitute an adverse effect on the environment. The notion "first in time first in right" is however recognised by the RMA to the extent consistent with the existing use rights established by ss 10, 10A, 10B and 20A. Existing use rights are used to balance interests between conflicting activities and protect the investment of those who have at some earlier time established the activity lawfully. The right is subject to proof that the activity continues to operate with the same or similar character, intensity, and scale as when initially permitted. Interestingly in terms of discharges,[652] the rights provided by s20A, are less extensive than that offered by the shield of reverse sensitivity, operating via zoning provisions or by way of submission in opposition to resource consent application. Pursuant to s 20A, upon a Regional Plan becoming operative, any protection of a discharge "right" is dependent upon resource consent for the activity being obtained within a period of six months.[653] This contrasts

[652] Section 20A applies to all resources regulated by a Regional Plan..
[653] Section 20A(2).

with the rights afforded to land use activities pursuant to s 10A that are independent of an application for resource consent.[654] The fact that the legislation takes a more restrictive and regulated approach to activities covered by a Regional Plan may underscore the need for caution in the application of the concept of reverse sensitivity with regard to discharges. Such a conclusion is reinforced by the statutory direction contained in s 105(1)(a) to consider the sensitivity of the receiving environment. As stated by Kenderdine J in *Wellington International Airport Limited v Wellington City Council*:[655]

> …the use of the term "reverse sensitivity" should not obscure either of two things. First, it is not a term which is used in the Act or given any particular status. Second, it is no more than a description of a class of effect – the sensitivity of a person quite lawfully creating adverse effects to pressure from people potentially affected by those effects.

Regarding the concept as one which has no special status accords with the ruling of Whiting J, in *Winstones* that situations where full internalisation is not required will be reasonably rare.[656] It has been suggested that where the concept is considered, adoption of the "dominant use" approach may offer a "common sense alternative".[657] The approach would require consideration of what is the dominant use in the area with the result that more weight would be accorded to the concerns of the dominant use. While this approach may be of benefit in some situations, it does not present an attractive option for the organic sector. Such an approach would enable established rural activities to exclude another legitimate rural activity on the basis of arriving first, regardless of the impact of either upon the environment. It tends to accord more importance to recent use, than historical, and to an extent obscures consideration of obligations to future generations. It is an approach that would to a degree entrench the status quo and work against change.

Interestingly in terms of GMO the position is initially reversed. Application of a first in time rule or dominant use approach would likely benefit the organic sector in

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[654] Section 10(1).
[655] *Wellington International Airport Ltd v Wellington City Council*, unreported, EC, 19 November 1997, (W102/97) 44.
[656] *Winstones* (No.1), supra n 612 para 98.
[657] Ghaemaghamy, S supra n 662 at 39, Duncan-Sittlington, E "Rural Amenity Conflicts: Reverse Sensitivity, Existing Use and the Common Law/RMA Interface in the Context of Odour Nuisance-A Case Study" (2003) 5 BRMB.

respect of GMO. Western Australia is likely to take this approach, as is the European Union.[658] Despite its initial attraction, such an approach has its difficulties, particularly as time passes and time lines become obscured. A more certain and enforceable approach is found in a requirement for internalisation.

Conclusion

By application of the purpose of the RMA, activities can be required to avoid adverse effects on the environment. Case law establishes that internalising adverse effects is a method of attaining avoidance and should occur wherever reasonably possibly. Strong justification for avoidance of adverse effects, which would cause decertification of an organic farm, exists within and beyond the RMA. Provided those administering the Act adopt a cautious and restrained approach to allowing exceptions to internalisation of adverse effects, the organic industry will have a good chance of coexisting with its neighbours. In this way all opportunities are preserved, including the opportunities of all to cater for their social, cultural and economic wellbeing.

[658] Supra, 32.

