

**Auckland Council, Far North District
Council, Kaipara District
Council and Whangarei District Council**

**Draft
Proposed Plan Change to the
District / Unitary Plan**

**Managing Risks Associated with Outdoor
Use of Genetically Modified Organisms**

Draft Section 32 Report

January 2013

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VOLUME 2 - SUPPORTING DOCUMENTATION TO THE SECTION 32 REPORT

- Community Management of GMOs: Issues, Options and Partnership with Government. Simon Terry Associates, March 2004.
- Community Management of GMOs II: Risks and Response Options. Simon Terry Associates and Mitchell Partnerships, May 2005.
- Community Management of GMOs III: Recommended Response Option. Simon Terry Associates and Mitchell Partnerships, September 2010.
- Colmar Brunton Genetically Modified Organisms - Survey Results for Aggregated Northland Area, November 2009.
- Colmar Brunton Genetically Modified Organisms - Survey Results Prepared for Auckland Regional Council, November 2009.
- Letter from Working Party to Minister for the Environment, December 2006.
- Response from Minister for the Environment to the Working Party, March 2007.
- Letter from Working Party to Minister for the Environment, June 2010.
- Response from Minister for the Environment to the Working Party, August 2010.

1. INTRODUCTION

1.1 Scope and Purpose of the Report

This report has been prepared by the Auckland Council, Far North District Council, Kaipara District Council and Whangarei District Council (“**the Northern Councils**”) to fulfil the statutory requirements of section 32 of the Resource Management Act 1991 (“**RMA**” or “**the Act**”). The report relates to the proposal to introduce new provisions via a Plan Change to the Northern Councils’ respective District / Unitary Plan, to manage outdoor activities involving genetically modified organisms (“**GMOs**”).

Section 32 of the Act requires that before adopting any objective, policy, rule or other method, the Council shall have regard to the extent to which each objective is the most appropriate way to achieve the purpose of the Act, and whether the policies, rules or other methods are the most appropriate for achieving the objective. A report must be prepared summarising the evaluation and giving reasons for the evaluation. This report is an evaluation of the “*Proposed Plan Change to the District / Unitary Plan – Managing Risks Associated with the Outdoor Use of Genetically Modified Organisms*” (“**Plan Change**”) as required by section 32 of the Act. It should be read together with the text of the Plan Change. The Plan Change applies to proposed provisions for land use and for activities in the Coastal Marine Area (“**CMA**”).

For the purposes of the Plan Change, the “Northern Peninsula” is defined as the geographic area from the southern boundary of the Auckland Council to the northern tip of New Zealand.

As the risks associated with the outdoor use of GMOs are not constrained by jurisdictional boundaries a unified approach from all Northern Councils provides an optimal framework. However, individual councils are able to tailor the generic provisions to their specific District / Unitary Plan, and particularly with regard to ensuring that the generic provisions give effect to, or address the absence of, provisions of the relevant Regional Policy Statement.

This report (and the accompanying Plan Change) outlines the mechanisms proposed by the Northern Councils in respect to managing risks associated with the outdoor use of GMOs, including in the CMA. The next step to inserting the Plan Change provisions governing GMO activities into the relevant District / Unitary Plan is targeted consultation and discussion with key interest groups and the community. Feedback received during consultation will assist the Northern Councils in refining the Resource Management Issue, and in determining the appropriateness, costs and benefits of the Plan Change.

This section 32 report is a working draft. It will continue to be refined and adjusted in relation to any consultation that occurs, or in relation to any new information that may arise. It will be finalised at the time a Plan Change or a Notified Proposed Plan is formally introduced.

1.2 Development of the Plan Change

The Plan Change has been progressively developed over the last 10 years. During this time community concerns over the potential use of GMOs in the Northern Peninsula have been demonstrated through numerous submissions on annual plans,

Long Term Council Community Plans (“**LTCCP**”), Long Term Plans (“**LTPs**”), district plans, and a 7,000 plus signature petition to Whangarei District Council in 2001/2002 which called for “*Whangarei District and environment to be free of any genetic engineering trials or crops grown within our district*”. In addition, tangata whenua have expressed on-going concerns over genetic engineering in iwi/hapu management plans and other forums. A comprehensive Colmar Brunton survey of community attitudes to GMOs commissioned by Northland and Auckland councils in 2009 revealed significant community concern over GMOs in the environment and support for local/regional management of GMOs in the Northern Peninsula.

As a consequence of on-going community concerns, all councils in Northland and three in the Auckland Region (prior to November 2010 amalgamation) included policy statements in their LTCCPs/LTPs¹ that provided for a precautionary approach to the use of GMOs in the environment.

Local authorities in the Northern Peninsula responded to community concerns about GMO use by forming an Inter-council Working Party on GMO Risk Evaluation and Management Options (“**the Working Party**”) in 2003². The focus of the Working Party is to evaluate risks to local bodies and their communities in the Northern Peninsula from the outdoor use of GMOs, together with response options to those risks, including regulation of GMO land and water uses under the RMA.

As part of its investigations, the Working Party commissioned a series of reports to investigate the nature and extent of risks local authorities could expect to face from outdoor activities involving GMOs, and the response options available to address those risks. The reports and results of the Colmar Brunton survey commissioned form part of the section 32 evaluation and should be read in conjunction with this section 32 report. They are provided in Volume 2 to this document and include:

- *Community Management of GMOs: Issues, Options and Partnership with Government.* Simon Terry Associates, March 2004.
- *Community Management of GMOs II: Risks and Response Options.* Simon Terry Associates and Mitchell Partnerships, May 2005.
- *Community Management of GMOs III: Recommended Response Option.* Simon Terry Associates and Mitchell Partnerships, September 2010.
- Colmar Brunton Genetically Modified Organisms Survey, aggregated results prepared for the Northland Area and Auckland Regional Council.

The first report (Simon Terry Associates, 2004) investigated options for local authority management of GMOs. The second report commissioned (Simon Terry Associates and Mitchell Partnerships, 2005) examined in detail risks to local authorities and communities from outdoor use of GMOs and response options to manage those risks. It also recommended a joint community consultation programme as the next stage in the GMO evaluation process, to ascertain the level of risk the community was prepared

¹ The Far North District Council, Whangarei District Council, Kaipara District Council, Northland Regional Council, Rodney District Council, Waitakere City Council (“GE free in field and food”) and Auckland Regional Council.

² The Working Party initially comprised the Far North District Council, Kaipara District Council, Rodney District Council, Whangarei District Council, Waitakere City Council, Northland Regional Council and Auckland Regional Council. Auckland City Council and North Shore City Council were observers on the Working Party. Following the amalgamation of Auckland Regional Council and the seven previous city/district councils in 2010, the new Auckland Council became a representative on the Working Party.

to accept in respect to GMO use and whether regulations in respect to the management of GMOs should be set (and in what form) at the local level in addition to national level regulation.

The third report (Simon Terry Associates and Mitchell Partnerships, 2010) extended the earlier research by examining options available to councils under the RMA for managing the outdoor use of GMOs and identified a preferred response option (via a plan change).

The reports commissioned by the Working Party, and the results from the community survey undertaken (as recommended in the second report and detailed in Section 2.4 of this document) informed the development of the Plan Change and this section 32 evaluation.

1.3 Structure of the Report

This report has been prepared to meet the evaluation requirements of section 32 of the RMA and is set out in six sections as follows:

Section 1: This introduction.

Section 2: Provides a background to the rationale for the Plan Change, including outlining the potential use of GMOs in the Northern Peninsula, benefits and risks associated with the outdoor use of GMOs, identifies gaps in the national regulatory regime for GMOs and the absence of assurance of a precautionary approach, and outlines community opinions in respect to outdoor GMO use.

Section 3: Describes the scope of the Plan Change and defines the significant Resource Management Issue.

Section 4: Provides an evaluation of the Plan Change against the RMA and the section 32 legislative framework.

Section 5: Outlines the next steps recommended to progress the Plan Change and this draft section 32 report.

Section 6: Is the conclusion.

2. GENETICALLY MODIFIED ORGANISMS

2.1 Introduction

Genetic modification (“**GM**”) refers to a set of techniques that alter genetic makeup by adding, deleting or moving genes (within or between species) to produce new and different organisms. GMOs are products of genetic modification. Another term often used to refer to the same technique is genetic engineering (“**GE**”).

A wide range of GM products are being researched and developed for commercialisation. While the GMOs commercialised to date are in general directed at reducing harvest losses by combating pests and viruses, research into future varieties is attempting to considerably widen the scope of GM uses. This includes improved growth in plants, improved tolerance to environmental conditions and creating entirely new products and sectors of economic activity in agriculture, horticulture, plantation forestry, dairying, aquaculture and medicine.

GM techniques have been in wide use in laboratory-based research in New Zealand since the 1980s. The techniques are used by research institutes, private companies, universities and medical organisations primarily to:

- Identify genes and understand their functions.
- Investigate pests and diseases in animals and plants.
- Understand, diagnose and treat human disease.
- Investigate the control of environmental problems.
- Teach and educate future users of GM techniques.

New Zealand also conducts research into the social and environmental impacts of GM.

Most GM use in New Zealand is in contained environments, such as laboratories, and it is predominantly used as a tool for research. At present there are no GM crops grown commercially in New Zealand and only two field trials operating.³

Pastoral farming, horticulture and forestry are the predominant land uses in the Northern Peninsula, and are major contributors to the local economy. Aquaculture is also a rapidly growing industry with the Northern Peninsula due to the area’s extensive coastline, isolation from heavily populated and polluted areas (particularly north of the urban Auckland area), temperate climate and high water quality. The Northern Peninsula is an ideal area for growing seafood and further development of the aquaculture industry is expected in the future. Therefore it is anticipated that GMO developers will consider the outdoor use of GMOs in the Northern Peninsula that relate to these activities. Potential GMO activities of relevance include GM food crops, trees, grasses, animals and pharma crops, but exclude research within contained laboratories involving GMOs, medical applications involving the manufacture and use of GM

³ Trials are being conducted by Scion (a Crown Research Institute) involving two species of pine and with a focus on herbicide tolerance, reproductive traits, growth and quality traits, while AgResearch has approval to conduct experiments on nine different types of pasture animals and is mostly trialling GM cattle for a range of potential attributes and uses.

products, and food containing GM products that are not viable. Field trials and outdoor releases to the environment are the focus of the Plan Change.

2.2 Benefits and Risks

This section outlines the benefits and risks associated with the outdoor use of those types of GMOs which could be subject to approval under the Hazardous Substances and New Organisms Act 1996 (“the HSNO Act”) and could be trialled or released within the Northern Peninsula. Potential risks are addressed in more detail than benefits as benefits do not influence the design of mechanisms to manage GMOs to the same extent that risks do.

2.2.1 Benefits

As outlined, the Northern Peninsula’s main land- and water-based industries are dependent upon the productive and environmental characteristics of a range of plants and animals. GM is one of the techniques available to change the existing characteristics of plants and animals, and carries the potential to improve productivity in agriculture, horticulture, plantation forestry, aquaculture and medicine.

Research and development into GMOs and associated benefits that could be used outdoors in the Northern Peninsula includes:

- Increased productivity in plants and animals, including forage grasses, horticulture produce, trees, cattle and fish.
- Environmental management and pest control.
- Biopharming⁴.

Details of the benefits and risks associated with the outdoor use of GMOs are contained in Simon Terry Associates (March 2004) and Simon Terry Associates and Mitchell Partnerships (May 2005) (Appendix 1) and are summarised below.

Increased Productivity in Plants and Animals

The scope of GM research being undertaken with the objective of enhancing the productive capacity of plants and animals, or to produce new products or varieties, includes the following:

- Grasses research targeting cultivars that produce more biomass, have better resistance to drought, or result in lower greenhouse gas emissions. These would be principally intended for use in the dairy sector.
- Research on GM trees investigating the modification of genetic traits of trees such as *Pinus radiata* to improve wood quality and develop herbicide resistant trees (reducing use of toxic chemicals and potentially reducing the number of times a crop needs to be sprayed). A focus on breeding for resistance to diseases is also developing.

⁴ Biopharming is a sub-sector of the biotechnology industry that involves the process of genetically engineering plants so that they can produce certain types of proteins. The proteins can then be harvested and used to produce pharmaceuticals.

- Research on a range of horticultural crops is ongoing with the aim of developing varieties that are pest or herbicide resistant, have enhanced growth or storage characteristics, and are tolerant of a wider range of environmental conditions (for example, drought).
- The development of transgenic⁵ cattle has a range of focuses, from higher performing animals to deriving new specialist milks (such as those that are hypoallergenic).
- GM salmon are a focus of research in the United States and were experimented with in the Marlborough Sounds in the 1990s. Research targets include temperature and disease resistance, along with increased body mass.
- New hormones, vaccines and diagnostic products for sheep using GM techniques, and the development of transgenic sheep modified to produce greater amounts of wool.

Environmental Management and Pest Control

Scientists at Landcare Research and Massey University are using GM technology in the laboratory to assist in the protection of endangered and other native animal species, including the kakapo, kiwi, tuatara, and black and bush robins. The GM technology is used in a variety of ways, including assessing the genetic variation between species for taxonomic (classification) purposes.

GM is also being investigated for pest control, including:

- Research using genetically modified bacteria from the gut of wasps to produce a toxin that could kill wasp species.
- Possum control with GM carrots that deliver an oral contraceptive that results in infertility in female possums. Plants, bacteria or nematode parasites could then be genetically modified to produce possum-specific 'infertility proteins' so that the growth of the possum population is halted.
- Releasing sterile blowflies which will mate with fertile females and ensure they cannot lay any eggs. This could provide an environmentally friendly way of controlling flies that cause sheep strike.

Biopharming

In the United States, investment in plant biopharming is being made on the basis that plants, including GM varieties, will prove capable of reproducing certain pharmaceutical and industrial substances at costs lower than alternative production routes. This application of GM techniques is still at an early stage of development but will ultimately increase the range of potential GMOs that developers may wish to cultivate in the Northern Peninsula. These include GMOs that produce pharmaceutical proteins (so-called pharma crops) and GMOs that provide the raw feedstock for industrial uses (such as biofuels and plastics). An example of such an application in the outdoor developmental stage is corn that produces proteins for a vaccine to combat porcine transmissible gastroenteritis (in field trial phase in the United States).

⁵ Produced from a genetically manipulated egg or embryo.

2.2.2 Risks

GM is one of a number of applied biotechnology techniques that together are forecast to offer benefits in many sectors (as outlined above). However, there are risks (both known and unknown) and scientific uncertainty with respect to GM techniques. These risks could be substantial and certain consequences irreversible. GM is a relatively new and fast developing technology and its effects, particularly over the long term, are not completely understood. There is a lack of scientific certainty and/or agreement over many issues relating to GMOs ranging from the safety of GM food products to long term environmental effects and effects on ecosystems and ecological processes from releases of GMOs into the environment.

Sources of risk from the outdoor use of GMOs in the Northern Peninsula include:

- Economic risk through accidental or unintentional migration of GMOs resulting in GMO contamination appearing in non-GM crops/species.
- Environmental risks such as adverse effects on non-target species, invasiveness of GM plants and altered gene transfer.
- Cultural effects arising from the mixing of genes from unrelated species, ecological effects, threats to the integrity of nature, and adverse effects on mauri, whakapapa and tikanga involving kaitiakitanga.

These are summarised below.

Economic Risks

The key economic risk associated with the outdoor use of GMOs is economic damage through trace GM contamination appearing in non-GM crops and/or species beyond a GMO operator's boundary (termed "spillover" effects).

Specific risks (both real and perceived) that are capable of causing economic damage associated with GMO contamination in the Northern Peninsula include:

- Market rejection and loss of income from:
 - An individual company's product due to trace GM contamination.
 - One type of product from a region or country due to trace contamination from a GM product.
 - One type of product from a region or country due to concern about inability to separate GM and non-GM products.
 - Perceived contamination of a non-GM product.
- Negative effects on marketing and branding opportunities, including to regional initiatives such as the "Naturally Northland" brand, and to tourism.
- Costs associated with environmental damage, such as clean-up costs for invasive weeds and pests in reserves, parks, open space and the CMA.
- Opportunity costs (i.e., foreclosure of future options for organic or conventional farming).

High levels of consumer resistance to GM foods in Europe and the wealthier Asian nations such as Japan and Korea, has led to market rejection of conventional foods due to trace GM contamination. Major food retailers and manufacturers in Europe and Asia have responded by adopting GM free sourcing policies, and there is a trend towards greater labelling of foods for the use of GM feed in the production of meat and dairy goods.

Market resistance to GM produce has had major economic impacts. For example, within a few years of introduction of GM crops, almost the entire \$300 million annual United States maize exports to the European Union (“EU”) and the \$300 million annual Canadian rape exports to the EU had disappeared. In 1996 GM canola was introduced in Canada and two years later CAD\$300 - 400 million of annual sales to Europe ceased. Similarly, GM contamination of pollen has resulted in lost markets for Canadian Honey.⁶

The scale of potential financial loss resulting from trace or perceived contamination can be substantial and potentially irreversible. For example, in 2003 a Japanese pizza maker rejected corn which routine testing showed to have 0.05% trace contamination (probably from seed stock). The Gisborne based company, Sunrise Coast, which supplied the corn product estimated losses in the order of \$500,000. For organic farmers, GM contamination means that the produce cannot be sold as organic and lower returns must be sought in alternative markets.⁷

More examples of economic harm associated with GMO contamination are detailed in *Community Management of GMOs II: Risks and Response Options*, (Simon Terry Associates and Mitchell Partnerships, 2005) provided in Volume 2 to this report.

Environmental Risks

Research into potential environmental effects of GMOs is limited due to the relative newness of the technology, the limited range of GMOs that have gained commercial approval, and gaps in research and monitoring information. Based on the current state of knowledge, and noting that the potential for, and consequences of, environmental effects will vary in magnitude and significance depending on the organism, GM trait and the receiving environment, key potential environmental risks associated with the outdoor use of GMOs in the Northern Peninsula include:

- Effects on non-target species (plant, animal or microbial) - either directly by harming or killing the organism, or indirectly through the food web affecting organisms that are not directly exposed to the GMO. Overseas research has found that BT insecticide producing crops have had toxic effects on non-target insect populations including butterflies, and beneficial pest predators such as ladybirds and lacewings⁸. Similarly, a government trial in the United Kingdom found that the cultivation of GM herbicide resistant crops reduced wildlife populations and damaged biodiversity⁹.

⁶ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, p. 13.

⁷ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, p. 13.

⁸ Antoniou M, Robinson C, and Fagan, J. *GMO Myths and Truths: An evidence-based examination of the claims made for the safety and efficacy of genetically modified crops*. June 2012, Earth Open Source, UK: 51-52.

⁹ Antoniou M, Robinson C, and Fagan, J. *GMO Myths and Truths: An evidence-based examination of the claims made for the safety and efficacy of genetically modified crops*. June 2012, Earth Open Source, UK: 84.

- Invasiveness - increased persistence, invasiveness and competitiveness of GMOs with existing native or exotic plant species which could alter population dynamics and ecological balances.
- Rare events - an incident that introduces consequences or effects of a disastrous magnitude in circumstances where little was known about the risk in advance. For example, the emergence of bovine spongiform encephalopathy (“**BSE**”) in United Kingdom cattle when it was not considered possible for the disease to transfer to humans through consumption of meat products.
- Development of herbicide or pesticide resistance creating “super-weeds” or “super-pests”. Overseas experience with GMOs has resulted in the development of herbicide tolerant volunteers and weeds. There are now GM herbicide tolerant canola varieties being grown commercially in North America which are resistant to three different herbicides. Hybrids of canola and weed species containing two herbicide tolerant transgenes have also been identified¹⁰.

It is noted that unintended environmental effects may only manifest later, being triggered by different environmental conditions, and that new generations of GMOs will increase the levels of unpredictability of ecological risks associated with current GMOs as they will differ markedly from the properties of known crops/species that form the baseline for current risk assessment. There is also uncertainty with respect to the effect of GMOs on soil ecosystems and effects arising from the use of plants to produce pharmaceuticals and other materials.