Chapter VIII – Overview: protection of organic farms. The importance of the plan

8.1 The importance of the plan

This thesis has made a number of findings in pursuing its main purpose of examining the extent to which New Zealand law enables effects to be controlled for the purpose of preserving the integrity of an organic farm. Chapter 4 identifies theoretical justification for preserving the integrity of organic farms. Chapter 5 discloses that common law remedies offer a degree of protection to the organic farm, however in order to recover for loss suffered, it is necessary first to overcome the obstacle of being termed a sensitive activity. Application of the evolving concept of known vulnerability may assist the organic farm recovering for loss suffered. The right of recovery is improved where the loss was foreseeable, and in respect of recovery for economic loss in negligence, where the actions of the defendant were illegal. The action of a resource management plan may strengthen the right to recovery by first, making the presence of an organic farm known, through the use of spray plans or map notation, and secondly by making contaminant drift illegal by virtue of a rule in a plan requiring avoidance of contaminant drift. In this way the provisions of resource management plans acquire significance in terms of protecting organic farms at common law.

In their own right however, plans offer a significant opportunity to manage resources and protect the organic farm from the incursion of unwanted contaminants. The analysis in chapter 6 discloses that the RMA has the potential ability to protect organic farms.[659] In particular the use of Regional and District Plans can, and in some cases do, provide a range of measures to assist in preserving the integrity of an organic farm. There is also some prospect for national standards and policies to be promulgated to this end. The research in chapter 7 shows that internalisation of adverse effects so as to avoid effects on vulnerable activities is a measure consistent with the purpose and principles of the RMA. Administering agencies need to recognise potential benefits provided by organic farming methods, and the consequences of failing to afford adequate protection. Pathways that encourage and

[659] Although as noted there are unresolved issues in relation to the use of plans and GMO.

support diversity need to be forged. Internalisation of adverse effects is one such pathway. The organic farming sector needs to recognise the potential protective strength of District and Regional Plans and capitalize upon it. In conclusion, this chapter will discuss practical measures available via resource management plans to offer preservation of the integrity of the organic farm.

8.2 Land use controls

Territorial authorities have primary responsibility for the control of any actual or potential effects of the use, development, or protection of land.[660] Through the mandatory District Plan, controls upon land can be effected by zoning, performance and development standards and plan notation recognising features such as sacred sites or heritage trees. Non-regulatory methods such as education and incentives may also feature in a plan in addition to or in substitution for regulatory controls. Although the control of discharges is not a function of a territorial authority, land use controls in District Plans aimed at segregating or separating conflicting activities, can provide protection for the organic farm.

8.2.1 Zoning

Distinguishing activities by zone is a common technique applied in resource management in order to group like activities, and segregate those that are incompatible. Zoning controls can move beyond mere segregation of activities to contemplate specific environmental protection. In New Zealand, zones that protect distinct ecological areas and landscape are commonplace. Internationally countries are moving ahead to promote the protection of environmentally sensitive areas. Pesticide-free zones are becoming prevalent.[661] Many of the measures are imposed with a view to improving drinking water quality, and the habitats of endangered fish and animals.[662] In some instances the retirement of land receives fiscal support from the

[660] Section 31(1)(b) RMA.
[661] Wossink supra n 638; Danish Ministry of Environment and Energy "Pesticide Action Plan II" [March 2000] <http://www.mst.dk >.
[662] See for instance pesticide-free zones imposed by judicial ruling along extensive waterways on the west coast of the United States to protect threatened salmon and steelhead habitat, reported by Bernton, H in the Seattle Times, August 15, 2003, and Pesticide control regulations in the State of Alaska