More examples of environmental effects associated with GMO contamination are detailed in *Community Management of GMOs II: Risks and Response Options*, (Simon Terry Associates and Mitchell Partnerships, 2005) provided in Volume 2 to this report.

Socio-cultural Risks

Cultural beliefs and attitudes are informed by and defined through knowledge systems (sciences, including ecology, agriculture and medicine, and technologies), spiritual beliefs and relationships (rights and responsibilities) to other human beings and cultures, and to the non-human world.

In that regard, the potential range of socio-cultural impacts (whether positive or negative) arising from the outdoor use of GMOs encompasses a wide terrain, including environmental and public health, ethics and social justice and they may be far-reaching in their effects on a community, its practices, future opportunities and relationship with the world (human and non-human).

The cultural effects associated with the outdoor use of GMOs in the Northern Peninsula have most clearly and consistently been raised by Māori. This is unsurprising as Māori make up a considerably greater proportion of the population in Northland than is represented nationally¹¹. While there is no single Māori view on GM, cultural concerns

¹⁰ Antoniou M, Robinson C, and Fagan, J. *GMO Myths and Truths: An evidence-based examination of the claims made for the safety and efficacy of genetically modified crops*. June 2012, Earth Open Source, UK: 74-76.

¹¹ For example, in the Far North District 39.6% of population identify as Māori, 23.6% in Whangarei District and 21% in Kaipara District, compared with 14% nationally (Census 2006).

consistently expressed by the majority of Māori in Hui, surveys and in Māori institutional policy on GM include:

- Transgenics (breaking down of species barriers and mixing of genes from unrelated species) is a breach of the integrity of species and an offence to whakapapa.
- A breach of whakapapa is the resulting harm to the environment or community health, resulting in local iwi feeling they have failed to fulfil their duties as kaitiaki.

Overseas experience in countries that have adopted GMO production has sometimes resulted in a number of adverse social and cultural effects. For example, some farming communities in parts of North America have experienced serious social and cultural effects from GM contamination, resulting in widespread and on-going litigation over liability and compensation for loss of income, loss of market premiums and patent infringements. This has affected all levels of the industry (farmers, seed suppliers, manufacturers, exporters, retailers, consumers and the major biotech companies), and fragmented the farming community.¹²

The introduction of high tech, GM industrial farming into small third world farming communities has had a profound effect on the social mores and cultural values and traditions of farming in those countries. For example, in India the introduction of GM crops, mainly cotton, and the high price of seed and licensing, along with the necessity of purchasing new seed each year, has pauperised many farmers.¹³ The practice of saving seed in developing countries is ingrained in their farming practices and farming culture and is often essential to economic survival. Having to purchase new seed every year along with an annual licence fee to foreign biotech companies is a profound change of farming practice and farming culture. Moreover sharing GM seed is prohibited under licencing arrangements and can result in prosecution through the courts.

2.3 Risk Management and Precaution

The use of GMOs is controlled at the national level by the HSNO Act. It establishes the legal framework for assessments by the national regulator, the Environmental Protection Authority (“EPA”). The EPA is responsible for regulating all research, development, importation, field testing and release of GMOs, and must hold public hearings on any applications to field test, conditionally release or release a GMO.

The HSNO Act sets minimum national standards against which proposed GMO activities are to be judged, and provides for the EPA to set conditions specific to approved GMO activities once it has weighed the costs and benefits. However, neither the HSNO Act nor any government policy statements provide meaningful guidance as to how high level provisions in the HSNO Act are to be interpreted nor the outcomes expected.

¹² Warwick H, Meziani G. *Seeds of Doubt: North American Farmers experiences of GM Crops, Soil Association*, UK 2002. Saskatchewan Organic Directorate, presentation to the Canadian House of Commons, standing committee on agriculture and agri-food, 29 January 2002.

¹³ Doherty A, Lopez Villar J, Freese B (eds) *Agriculture and Food: who benefits from GM crops – an analysis of the global performance of GM crops (1996 – 2006)*. Friends of the Earth International, January 2007: 42-54.

The HSNO Act and the EPA methodology that derives from it make many important features subject to their discretion. Those sections that focus on the actual evaluation generally require that the EPA only “take into account” and “consider” a variety of matters.¹⁴ There are thus remarkably few limitations on the outcomes the EPA can deliver.¹⁵

The lack of surety over the outcomes that the EPA will deliver is especially important with respect to the degree to which precaution will be exercised. The precautionary principle was devised essentially as a response to analysis of the long-term effects of certain substances and organisms that had demonstrated alarming adverse effects that were unforeseen when first approved.¹⁶ The wording that has been the basis for most of the international agreements incorporating the precautionary principle in law is that established at the Rio Earth Summit in June 1992, and specifies:¹⁷

“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.”

However, the HSNO Act does not embrace the precautionary principle, nor does it mandate that the EPA be precautionary. Instead, as the regulator itself states with respect to section 7:¹⁸

“The wording in the Act is very permissive, such that the [EPA] would be acting lawfully in deciding that caution was not warranted, provided it explained why. In practice, the [EPA] has generally exercised caution.”

Precaution is thus an option for the EPA, not a requirement, and if it is utilised, there is still uncertainty over what level of precaution will be adopted.

The wide uncertainty of outcome posed by the HSNO process raises difficulties for councils given their LGA responsibilities, including those relating to the LTPs. As Local Government New Zealand has noted:¹⁹

“It is not apparent how the management framework outlined within [HSNO] will allow communities to preserve the opportunities they have identified, and agreed to pursue, as part of their own strategic goals. For example, a district (or a grower association) may wish to brand and market its grapes, wine, oranges, apples, lamb, milk, cut flowers or other crop or produce as GE Free.”

The core issue is a community’s tolerance for risk. There is no objective standard as to what is a correct level of risk as it is not an objectively determinable factor. However, as communities are the ultimate risk bearers, a council will look to ensure it can meet standards indicated by its constituents – rather than leave outcomes as uncertain.

¹⁴ The notable exception is section 36. This requires that if a release would be “likely” to cause “significant” harm to the environment or human health, it may not be made. As it is difficult to imagine responsible decision-makers approving a release which they thought at the time was likely to cause significant harm, it is also difficult to view this as a strong bottom line.

¹⁵ See Sustainability Council *Submission in Respect of Revisions to the ERMA Methodology* (October 2003).

¹⁶ See Parliamentary Commissioner for the Environment *Key Lessons from the Long History of Science and Technology: Knowns and Unknowns, Breakthroughs and Cautions* (2001), and Colborn, T., Dumanoski, D. and Peterson Myers, J. *Our Stolen Future* (1996), Penguin Books.

¹⁷ Principle 15 of the Rio Declaration on Environment and Development, to which New Zealand is a signatory.

¹⁸ ERMA (2002) *Approach to Risk*, p. 3.

¹⁹ LGNZ (2003) *Submission to Parliament with respect to the New Organisms and Other Matters Bill*, p. 8.

Even when there is a common understanding on appropriate risk levels, a further issue highlighted by local government is the potential for councils and their constituents to suffer financial and economic costs as a consequence of outdoor GMO activities. Under the HSNO Act, an agent using GMOs is not financially liable to cover costs resulting from a GMO activity, as long as it abides by the conditions of an EPA approval.

Common law actions will very rarely be an effective remedy so affected parties will tend to bear any losses arising from unexpected events and ineffective regulation of GMOs. While economic damage resulting from GM contamination will, in the first instance, fall on individual constituents, such damage can occur across wide groupings of producers and thus become a community concern. Councils may also be exposed to financial costs as the government is only obliged to eradicate the unauthorised presence of a GMO, not one that was approved and is later shown to be invasive.

Similarly, the HSNO Act does not require the EPA to ensure that an applicant is financially fit and so able to pay compensation should adverse effects result from the activity. The HSNO Act instead places a heavy reliance on controls and penalties for breaching these but this requires the regulator accurately foreseeing all the circumstances in which something could go wrong, and being able to prescribe for these in advance. However, an important source of risk now recognised in respect of GMOs is unexpected adverse effects. A liability regime based on “perfect” foresight is therefore not suited to these risks.²⁰

The absence of adequate liability provisions and the lack of surety of outcomes for local government are key gaps that have been identified in the national regulatory regime for GMOs. Where a local authority has determined that particular GMO risks are of concern to its community and that a precautionary approach is warranted, it can take action using other statutes. The RMA provides communities with the ability to set rules that embody community determined outcomes, including the level of risk it is willing to accept with respect to activities such as the management of GMOs.

2.4 Consultation

2.4.1 Community Concerns Regarding GMO Use

Community concern over the outdoor use of GMOs began to feature in the LTCCPs of many of the Northern Councils from 2003 and 2004. Submissions to the Northland Regional Council, Whangarei District Council and Far North District Council in particular evidenced large numbers of submitters (in relative terms) focusing on the GMO issue and these almost universally advocated a precautionary stance.²¹ In response, the Northern Councils established the Working Party to evaluate risks to local authorities and their communities, and to identify response options to those risks, including regulation of GMO use on the land and in the water, under the RMA. Subsequently, the former Auckland Regional Council responded to “overwhelming opposition to GMOs” in submissions by adopting in principle in its LTCCP, a policy of opposing the release of GMOs as a precautionary approach.²²

²⁰ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, p. 21.

²¹ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, p. 2 and 3.

²² “The ARC has adopted a policy, in principle, that it is opposed to the release of genetically modified organisms (GMO) in the field and in the production of food”, ARC, LTCCP 2009 to 2019, p 86; and “ARC Regional Strategy and Planning Chair Paul Walbran says the Council adopted the policy in

To ascertain community views on the management of GMOs in the Northern Peninsula, and to gauge the level of support for local/regional regulation under the RMA (as recommended in Simon Terry Associates & Mitchell Partnerships (2005)), a Colmar Brunton survey was undertaken in July and August 2009. The results for each jurisdiction participating in the survey²³ were presented in separate reports, and were also aggregated to the regional level (provided in Volume 2 to this report). These results form part of the section 32 evaluation. Key results from the survey found:²⁴

- Two thirds or more of the residents polled want local or regional councils to have a role in regulating GMOs in their areas, either by setting local rules or by a change of legislation at the national level. Support averaged 68% in the Auckland region and 74% in Northland.
- Around two thirds of the respondents also favoured regulation of at least a strength that would make users of these GMOs legally responsible for any environmental or economic harm - either through local regulation or by way of changes to national legislation (Auckland 64%, Northland 67%).
- The survey indicated that around half the residents (Auckland 44% and Northland 53%) want councils to have the right to prohibit GM plants and animals, either by setting local rules or allowing communities, through their councils, the right to reject use of a particular GMO in its area when the national regulator, the EPA (formally ERMA), is processing applications.
- When questioned whether councils should set rules in addition to those set by the EPA, 40% of Auckland respondents supported this mechanism and 46% of Northland respondents were in support. Amongst those respondents who support their council setting rules, total prohibition is the most favoured level of regulation (ranging from 39 - 57% across all council areas), with strict liability provisions the next most favoured (ranging from 22 - 32%), and prohibiting only GMOs for food production the third favoured (a range of 18-27%).
- Within the Auckland Region there is considerable variation in support for local regulation between individual council areas. For the Waitakere, Auckland and Franklin communities, levels of support for local regulation were significantly higher than for not utilising local regulation while for Manukau, North Shore and Rodney, the levels of support for and against local regulation were more evenly matched.
- However, all communities strongly favour making users of GMOs legally responsible for any economic or environmental harm that may result. Support for regulation to make users of GMOs strictly liable for any harm caused ranged from 63% to 72% for individual councils.
- Support for local regulation is strongest amongst Māori, particularly in the Northland Region. It is also strongest amongst semi-rural and rural residents

principle as a precautionary approach because there are significant uncertainties about GMOs, and issues that are yet to be understood and resolved", ARC, Media statement: *ARC adopts anti-GMO policy position*, 19 February 2007.

²³ All Working Party members with the exclusion of Northland Regional Council commissioned the survey.

²⁴ This summary is adapted from that presented in the media release prepared by the Working Party on GMO Risk Evaluation and Management Options. For a full interpretation and the detailed results, see www.wdc.govt.nz.

while urban views vary by region. Rural residents are more likely to favour prohibiting GMOs in both Northland and Auckland than are semi-rural or urban residents. Females are more likely to support local regulation than are males, and support is greater amongst 18 - 39 year olds than older age groups.

- The poll also found that there is clear support from the Auckland and Northland communities for only producing food that is GM free but strong support for leaving options open for GM plants and animals in the future.
- While the results showed an even stronger opinion against people being able to produce GM plants and animals simply if they choose to, views were divided over the economic impacts of GMOs. Across the Auckland region, residents believed GMOs would harm local food industries but that there would be economic benefits overall, while Northland respondents saw GMOs harming local food industries and not providing economic benefits for their districts.

2.4.2 Māori Perspectives

As outlined in Section 2.2.2, Māori make up a considerably greater share of the population of Northland than is represented nationally. Local iwi have been active participants in the development of GMO policies for the Northern Peninsula and their stances generally reflect the concerns voiced at the national level. For example, the Ngatiwai Trust Board supports adoption of a precautionary approach and locally determined controls on GMOs that take full account of Tikanga Māori based values:

“Formulation of a policy on genetic engineering which commits supporting a precautionary approach towards GE.”²⁵

“Genetic engineering is abhorrent to the values of Tangata Whenua and the risks associated with experimentation in the District are unacceptable. Choices are able to be made irrespective of the legislation [HSNO Act] as to how the WDC should regulate genetic engineering consequences within its jurisdiction. Tikanga Māori based values should play a significant part in determining planning responses.”²⁶

The relief sought by the Ngātiwai Trust Board was that GM activities be prohibited throughout the Whangarei District. Ngātiwai was also one of three iwi parties to an appeal which aimed to secure local controls on GMO activities through amendment to the Far North District Plan.

Similarly, in 2011 Ngāti Te Ata Waiohua sought that the Auckland Council declare the region GMO free and adopt policies which support this position.²⁷

Ngāpuhi, the largest iwi in New Zealand with over 122,000 constituents, submitted on the Northland Draft Regional Statement in June 2012 with specific regard to GMOs. Ngāpuhi sought that a strong precautionary GMO policy be adopted and:²⁸

²⁵ Ngātiwai Trust Board submission to the Whangarei District Council's LTCCP 2004 -2014.

²⁶ Ngātiwai Trust Board submission to the Proposed Whangarei District Plan.

²⁷ Ngāti Te Ata Waiohua Issues and Values, 29 November 2011, p. 16.

²⁸ Te Runanga A Iwi O Ngāpuhi submission to the Draft Regional Policy Statement, 25 June 2012.

“That a provision classing all GE experiments and releases as a prohibited activity until outstanding issues such as liability, economic costs, benefits, environmental risks, cultural effects and significant consultation with iwi, Hapu and Whanau are resolved.”

The Auckland Independent Māori Statutory Board requested that an excerpt from Wai 262 and Waitangi Tribunal *Factsheet 3: Taonga Species* be tabled at the Working Party meeting of 10 February 2012. The excerpt included a recommendation to amend the HSNO Act to:²⁹

“...require that all those exercising functions, powers and duties under the Act to recognise and provide for the relationship between kaitiaki and their taonga species.”

The Factsheet notes that iwi and hapu are obliged to act as kaitiaki (cultural guardians) towards taonga species of flora and fauna within their tribal areas, and refers to the Tribunal recommendation that the HSNO Act be amended:³⁰

“so that greater weight is given to kaitiaki interests when decisions are made about genetically modified organisms.”

Following a recent Hui to discuss GMOs, Tai Tokerau iwi were unanimous in their decision for wanting robust local control, and at the very least a precautionary approach be reflected through the Northland Regional Policy Statement to protect both local communities and local environments.³¹

Sections 66(2A)(a) and 74 (2A) of the RMA require that councils, when preparing or changing a regional or district plan, must take into account any relevant planning document recognised by an iwi authority. A number of current iwi and hapū planning documents in the Northern Peninsula make statements opposing the release of GMOs and advocate a precautionary approach to GM, including those of Ngāti Hine, Ngātiwai, Te Roroa, Ngāti Kuta, Ngāti Torehina, Ngāti Korokoro and Ngāti Whaarare, and Ngāti Rehia³². For example, Te Iwi o Ngātiwai Iwi Environmental Policy Document includes the following policies regarding GMOs for the Ngātiwai rohe³³:

1. No genetically modified organisms, or products produced from such organisms, will be introduced.
2. The adoption of the precautionary approach by councils to genetically modified organisms, requiring that all risks be fully understood before these organisms are utilised.

²⁹ Page 96, Wai 262: Waitangi Tribunal Report. Te Taumata Tuatahi.

³⁰ Taonga Species, Waitangi Tribunal *Ko Aotearoa Tēnei* – Factsheet 3 www.waitangitribunal.govt.nz

³¹ Media Release: Tai Tokerau Iwi Organise To Challenge GE/GMO Concerns In Northland, 20 November 2012.

³² Ngā Tikanga mo te Taiao o Ngāti Hine: Ngāti Hine Iwi Environmental Management Plan 2008, Te Iwi o Ngātiwai Environmental Policy Document 2007, Draft Ngā Ture mo Te Taiao o Te Roroa: Te Roroa Iwi Environmental Policy Document 2008, Ngāti Kuta ki Te Rawhiti Hapū Environmental Management Plan 2007, Ngāti Torehina Hapu Environmental Management Plan 2007, Te Kahukura a Ngāti Korokoro, Ngāti Whaarare me te Pouka; Ngā Hapū o Te Wahapū oTe Hokianga nui Kupe: Hapū Environmental Management Plan 2008, Ngāti Rehia Environmental Management Plan 2007.

³³ Te Iwi o Ngātiwai Environmental Policy Document 2007: p71.

A number of other iwi planning documents identify GM as an issue, including documents by Ngāti Whātua Ngā Rima o Kaipara, Te Kawerau a Maki, Ngai Tai, and Hauraki Iwi.³⁴

2.4.3 Summary

Community consultation with respect to the outdoor use of GMOs has been comprehensive and includes community feedback obtained through the robust LTCCP and LTP processes, a Colmar Brunton survey, and through iwi participation in Hui, submissions to various strategies and documents, and in iwi/hapu management plans. This comprehensive process has resulted in the inclusion of policy statements that provide for a precautionary approach in a number of LTCCPs and LTPS in the Northern Peninsula, and has identified the communities' desire for district/regional wide regulation.

2.5 Synopsis

The Northern Peninsula is an important agricultural production region and contains areas of ecological significance. A wide range of GMO products are being researched and developed, including ones that GMO developers/operators may consider introducing to the Northern Peninsula.

A range of benefits are projected to be available from the outdoor use of GMOs, though GMOs applicable to New Zealand's needs remain to be developed in most cases. As well as benefits, there are also potential risks, including economic risks, environmental risks and socio-cultural risks that are largely unknown, and could be substantial and irreversible. Potential risks could also extend beyond the boundary of the GMO operators activities and result in significant costs to the wider area.

Key gaps identified in the national regulatory regime for GMOs are the absence of adequate liability provisions and applicant financial fitness requirements, and a lack of surety of outcome for local government. The RMA allows precisely targeted rules to be set under a District / Unitary Plan so that specific concerns can be addressed without compromising other activities. Local level regulation under the RMA provides communities with the ability to set rules that embody community (including Māori) determined outcomes, including the level of risk it is willing to accept with respect to activities such as the management of GMOs.

Consultation with the community (including under the LTP processes) has been comprehensive and has determined that the community (including Māori) desire a precautionary approach to the outdoor use of GMOs across the district/region to address what has been identified as a significant resource management issue.