Government.[663] Whilst initially attractive as a means of protecting an organic farm from pesticide use, differentiated zoning, such as a pesticide free zone, may also have drawbacks. When considering the issue, it is important to bear in mind the basic attributes of organic farming. Census information shows that organic farming occurs across New Zealand in patterns similar to non-organic farming. Farm location is chosen based on climate, soil type, topography and access to market. Organic farms may be grouped in some situations and dispersed in others. Although pesticide free zones could be beneficial to organic farms if applied widely, they could have an exclusionary effect if applied on a limited basis. In a theoretical situation where pesticide use was uncontrolled in general areas, with specific areas set aside as pesticide free, organic farming would have to operate within the locational limitations of the free zones, or weather the storm in the general zone. If the reverse were promoted with the greater part of a district being pesticide free and with the special zones reserved for chemical use, non-organic farmers would suffer the limitations of a stand-alone zone. Although chemical use is lessening, chemical dependence is unlikely to disappear altogether. Widespread pesticide free zones would deliver to chemical farmers, including those practising IPM methods, a lack of choice similar to that which the organic farmer currently faces. A more flexible option is represented by plans that enable activities to coexist by requiring avoidance of chemical or GMO contamination at the boundary, and this will be discussed in the context of Regional Plans. Such a position is also likely to find favour with export fruit and vegetable growers, where a growing regime requires that a grower use sprays, but export requirements strictly police the presence of inadvertent chemicals. Cross boundary avoidance is the appropriate technique in this situation. In this way the spectrum of farmers represented by chemical, IPM and organic methods, can with care, share the same land resource.

Avoidance of spray or fertilizer drift to a neighbouring property is readily achievable. The draft New Zealand standard recognises this by requiring avoidance of spray drift.[664] The situation is less clear with GMO. GE Free zones could be used on a widespread basis to protect a district or a region from GE contamination. Regions and

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creating pesticide-free areas around any surface or marine water body: http;//www.state.ak.us/dec/deh/pestcomment.htm

[663] Danish Ministry, supra n 661, Wossink, supra n 638 at 14.

[664] Standards New Zealand "Draft Standard for the Management of Agrichemicals - Draft Number: DZ8409" [2003] <http://shop.standards.co.nz/drafts/ .>

districts around the world are exercising this choice.[665] The choice to become GMO free is not however without difficulty. The Provincial Government of Upper Austria intended to create what would be Europe's first statutory GM-free farming zone. The reasons for the zone were the belief that the risks of genetic manipulation were not yet fully researched, and the need to avoid pollution of land with genetically modified plants. Upper Austria is a region with high numbers of organic farmers, a very high ecological culture and has gained international recognition for its organic and GM-free produce. It had been planning with Regions in Italy and in Slovenia to create a large GE free zone. As the creation of the zone ran counter to EU directives on GMO and was in derogation of harmonization measures, Upper Austria was required to notify the national legislation under Article 95(5) of the Treaty establishing the European Community. The European Commission on 2 September 2003, made a decision banning the State from creating the free farming zone, on the basis that no new scientific evidence was available to justify the prohibition.[666] Despite the ruling Upper Austria intends to persist and has given notice that it will take the issue to the European Court of Justice. Although the ruling is no doubt a set back for Upper Austria and those other European districts or regions which have declared themselves GE free, the matter is far from resolved. GMO moratoria continue in Europe in respect of GMO,[667] and the United States has begun a challenge to the World Trade Organisation to have them lifted. The moratoria are viewed by the United States as barriers to trade, as GE free zones could potentially be.

The rationale behind opposing GE Free zones appears to be that opportunities to farm with GMO need to be preserved. It is assumed that controls placed upon the release of GMO will be sufficient to protect the organic farmer. A conservative view of the ability to control GMO does not yet promote full confidence, particularly where the science is new and the risks not yet fully established. It may well be that in time the risks associated with GMO can be fully established and controlled. Nevertheless, it must be sensible to entitle a conservative community or region to seek a higher degree of protection in any interim period. Where an area is characterized by non-GM farms, including organic, which depend upon attaining a GE free standard to trade, the

[665] For example in Europe see: Kruszewska I "Slovenia - A GMO-free zone. The Only Way to Protect Biodiversity and ensure Organic Agriculture can Thrive." [2001] <http://www.anped.org > 35, and in Australia see: < http://www.green.net.au/gefreetasmania >.
[666] The Commission of the European Communities, Commission Decision, 2 September 2003 (2003/653/EC) OJL L230/43.

opportunity to do so should be most carefully preserved. For it is an opportunity that once lost may be difficult or impossible to recover. A GE free zone adds legitimacy to those who produce within it. Provided the zone was not universal it would not operate as a barrier to trade in any way different to the introduction of widespread cultivation of a GMO crop in a given area.