³⁴ Te Wahapū o Kaipara Manaakitanga: South Kaipara Takiwa Environmental Protection and Management Plan Ngāti Whātua Ngā Rima o Kaipara, Kawerau a Maki Trust Resource Management Statement 1995, Ngai Tai Kaitiaki/Resource Management Principles and Operational Policies, and Whaia te Mahere Taiao Hauraki: Hauraki Iwi Environmental Plan 2004.

3. THE PLAN CHANGE

3.1 Introduction

The fundamental purpose of the Plan Change is to apply a precautionary approach to managing the outdoor use of GMOs to minimise the risk to the environment, economy and socio-cultural resources and values. The purpose is also to ensure a financial liability regime is in place requiring GMO operators to meet any costs arising from any unexpected adverse effects associated with their activities, including clean-up costs, economic compensation/remediation and on-going monitoring costs. This will, to some extent, address the gaps identified in the national regulatory regime to provide the level of protection sought by the community against risks associated with the outdoor use of GMOs.

The Plan Change comprises the introduction of a significant Resource Management Issue, Objectives, Policies and Methods, including rules which will define how the outdoor use of GMOs are to be managed, including in the CMA. The Plan Change does not involve the management of all GMOs, but rather is limited to the outdoor use of GMOs, in particular field trials and releases.

Field trials (tests) are defined by the HSNO Act as:³⁴

“in relation to an organism, the carrying on of trials on the effects of the organism under conditions similar to those of the environment into which the organism is likely to be released, but from which the organism, or any heritable material arising from it, could be retrieved or destroyed at the end of the trials.”

Releases (food-related and non-food-related) are defined as:³⁵

“...to allow the organism to move within New Zealand free of any restrictions other than those imposed in accordance with the [Biosecurity Act 1993](#) or the [Conservation Act 1987](#).”

GMOs that are not classified as field trials and releases are not addressed by the Plan Change. This includes research within contained laboratories involving GMOs, medical applications (using non-viable GM products) and food containing GM products that are not viable.

The new provisions are to be inserted into the District / Unitary Plan as a new chapter or section. A definition for GMOs, field trials and releases is to be inserted into the Definitions / Interpretation section/chapter of each respective plan.

3.2 Significant Resource Management Issue

The significant Resource Management Issue that the community has identified is addressed by the Plan Change as follows:

³⁴ Section 2 (Interpretation), HSNO Act.

³⁵ Section 2 (Interpretation), HSNO Act.

Issue

The outdoor use of GMOs can adversely affect the environment, economy and social and cultural resources and values, and significant costs can result from the release of a GMO.

To respond to the significant Resource Management Issue identified, the Plan Change acknowledges that the Northern Councils have insufficient information about the outdoor use of GMOs and will therefore apply a precautionary approach. The precautionary approach inserts provisions that prohibit classes of GMO activity that in absence of additional information are identified as “too high risk”, and establishes a financial liability regime for those engaging in a GMO activity.

3.3 Objectives and Policies

The Plan Change introduces the following Objectives and Policies to the District / Unitary Plan:

Objectives

- 1.4.1** *The environment, including people and communities and their social, economic and cultural well-being and health and safety, is protected from potential adverse effects associated with the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs through the adoption of a precautionary approach, including adaptive responses, to manage uncertainty and lack of information.*
- 1.4.2** *The sustainable management of the natural and physical resources of the district/region with respect to the outdoor use of GMOs, a significant resource management issue identified by the community.*

Policies

- 1.4.1.1** *To adopt a precautionary approach by prohibiting the general release of a GMO, and by making outdoor field trialling of a GMO a discretionary activity.*
- 1.4.1.2** *To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to conditions that ensures that the consent holder is financially accountable (to the extent possible) for any adverse effects associated with the activity, including clean-up costs and remediation, including via the use of bonds.*
- 1.4.1.3** *To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to conditions that serve to avoid, as far as can reasonably be achieved, risk to the environment from the use, storage, cultivation, harvesting, processing or transportation of a GMO.*
- 1.4.1.4** *To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to a condition requiring that monitoring costs are met by the consent holder.*
- 1.4.1.5** *To require consent holders for a GMO activity to be liable (to the extent possible) for any adverse effects caused beyond the site for which consent has been granted for the activity.*

1.4.1.6 *To adopt an adaptive approach to the management of the outdoor use, storage, cultivation, harvesting, processing or transportation of a GMO in the district or region through periodic reviews of these plan provisions, particularly if new information on the benefits and/or adverse effects of a GMO activity becomes available.*

Note; equivalent provisions in respect to activities in the CMA are introduced to the Unitary Plan (Objective 2.3.1 and Policies 2.3.1.1 to 2.3.1.6).

3.4 Related Provisions

3.4.1 Activity Rules

Permitted Activity Status

The Plan Change permits GMO activities that are not classified as field trials and releases, and are not specifically addressed by the Plan Change. This includes (but is not limited to) research within contained laboratories involving GMOs, medical applications (using GM products) and food containing GM products that are not viable.

All veterinary vaccines are listed as a Permitted Activity in the Plan Change and are exempt from the need to obtain a resource consent. This is because they do not tend to persist in the environment, appear to be low risk and are difficult to monitor.

Discretionary and Prohibited Activity Status

Not all categories of outdoor GMO use need to be regulated with the same degree of precaution. Different types of GMOs carry different risks, therefore the Plan Change groups similar GMOs together which can be expected to have similar types of effects that council may be required to avoid, remedy or mitigate.

The Plan Change classifies GMO outdoor uses into the following categories:

- Field Trials - **Discretionary Activity.**
- Food-related GMO Releases - **Prohibited Activity.**
- Non-food-related GMO Releases - **Prohibited Activity.**

Field trials are designed with the objective of ensuring that no altered genetic material leaves the test site and this greatly reduces the risks of harm arising. However breaches of trial conditions that could lead to GMOs escaping the trial site have occurred in New Zealand. Making all field trials a discretionary activity provides greater protection for the community by making the GMO operator financially accountable should adverse effects arise from a breach of conditions.

Given the high levels of potential harm and the uncertainties surrounding the extent of costs and benefits that could be expected from GMO releases, the Plan Change takes a precautionary approach and makes GMO releases a prohibited activity. Adopting an adaptive risk management approach, periodic reviews can be undertaken as to whether particular classes or individual GMOs should be made discretionary activities. Field trials could be considered a limited discretionary or restricted discretionary activity if a specific council determines this is appropriate in the context of their respective plan.

Discretion would be limited to the general development and performance standards provided in the Plan Change.

At the point a set of GMOs demonstrates the potential to provide net benefits, a change to the specific District / Unitary Plan can then make these subject to discretionary provisions. An application requirement is that the EPA has already approved such a release. Council's role is limited to determining whether there are additional conditions that would make release in the district or region permissible, or whether to decline the application.

3.4.2 General Development and Performance Standards

The Plan Change provides minimum general development and performance standards that apply to:

- Possession of relevant approvals from the EPA and compliance with conditions set by the EPA.
- Recovery of all costs associated with any monitoring required during and beyond the consent duration.
- Bond requirements to ensure funds are available for payment to address any adverse environmental effects and any adverse effects to third parties (including economic effects).

3.4.3 Definitions

A definition for GMOs, field trials and releases is to be inserted into the definitions/interpretation section/chapter of each respective plan.

4. SECTION 32 EVALUATION

4.1 Introduction

The Plan Change affects land that is within the jurisdiction of Far North, Whangarei, and Kaipara District Councils, and land and water within the jurisdiction of the Auckland Council. Section 66 (matters to be considered by a regional council) and section 74 (matters to be considered by a territorial authority) of the RMA state that any Plan Change to a District or Regional Plan must be made in accordance with the functions for regional and territorial authorities set out in sections 30 and/or 31, the provisions of Part 2, the duties under section 32 of the Act, and any regulations. Section 80 provides for combined plans.

Section 32 of the Act requires that before adopting any objective, policy, rule or other method, the Council shall have regard to the extent to which each objective is the most appropriate way to achieve the purpose of the Act, and whether the policies, rules or other methods are the most appropriate for achieving the objective. Section 32 also specifies what the evaluation must examine:

- (3) An evaluation must examine—
 - a) the extent to which each objective is the most appropriate way to achieve the purpose of the Act; and
 - b) whether, having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives.
- (4) For the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account—
 - a) the benefits and costs of policies, rules, or other methods; and
 - b) 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.

This section of the report provides a section 32 evaluation of the Plan Change provisions in the context of the RMA framework and should be read in conjunction with the preceding sections of this report. This section is set out as follows:

- Alternative planning strategies that have been considered to address the significant Resource Management Issue (Section 4.2);
- The risk of acting or not acting if there is uncertain or insufficient information (Section 4.3);
- The appropriateness of the Plan Change provisions (Section 4.4); and
- The benefits, costs and appropriateness of policies, rules and other methods (Section 4.5).

4.2 Alternative Means to Address the Issue

Section 32 of the RMA requires that alternatives to a Plan Change be considered. In respect to the consideration of alternatives, the Quality Planning Guidance “Section 32 – Methods of Implementation”³⁶ notes:

Section 32 does not explicitly require the consideration of alternative means. However, it does require that the evaluation shows that, having regard to effectiveness and efficiency, the proposed policies, rules, or other methods are the 'most appropriate'. This implies that some consideration of the effectiveness and efficiency of alternative provisions is required.

In 2011 the High Court held that the “most appropriate” method does not need to be the superior method³⁷.

The following three alternative approaches have been identified to address the significant Resource Management Issue:

- Do nothing (i.e. “status quo”).
- Central Government amendment to the HSNO Act.
- Local Authority regulation through the RMA.

An assessment of the alternative options considered is outlined below and summarised in Table 1.