An alternative is the creation of a zone where production of specified types of GMO crops was a prohibited activity. Creating a zone in this manner could exclude crops that would pose a risk of contamination to crops currently and traditionally grown within the area. Internalisation of effects, which cause crop contamination or failure, would be a prerequisite. Although such an approach may pose limitations in respect of potential future crops, it offers greater flexibility. A zone such as this applied on a broad basis could protect non-GMO growers whilst still offering the GM-grower the opportunity to grow alternative crops in the same area. It would more clearly define constraints upon the use of GMO on an area, making enforcement of the provisions less onerous than a blanket ban. The District Plan process is a sensible mechanism for consideration of these issues. Clear pathways for public participation are established and the plan process creates the opportunity for those involved with local resources, and who know them intimately, to shape the use of the resources. The territorial authority, as the agency regulating land use, has ready access to information regarding the characteristics of a district. Using the District Plan to manage GMO, enables a long-term view of all land use and a chance to weigh the interests of all in an equitable manner.

8.2.2 Performance standards and development controls

In addition to zoning, a District Plan can employ a range of mechanisms aimed at reducing land use conflict.[668] A common tool employed via rules in a plan, or pursuant to conditions for a resource consent is a requirement for separation distance between activities where conflict may occur. The separation distance can be achieved via a requirement of set back of buildings from a boundary. Alternatively buffer zones may be used to create space between activities such as forestry or horticulture to

[667] Kruszewska, supra n 663.
[668] For discussion of a range measures available for reducing rural amenity conflict see: Thomas, P, Foster, C and Van Voorthuysen, R *Managing Rural Amenity Conflicts*, Ministry for the Environment, (2000) Wellington, 57 and for managing spray drift see: ATMAC, supra n 513 at 26.

reduce the risk of conflict.[669] Buffer zones may simply constitute spatial separation between activities, or may have the additional protection of vegetative or artificial barriers. Requirements for buffer zones between activities producing contaminants and organic farms will be useful in stemming the threat of contamination. However spatial measures do not necessarily address the specific effects in question, and as such may serve merely to reduce rather than avoid adverse effects. Where physical separation measures are used, the integrity of the organic farm will be more securely preserved if supported by a rule in a Regional Plan requiring avoidance of contamination by agrichemical or GMO drift.

Buffer zones can shield and protect the organic farmer. Many will choose to erect their own forms of shelter to protect produce. Non-organic farmers also grow shelterbelts to protect their own crop from the elements. That in turn has the added advantage of reducing liability in terms of a claim for damage from spray drift. However, there may be situations where shelterbelts or artificial barriers are unnecessary and unwanted due to shading and moisture loss impacts. A requirement for avoidance of spray drift in a Regional Plan, without requirement for buffer zones in either plan, offers flexibility. The farmer applying the contaminants remains under an obligation to avoid spray drift, but retains the ability to choose the method of avoidance. Another option is for the District Plan to detail alternative methods of spatial separation, any of which would constitute a permitted activity. In terms of protecting the organic farm, the most important issue is the internalisation of the adverse effect, how this is done, whilst important is not critical. Furthermore, reliance upon the Regional Plan reduces the impact of an existing use right argument by virtue of the operation of s 20 as opposed to s 10.

Where Plans do require separation, in order to secure Outcome 1, the requirement for separation should fall upon the activity creating the effects. This is consistent with the Polluter Pays approach, and with underlying property rights. Consistent with the theory of outcome responsibility, any obligation is strengthened where the damage is avoidable and the loss foreseeable.

The measures examined thus far have been introduced as mechanisms to protect organic farms. District Plans may also include provisions that work counter to the interests of organic farms. Provisions that protect existing activities from reverse

[669] See for example Proposed Tasman District Resource Management Plan, 2002, Rule 17.4.8.

sensitivity effects are one example. Generally such provisions are applied to prevent sensitive activities locating in the vicinity of an activity that is unable to contain adverse effects. Policies, objectives and methods allied to this intent have the ability to seriously constrain the location of organic farms, with or without the specific intention of so doing. In terms of sustainable management of the land resource a better option is represented by requirement for internalisation of effects.