4.2.1 Do Nothing

The “do nothing” option does not address the significant Resource Management Issue and is not the most appropriate way of achieving the Objectives. The Objectives adopt a precautionary approach to protect the environment from potential adverse effects associated with the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs. The intent of the Objectives is to reduce environmental, economic and cultural risks, and to establish rules setting financial accountability standards for GMO operators. The current lack of provisions in the District / Unitary Plan with respect to GMO activities does not protect the environmental, economic or socio-cultural resources of the Northern Peninsula, nor does the absence of provisions reflect the level of control desired by the communities (including Māori) to manage GMO activities. The “do nothing” option does not achieve the purpose of the Act as it does not provide for the sustainable management of the resources in the Northern Peninsula.³⁸

Under national legislation, if a GMO operator has inadequate financial resources to cover environmental damage resulting from its activities, the burden tends to fall on local government and/or its constituents. This type of situation has been previously encountered by local government in respect to “Orphan Contaminated Sites” (abandoned sites contaminated with hazardous chemicals) where in most cases local

³⁶ Last updated in 2008; www.qualityplanning.org.nz/plan-development/implementation.php

³⁷ *Rational Transport Soc Inc v New Zealand Transport Agency* HC Wellington CIV-2011-485-2259, 15 December 2011.

³⁸ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs III Recommended Response Option*, 2010, pg. 6 – 8.

government and new land owners have been left with the responsibility and cost for the clean-up.

The “do-nothing” option will result in no costs to the Council in terms of time and resources required to implement a plan change and similarly, no costs for potential submitters who would otherwise become involved in the plan change process, and no costs for council to administer the new rules. However, a council is potentially financially and legally exposed, as discussed below in Section 4.3 and 4.5.

The do-nothing approach does not address concerns raised by the community regarding outdoor GMO risk (as evidenced by the 2009 Colmar Brunton survey and submissions on annual plans, LTCCPs, LTPs and district plans), or concerns raised by Māori.

4.2.2 Central Government Amendment to the HSNO Act

The preferred method of enabling councils to exercise local control on the use of GMOs would involve central government remedying the identified gaps in the national level regulation, and providing communities with the ability to veto or add local level conditions to any approval for a GMO activity that is granted by the EPA through the HSNO Act process.³⁹

An amendment to the HSNO Act to remedy the deficiencies from a local government perspective would be an efficient response to address the significant Resource Management Issue. In particular, amendments to the HSNO Act could be made to provide councils with the ability to ensure that their policies in relation to GMO activities are binding on the scope of EPA decision-making and approvals issued. This would provide a simpler means for local government to achieve the same regulatory outcomes as are currently able to be put in place under the RMA. Reform to the HSNO Act could provide for:

- The ability for local authorities to issue policy statements on GMO activities so that the EPA would be required to accommodate these policy statements in its decisions;
- The option to examine individual applications in tandem with EPA assessments, and, if required, to set stricter controls to apply within a local authority's jurisdiction; and
- A strict liability regime, along with financial fitness requirements, that ensures the developers and users of GMOs are responsible for all environmental and economic harm that may result from outdoor uses of GMOs.

Such reforms would provide local authorities the opportunity to work in tandem with the EPA, and provide a more direct means of achieving desired community outcomes. The Working Party has sent letters to both the present Government and the previous Labour administration in 2006 and 2010 respectively, outlining local government and community concerns, and requesting changes to the HSNO Act to alleviate those concerns. However, the current Government (similar to the previous Labour administration) has indicated that it has no plans to amend the HSNO Act or establish alternative arrangements that would address the concerns of local government, nor do

³⁹ Simon Terry Associates, *Community Management of GMOs: Issues, Options and Partnership with Government*, 2004, p 33.

they propose to provide any mechanism for councils to influence the outcomes of EPA assessments beyond those available to any other submitter. The letters sent to both Governments from the Working Party and the responses form part of the section 32 evaluation and are provided in Volume 2 to this report.

4.2.3 Local Authority Regulation through the RMA

Councils have jurisdiction under the RMA to set rules for GMOs that act in addition to those that may be set under the HSNO Act or by the EPA⁴⁰, through inserting provisions into the District / Unitary Plan pursuant to sections 66 and 74 of the RMA. There is nothing in the HSNO Act to preclude a local authority imposing greater levels of control in its District / Unitary Plan for RMA purposes than those imposed by the EPA under the HSNO Act. The preparation of a section 32 report is therefore entirely appropriate to evaluate possible local/regional management of outdoor GMOs.

Given a council's general duty of care for its financial position and that of its constituents, there is a ready justification for councils to set mandatory conditions to provide for both financial accountability (through bonds and insurance requirements) and avoidance of economic damage. The RMA also provides communities with the ability to set rules that embody community determined outcomes, including the level of risk it is willing to accept with respect to activities such as the management of GMOs. Further, Council under section 35 of the RMA has a duty to undertake monitoring and may set conditions to provide for monitoring at the cost of the applicant.

Establishing controls on GMOs under the RMA requires a plan change or plan review⁴¹. The Environment Court is able to consider whether the objective, policies and methods in a plan change are valid pursuant to the relevant provisions of the RMA.

The functions of the EPA under the HSNO Act are different from those of local authorities under sections 30 and 31 of the RMA.

Overall, it is concluded that the relevant RMA provisions are not in conflict with those of the HSNO Act and the two statutes can operate side by side.

4.2.4 Assessment of Alternatives Considered

Table 1 provides an assessment of the advantages, and costs and risks associated with the three alternative options considered.

By way of summary, the "do nothing" approach does not address the significant Resource Management Issue and does not protect the natural, cultural and economic resources of the Northern Peninsula. Further, doing nothing does not address concerns raised by the community, including concerns raised by Māori. This option is not considered appropriate.

Central Government amendment to the HSNO Act to address gaps in the regulatory regime could address the concerns of local authorities and their communities in Northland/Auckland. However, the Government has consistently indicated since the formation of the Working Party in 2003 that it has no plans to do so. This option is therefore not considered the most appropriate.

⁴⁰ For further discussion, see Simon Terry Associates, *Community Management of GMOs: Issues, Options and Partnership with Government*, 2004.

⁴¹ Sections 65, 73, 79 and 80.

Of the existing statutes available to local government, the RMA offers the most durable, binding and well-targeted instrument for regulating the outdoor use of GMOs. Local authorities have jurisdiction under the RMA to set rules for GMOs that act in addition to those set under the HSNO Act or by the EPA. Given the statutory powers available to local government, the RMA is considered the most appropriate mechanism to resolve the significant Resource Management Issue.

Table 1: The advantages, costs and risks of the alternatives considered.

OPTION	ADVANTAGES	COSTS AND RISKS
<p>Do nothing</p> <p>This option is not recommended.</p>	<p>No further work is required in processing a Plan Change. No costs for the Council in terms of time and resources to process the Plan Change and no cost for potential submitters who may become involved in the process.</p> <p>No constraint on GM operators who have EPA approval and are considering undertaking activities in the area.</p> <p>Potential economic benefit from GMO operations.</p>	<p>Retaining status quo does not protect environmental, economic or cultural resources or reflect the level of control desired by the community to manage GMO activities.</p> <p>Does not provide a Northern Peninsula-wide approach to addressing the issue and does not address future resource management issues in respect to the use of GMOs in the area.</p> <p>Does not address community concerns regarding outdoor GMO use.</p> <p>Does not address the concerns of tangata whenua regarding outdoor GMO use.</p> <p>Potential to lose “GM free” status and thus any marketing advantage this confers.</p> <p>Under the HNSO Act there are no requirements to provide liability against unanticipated events, therefore constituents are exposed to economic losses from GM contamination.</p> <p>Reliance on EPA conditions in respect to monitoring required for the activity. Costs of monitoring, and any costs required for clean-up, should a GMO activity cause an unexpected effect, could fall on the Council.</p>
<p>Central Government Amendment to the HSNO Act</p> <p>This option is not recommended.</p>	<p>Provides ability for local authorities to add local level conditions to any EPA approved activity in the district or region.</p> <p>Option to examine specific applications with the EPA, and set stricter controls if necessary or prohibit a specific GMO from the district or region.</p> <p>Opportunity to work in tandem with the EPA.</p>	<p>Requires Government to address the issue. There has been no indication from Government that this will happen.</p> <p>Uncertainty on when, and if this will eventuate, and whether the appropriate amendments will be made to address community and local government concerns.</p>

OPTION	ADVANTAGES	COSTS AND RISKS
	Option to put in place a strict liability regime to compensate for potential environmental and economic harm.	
<p>Local Authority Regulation through the RMA</p> <p>This is the recommended option.</p>	<p>Addresses key gaps in the HSNO Act in respect to liability provisions.</p> <p>Can address risks of adverse effects on the environment, economy, and socio-cultural values.</p> <p>Community determined outcomes can be set based upon a preferred level of risk determined by the community.</p> <p>Provides a prescriptive set of rules to ensure only the specified GMO activities can occur, and so specific concerns are addressed without compromising other activities.</p> <p>Council can enforce higher standards for control through consent conditions, including bond requirements, monitoring requirements and compliance with performance standards.</p> <p>Can operate in addition to the HSNO Act and can operate alongside.</p> <p>Well drafted provisions will provide certainty to the community and the Council in respect to GMO use and the management of potential effects.</p> <p>Integrity of District / Unitary Plan maintained.</p> <p>Allows for full public participation.</p>	<p>The Environment Court may determine that the significant Resource Management Issue defined in the Plan Change can be addressed by the EPA pursuant to the HSNO Act.</p> <p>Costs associated with implementing the Plan Change and resource consent applications for GMO activities.</p> <p>The Plan Change provides prescriptive provisions. Any changes would require a new plan change.</p> <p>Reduces certainty of being allowed to operate for GMO developers considering undertaking their activity in the area.</p> <p>Transaction costs (monetary) and opportunity costs (time delays) associated with a GM proposal having to go through both the HSNO Act and resource consent and / or Plan Change process.</p> <p>There are no National Policy Statements or Environmental Standards to give effect to in respect to GMOs under the RMA.</p>

4.3 Risk of Acting or Not Acting

Section 32(4)(b) of the RMA requires the s32 evaluation to take into account the risk of acting or not acting, specifically "if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods".

As outlined in Section 2, the outdoor use of GMOs is characterised by risks (both known and unknown) and uncertainty as to the outcomes that will result from an EPA assessment of an activity. In response, a precautionary approach is proposed to manage the risks and costs associated with the outdoor use of GMOs and to meet relevant community specified outcomes.