8.2.3 Notice

A final matter of importance in relation to territorial authorities is the issue of notice. Knowledge of the existence of an organic farm is a critical prerequisite in terms of managing the resource. At common law knowledge of a vulnerable activity is vital in terms of foreseeability, avoidability and also in relation to contributing to a defendant's state of mind in terms of causing appreciable harm. In practical terms, lack of awareness of an organic farm's presence has implications for neighbouring farm practices, and also in relation to government pesticide applications. Notice of presence may also impact upon plan preparation and the grant of resource consents. The organic industry has long recognised the importance of notice, and standards reinforce the need to give notice to neighbours. However as the industry grows and the potential for conflict intensifies, so does the need for an effective, comprehensive and accessible means of identifying organic farms. Territorial authorities have the capability in conjunction with Regional Council to establish a register of organic farms, or vulnerable activities. This information could be noted on plans, via a schedule in a similar manner to that commonly used for protected trees. Geographical Information Systems could be used to collate and access the data. In addition, the information could be made available pursuant to Land Information Memoranda issued pursuant to the Building Act 1991. A comparable approach has been applied to contaminated sites in the Waikato Region. A register would greatly benefit integrated management of the resources of a district or region, and would act as additional protection for the organic farm.

8.3 Regional Plans

Land use controls, via a District Plan can provide measures to arrange the location of activities so as to reduce or avoid conflict. To control the specific effects which

threaten the organic farm requires the intervention of the Regional Council via a Regional Plan. A Regional Council may prepare a Regional Plan in response to any of its functions, including control of discharges or water. The desirability of preparing a plan should be considered in a range of circumstances, including whether there exists any significant conflict between the use, development, or protection of natural and physical resources or the avoidance or mitigation of such conflict.[670] It is common for Regional Plans to consider agricultural point source and non-point source discharge. Regulation of spray drift occurs in the majority of Regional Plans.[671] A close analysis of these provisions reveals that some are more likely to secure Outcome 1 for the organic farmer than others.

8.3.1 Avoidance

The best option for achieving Outcome 1 is represented by a plan that requires that there be no discharge into the air of sprays beyond the boundary of the premises where the activity is currently being undertaken.[672] This approach requires the avoidance of the effect of spray drift by requiring internalisation, and could equally apply to GMO contaminant discharge. *The Proposed Auckland Regional Plan: Air Land and Water*[673] requires internalisation as a condition to a general permitted activity rule in relation to discharge to air of agrichemicals.[674] The Plan records that this approach relies strongly on the provisions of NZS 8409:1999 (Code of Practice for the Management of Agrichemicals, which like its draft successor, requires the avoidance of spray drift. Extensive consultation with industry and other stakeholders is a reason given in the Plan for the adoption of the Code.[675] Other plans adopt a similar requirement,[676] whilst some require avoidance where the drift would impact upon a vulnerable activity such as a school or organic farm.[677]

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[670] Section 65(3)(a).
[671] ATMAC, supra n 513 at 28.
[672] This approach will also contribute to recovery in negligence for economic loss, by rendering all drift illegal.
[673] Proposed October 2001.
[674] Rule 4.5.1.
[675] Auckland Regional Council, *Proposed Auckland Regional Plan: Land Air and Water* (October 2001) 4.1.10.
[676] ATMAC, supra n 513 at 28.
[677] Nelson City Council, *Proposed Air Quality Plan* (August 2003) AQ7.1 (g), and Waikato Regional Council, *Proposed Waikato Regional Plan as Amended by Decisions* (February 2002) Policy 6.2.3 and Rule 6.2.4.9.