4.3.1 Ability to Deliver a Precautionary Approach

While precaution is not a requirement under the HSNO Act, the appropriateness of its application has been recognised under International Treaty, for example the United Nations Convention on Biodiversity and its Cartagena Protocol (“**the Protocol**”), which New Zealand is a signatory to.⁴² The Protocol focuses exclusively on living GMOs and reaffirms the precautionary approach set out in Principle 15 of the Rio Declaration, specifically in Article 10.6.⁴³ While the Protocol’s focus is the conservation and sustainable use of biological diversity, the principle it sets is equally applicable to other risks arising from GMOs, and is equally valid at the national and regional / district level.

The RMA is the principal statutory instrument designed to regulate land and water use (and thus the outdoor use of GMOs) and when considering it, the courts have ruled that a precautionary approach is inherent in the Act. In particular, section 3(f) states that the term “effect” includes “Any potential effect of low probability which has a high potential impact.”⁴⁴

Traditional risk assessment relies on an ability to identify the nature of risk events and the probability they will occur in order to adequately regulate for them. With respect to the release of GMOs, while certain effects can be clearly anticipated, in many respects regulators are left with uncertainty as to what the effects will be (when the nature of the risk is clear but the probabilities are unknown), or simply uninformed (if neither the nature of the risk or the probability is known). In this situation, a precautionary approach is useful in guiding decision making.

In order for a council to have a meaningful opportunity to exercise precaution using RMA instruments, it needs to complete a Plan Change before the EPA has approved release of a GMO. The time required to complete a Plan Change is such that GMOs could be introduced to a council’s area and expose constituents and the environment to many of the risks outlined in Section 2.2.2 before a Plan Change could be enacted. Thus with respect to the issue of acting or not acting if there is uncertain or insufficient information about the subject matter, there are clear benefits from acting in advance (as further detailed later in this subsection).

Field trials can be treated as discretionary activities under a precautionary approach as the national legislation already prescribes strict conditions, including prohibiting the flow of altered genes from the trial site and requiring removal of heritable material upon completion.

The appropriate precautionary approach to GMO releases however is to prohibit these under an adaptive management regime. The following lists important information considerations that bear on this judgement:

- No national policy statements or national environmental standards have been issued under the RMA to guide council responses to GMO proposals,

⁴² The Protocol covers the transboundary movements of living GMOs, or living modified organisms.

⁴³ Article 10.6 states “*Lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question as referred to in paragraph 3 above, in order to avoid or minimize such potential adverse effects.*” The Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Text and Annexes), Montreal 2000.

⁴⁴ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, Section 4.4.

including consideration of potential risks to conventional and organic crops, bio-diversity, and the environment.

- The government has set no other national policy with respect to the assessment of potential GMO releases and has not provided directives to the EPA to guide its interpretation of the HSNO Act.⁴⁵
- There is no international or national guidance on how to address outstanding liability issues.⁴⁶
- The EPA has not yet had to respond to a proposed release of a food-related GMO, and so has yet to show how it would assess the complexities that arise with a food GMO in particular.⁴⁷

Consequently, local authorities have no guidance to assist them to manage risks from GMO activities on a regional or district-wide basis in order to meet their duties and functions under sections 30 and 31 of the RMA. There would be significant inefficiency for a council to endeavour to collect and create the information required (if available or sufficient) to develop effective policy and planning instruments in this context.

At the point the EPA approved a particular GMO release, there would then be a sizable body of information to help a council assess local impacts of that GMO. However, even then, the EPA is tasked simply with assessing the costs and benefits of a particular release proposal: the EPA is not expected at any stage to propose or define a national strategy for GMOs. The issues confronting a council however involve the broader question of the expected impacts of GMOs in general, and clearly include questions of local strategy such as the costs and benefits of an area remaining free of any GMO release.

The information required to undertake this wider assessment cannot be required of an agent seeking to undertake a particular release and so would present an additional uncompensated expense to the council were release activities to be made discretionary and a proponent lodged an application to the council. By making GMO releases a prohibited activity, a council ensures that any such assessment is either made at a time a council judges sufficient information is available, or acquisition of the information is an expense more fully covered by a release proponent through a private plan change. If the latter, then the onus is placed on the proponent to show that there is not only a national benefit (as the EPA is required to determine before issuing a consent) but that there is also a benefit to the area under the council's jurisdiction.

A prohibited activity status for releases also ensures community determined outcomes can be delivered by a council. If they were a discretionary activity, the Minister for the Environment could call in an application under the RMA and the Minister would then decide the application - rather than the council. If an activity is prohibited, the Minister cannot intervene as no application can be made.

It is the ability to revise the activity status of particular GMOs or classes of GMOs as better information becomes available that ensures the proposed approach is adaptive. As the EPA and other authorities build up the basis for analysis, and as more field trials

⁴⁵ Such directives may be issued under HSNO s17.

⁴⁶ Policy development has in recent year been focused at the international level with respect to the Nagoya - Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety, Secretariat of the Convention on Biological Diversity, Montreal, United Nations, 2011.

⁴⁷ The EPA has approved the use of GMO flu vaccine for horses but it has not been deployed and the assessment did not raise many of the issues that arise in the case of food-related GMOs.

and market analyses are undertaken, the basis for decision-making at a later point will improve.

The legal authority for the proposed approach is the case between Coromandel Watchdog of Hauraki Inc and Chief Executive of Ministry of Economic Development.⁴⁸ In this case the Court of Appeal overturned the lower courts' decisions and held that prohibited activity status can be appropriate even when local authorities do not consider that an activity be forbidden outright and are not contemplating any change or exception. Instead, a local authority can use the prohibited activity status for activities for which, having undertaken the processes required by the RMA, it could rationally conclude that this was the most appropriate status.⁴⁹ However, the court agreed with the lower courts that, if a local authority has sufficient information to undertake the evaluation of an activity at the time the district plan is being formulated, it is not an appropriate use of the prohibited activity classification to defer the evaluation required by the Act.⁵⁰ That can be contrasted with the precautionary approach, where the local authority forms the view that it has insufficient information about an aspect of an activity, but further information may become available during the term of the plan.

With respect to the outdoor use of GMOs, the prohibited activity status is required because of the communities' desire to take a precautionary approach as a matter of policy due to lack of sufficient information currently available on the potential effects of GMOs on a district/regional wide basis.

In summary, a council cannot use the prohibited status to defer evaluation of an activity when formulating its plan if it has sufficient information to undertake that evaluation. However, with respect to the outdoor use of GMOs, it can defer evaluation as currently there is insufficient information about the activity, but further information may become available at a future time.

4.3.2 Proportionate Action and Difficulties Arising From Inaction

Having demonstrated that a precautionary approach is available under the RMA and that a Plan Change is required to provide this, the following sets out why such action is reasonable and proportionate relative to not acting.

As detailed in Table 1 in Section 4.3.5, there are costs associated with establishing the Plan Change provisions. While there will be some transaction and opportunity costs for a GMO proponent having to undertake two processes (EPA approval and Plan Change process), there is unlikely to be any significant opportunity cost, such as lost economic benefit from a GMO activity that would be prohibited. This is because of the ability to further amend the plan should a particular GMO or class of GMOs be shown to have clear net benefits for a jurisdiction. The transaction and opportunity costs to a GMO proponent would be small in relative terms and there need not be a delay in the

⁴⁸ [2008] NZRMA 77 (CA).

⁴⁹ The judgment stated: "Where the council takes a precautionary approach. If the local authority has insufficient information about an activity to determine what provision should be made for that activity in the local authority's plan, the most appropriate status for that activity may be prohibited activity. This would allow proper consideration of the likely effects of the activity at a future time during the currency of the plan when a particular proposal makes it necessary to consider the matter, but that can be done in the light of the information then available". It also stated: "Where it is necessary to allow an expression of social or cultural outcomes or expectations. Prohibited activity status may be appropriate for an activity such as nuclear power generation which is unacceptable given current social, political and cultural attitudes, even if it were possible that those attitudes may change during the term of the plan". Brookers Resource Management, Vol.1, A77A.06.

⁵⁰ Brookers Resource Management, Vol.1, A77A.06.

benefits being available to a jurisdiction as such a change could proceed after field trial data had been obtained and while the EPA was hearing an application at the national level for a release to be made. Overall, in regard to the costs or the loss of potential benefits, the risk of acting is limited. Future options are not foreclosed.

In contrast, the risks and potential costs of not acting are substantially higher. As outlined in Table 1, the “do nothing” approach will not protect the environmental, economic or cultural resources of the Northern Peninsula, or reflect the level of control desired by the community (including Māori) to manage GMO activities. Risks of not acting include:

- Adverse environmental effects including weediness and invasiveness, and effects on non-target species.
- Councils exposed to clean-up costs associated with any GMO activities as the Ministry of Primary Industries is only obliged to clean up illegal releases. Clean-up costs are potentially substantial.
- Constituents exposed to economic losses from GM contamination. This includes opportunity costs associated with the foreclosure of options for branding an area as GM Free. Councils owe a duty of care to constituents.
- Adverse socio-cultural effects including effects on tangata whenua cultural values and economic well-being.
- Monitoring, both during and after consent duration, may be required by the Council, and this can be expensive.

Another way of considering this question is to examine the extent to which a council can in practice “do nothing”, and yet remain unencumbered financially.

A first issue for a council whose community has become concerned about GMO activities is whether it will need to arrange monitoring. If monitoring has not been required by the EPA, or is not in the form constituents seek, then a council can face a call from constituents to undertake this as a part of its duties under sections 35(2)(d) and (e) of the RMA. Such a call would become mandatory if a constituent succeeds in obtaining an enforcement order through the Environment Court.

The EPA can require monitoring where it is relevant to assess environmental risk. However, it is economic risks that are often a particular source of concern, and information from monitoring could be needed to underpin claims for compensation due to GM contamination. Therefore, in the event of a GM activity being undertaken within a council’s jurisdiction, the prospect that the council will be required to monitor (for economic effects in particular) is quite high.

Monitoring can be expensive but a council can require the GMO operator to meet the costs under either the RMA or the LGA. The LGA is the simpler option as it does not involve a plan change – otherwise required under the RMA route.