8.3.2 Provisions for vulnerable activities

For organic farmers the strongest approach is that represented by a requirement for full internalisation of all contaminant discharge that would result in decertification of an organic farm. Special provisions for vulnerable activities, whilst better than nothing, can be complicated in terms of interpretation and enforcement. Some of the definitions of an organic farm are restrictive[678] and exclude farms beyond the definition. The Waikato Regional Plan, whilst offering greater protection than some, permits a discharge of agrichemicals to the air by widespread application, provided no significant adverse effect of off target drift occurs beyond the boundary of the property being sprayed.[679] Significant adverse effect is defined to include:[680]

> iii) damage to crops and other plants to the point where the agrichemical has affected the growth and quality of the crop, or contaminates the crops to levels where residues exceed limits for safe human consumption.

Difficulty with this definition arises where drift residue exceeds organic Standards, but is within general tolerances. Organic farmers would need to prove that the *quality* of their organic crop has been damaged. This could be the subject of argument, especially as the provision continues to expressly contemplate and render non-permitted, situations where the *general* residue level has been exceeded. Where a provision in a plan is unclear, a court may look at related objectives, policies and methods in determining the meaning.[681] It may even go beyond the Plan to look at the general purpose and scheme of the Act that authorized the provision. The Proposed Plan shows an intention to provide protection from spray drift for sensitive activities.[682] Certified organic farms are explicitly contemplated as a sensitive area.[683] It may be of assistance that the policy expresses an intention to protect certified organic farms, but other related statements obscure this intention by the stating that not all off-target effect need be avoided, only those which are significant adverse

[678] Nelson City Council, ibid, AQ7.1 (g).
[679] Waikato Regional Council, supra n 677 at Rule 6.2.4.9.
[680] Ibid, 6.2.3.
[681] *MacKenzie District Council v Glacier v Southern Lakes Helicopter*, unreported, EC, (C083/97).
[682] Waikato Regional Council, supra n 677 at Policy 3 and associated explanation.
[683] Ibid, Policy 3(g)

effects.[684] The ambivalence expressed in the plan weakens the protection that it avowedly intended to provide.

Reliance upon the definition of significant adverse effects may, but does not automatically, provide protection for farmers whose organic *crops* are subject to spray drift. It is even less likely to provide protection where livestock is subjected to spray drift so as to cause decertification. To qualify as a significant adverse effect it would be necessary to prove death or illness of fauna.[685] In cases of spray drift relating in decertification, this may be difficult to prove. The limitations of such provisions are mitigated to a degree by associated requirements for applicator training, notification, adherence to Code of Practice requirements and spray plan and record keeping requirements.[686] Clearer protection for the organic farmer would be provided by a straightforward rule to avoid, tied to similar implementation measures.

A separate but related issue is whether or not the rules capture fertilizer drift within agrichemical drift. Some definitions of agrichemical in plans include fertilizer, whilst others do not. For the organic farm the consequences of contamination by a prohibited input are the same, whether fertilizer or pesticide by origin. Initiatives to control fertilizer applications via a Regional Plan are becoming more common.[687] Any rule which controls rates of application, timing and method of application and creates buffer zones around waterways is likely to assist in restricting contamination of an organic farm by aerial drift and via contamination of waterways.

Strong, clear rules in a Regional Plan controlling contaminant discharge benefit not only the organic sector, but also other farming producers and the natural environment in general.

Final Conclusion

The protection of organic farms is a matter of contemporary importance. This thesis discloses strong justification in principle for laws that preserve the integrity of an organic farm. The RMA is a regulatory means by which effective protection can be obtained against the threats represented by agricultural contaminant discharge. A

[684] Ibid, Policy 3 and associated explanation.
[685] Ibid, 6.2.3.c.v.
[686] Ibid, 6.2.4.9.
[687] See for instance Auckland Regional Council, *Proposed Auckland Regional Plan: Land Air and Water* (October 2001) 5.5.38 Agrichemical and Fertiliser Use.

District Plan through zoning and performance measures can segregate conflicting activities. Rules in a Regional Plan aimed at avoiding contaminant discharge effects are critical to preserving the integrity of an organic farm. As such they will also enhance a right of recovery for pure economic loss at common law. To be fully effective in terms of promoting integrated management of natural and physical resources the ability of the RMA to regulate GMO should be unfettered. In this way we can hope for a future where all opportunities are truly preserved.

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