However, those concerned about harm caused by any GMO contamination will require more than just monitoring provisions are in place. They will be particularly concerned to have mechanisms in place to promote financial accountability and clarify liability, and

the LGA cannot deliver this effectively. While the HSNO Act⁵¹ includes a range of assessment criteria that the EPA is to consider for field tests, (i.e., taking into account adverse effects on human health and safety and the environment) and controls required for all field tests, there is no requirement to address liability issues. Councils owe a duty of care to their constituents and they may launch a legal challenge against the council if such measures were not in place.

Thus, under a “do nothing” response, a council could still expect to face significant pressure to complete a plan change under the RMA that would at least make GMO activities subject to minimum provisions concerning monitoring and financial accountability. This would be directed at having a council incorporate conditions or performance standards that would seek to ensure altered genetic material did not migrate beyond the site at which it was being used. There would be very little difference in cost between a plan change directed at a minimum response and that targeting a fuller response.

Another scenario is that a private plan change could be introduced and Council would become the respondent if it decided not to adopt it and did not have statutory grounds to reject the plan change.

In summary, the information behind the policies and methods promoted in this Plan Change is based on international and national evidence and there is little risk associated with the Plan Change going ahead. It is consistent with a precautionary approach that prohibits activities in the face of uncertainty, particularly where the potential costs are high and may be irreversible. The risk of not acting (not pursuing this Plan Change) is that the significant Resource Management Issue remains unresolved and the resources of the Northern Peninsula are not managed sustainably.

4.4 Appropriateness of the Objectives in Achieving the Purpose of the Act

Section 32(3)(a) of the RMA requires the evaluation to examine the extent to which each objective is the most appropriate way to achieve the purpose of the Act. This section of the report considers the role of the Objectives in achieving the purpose of the Act and in achieving the sustainable management of the natural and physical resources in the Northern Peninsula.

The Plan Change Objectives are:

- 1.4.1 *The environment, including people and communities and their social, economic and cultural wellbeing and health and safety, is protected from potential adverse effects associated with the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs through the adoption of a precautionary approach, including adaptive responses, to manage uncertainty and lack of information.*
- 1.4.2 *The sustainable management of the natural and physical resources of the district/region with respect to the outdoor use of GMOs, a significant resource management issue identified by the community.*

⁵¹ Sections 44A and 45A.

These Objectives are the desired end point from the resolution of the significant Resource Management Issue set out in Section 3.1.

Section 5 of the Act sets out its purpose as follows:

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.
- (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –
 - a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
 - b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
 - c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Achieving the purpose of the Act also requires addressing the matters set out in sections 6 (matters of national importance), 7 (other matters) and 8 (Treaty of Waitangi) of the Act.

As set out in Section 4.2, inserting provisions into the District / Unitary Plan to manage the outdoor use of, and potential effects of, GMO activities is considered to be the most appropriate way of achieving the purpose of the Act for this type of activity. The Objectives clearly state the desired outcome of providing for outdoor use of GMOs while ensuring potential adverse environmental effects are avoided, or mitigated through a precautionary approach. The Objectives also ensure unacceptable risks to the community from the outdoor release of GMOs are avoided. The Objectives recognises the value of natural and cultural resources in the Northern Peninsula, and the need to protect these values from the outdoor use of GMOs.

The Objectives will sustain the physical resources of the Northern Peninsula, now and for future generations, in particular the life supporting capacity of air, water and soil ecosystems, and through the adoption of effective policies, rules and methods, any potential adverse effects on the environment can be avoided.

The Objectives will enable people and communities to provide for their social, economic and cultural well being and for their health and safety by protecting existing primary producers from possible economic harm through GM contamination and loss of markets, protecting marketing and branding advantages and price premiums for primary producers, marketing and branding advantages for the tourism sector, and respecting socio-cultural differences, particularly the cultural values of Māori.

The Objectives will ensure the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga are recognised and provided for.

The Objectives adopt a precautionary approach to the management of GMOs. The essence of the precautionary principle involves assessing and responding to potential risks or effects before they eventuate. There are uncertainties about the scope and scale of risks arising from the use of GMOs. Where the risks are high or difficult to assess or quantify by conventional risk analysis, or the potential effects are significant or uncertain, caution should be exercised before permitting and/or undertaking the activity in question, until more is known about the risks and potential effects. The adoption of a precautionary approach, as set out in Objective 1.4.1, to manage the

outdoor use of GMOs to minimise the risk to the environment, economy and socio-cultural resources and values, is inherent in the Act. The Objectives also reflect community preferences for a precautionary approach to address the issue of outdoor uses of GMOs.

It is concluded that the above Objectives are the most appropriate way of achieving the purpose of the Act.

With Regard to other Objectives in the District / Unitary Plan

Sections 59, 63 and 72 of the RMA state that the purpose of the preparation, implementation, and administration of regional policy statements, regional plans and district plans is to assist regional and district councils to carry out their functions in order to achieve the purpose of the Act. In assessing whether the Objectives are the most appropriate way to achieve the purpose of the Act, it is therefore appropriate to undertake an assessment to ensure that the Objectives are generally consistent with the other objectives in the District / Unitary Plan as these are an existing expression of how the council carries out its functions.

As the Plan Change provides generic plan provisions that will potentially be adopted by up to four territorial/unitary authorities and into a number of District / Unitary Plans, this assessment will be undertaken by each council when incorporating (and if necessary refining) the Plan Change provisions into their respective planning documents.

4.5 Appropriateness, Costs and Benefits of Policies, Rules and Other Methods

The assessment of the proposed policies, rules and other methods under section 32(3)(b) and 32(4)(a) is provided in Table 2. The following subsections draw issues together that benefit from a fuller description.

4.5.1 Appropriateness

The Plan Change is an appropriate response to community aspirations for a process whereby councils can determine acceptable levels of risk and cost exposure with respect to outdoor GMO activities within a council's jurisdiction.

Councils have repeatedly sought amendments to the HSNO Act to provide such a process within the national regulatory regime, but central government has ruled this out on a number of occasions. Additional controls at the local level are an alternative means of allowing councils to perform duties imposed on them under the LGA and the RMA.

As outlined in Section 4.2, the RMA is an effective option, and the most appropriate of those available. Further, there is not just an absence of conflict with the HSNO Act, supplementary regulation under the RMA is fully consistent with the intended interaction between the two statutes. At the time the HSNO Act was developed by central government, the intention was that additional controls could be set "under other legislation where these controls are more stringent or specific... and are required to

meet other outcomes or responsibilities”.⁵² Accordingly, section 142 (3) of the HSNO Act provides that local government can set higher standards for hazardous substances through RMA conditions, and while a similar provision is not specified for new organisms, a parallel use of the Act would be similarly consistent.

A key purpose of the Plan Change is to “meet other outcomes or responsibilities”, especially those under the LGA and RMA, and the outcome sought is controls that overall will be “more stringent”.⁵³ Thus rather than duplication, supplementation is the mechanism being used to achieve increased protection for the community.

The controls are supplementary as they are precisely targeted to:

- **Fill gaps in the national regulatory regime** such as the lack of robust liability provisions for activities that do not breach EPA consents; and
- **Set standards to ensure community determined outcomes are achieved.** Relative to an uncertain and / or indeterminate standard for exercising precaution in particular, the plan change sets specific performance standards that are high in themselves and can reasonably be judged as providing higher standards than indeterminacy.

To the extent that field trials will be subject to discretionary controls and this involves additional analysis, as the controls require an EPA approval before an application can be made, further analysis (such as impacts on the local economy) will again be supplementary, as will information requirements on applicants.

As the RMA controls are supplementary and not duplicative, they are the most efficient option for a council to address the significant Resource Management Issue.

The Plan Change is also consistent with the recently revised purpose statement of the LGA.⁵⁴

“to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses”.

In order for a regulatory function to be “good quality”, it must be efficient, effective, and appropriate to present and anticipated future circumstances.⁵⁵ As the foregoing has set out, the Plan Change is effective and appropriate, and it is also the most efficient option available to a council.

4.5.2 Costs

The greatest potential cost is the value of any opportunities lost as a result of the inability to release GMOs. The EPA specifies that the counterfactual for determining the benefit of a proposed GMO activity is the gains to New Zealand it would provide over and above that which could have been expected to result in any case.⁵⁶ This

⁵² Simon Terry Associates, *Community Management of GMOs: Issues, Options and Partnership with Government*, 2004, p 4.

⁵³ The outcomes will in all cases be stricter in respect of financial accountability measures, and will tend to be more stringent or at least as stringent in other respects.

⁵⁴ Local Government Act 2002 Amendment Bill, 2012.

⁵⁵ Section 10, as revised in 2012.

⁵⁶ EPA, *Assessment of Economic Risks, Costs and Benefits: Consideration of impacts on the market economy*, November 2011, pp 6 and 7.

means that for foregone benefits to count there must be benefits in addition to that which could have been expected if the GMO activity had not gone ahead.

The key area of interest is agricultural GMO applications, given the predominant land uses in the Northern Peninsula. Traditional breeding has delivered consistent incremental gains in agricultural productivity, so that the baseline is far from static. Discoveries in gene science in recent decades have led to new productivity enhancement techniques, and GM is one of a number of such applied technologies. In consequence, there are a number of routes to enhanced agricultural productivity, even when limiting consideration to the genetic makeup of the inputs.

A recent comparison of corn yields in the US (where GM maize dominates over non-GM varieties) and European countries growing essentially no GM maize demonstrated Europe's equal or in many cases superior yields over a quarter of a century. This clearly illustrates that gains can be quite independent of access to any particular biotechnology, including GM products. Maize is the second most widely planted GM crop in the world and the comparison shows that since the introduction of GM crop varieties in the mid 1990s, gains in European corn yields have at least kept pace with those in the US on a per hectare basis.⁵⁷

For some time, GM developers have been anticipating step change gains that would separate food GMOs from such patterns but these have yet to be demonstrated in production. What has become clearer in recent years is that at least one other technique is equally capable of achieving step change gains. Marker Assisted Selection ("**MAS**"), also known as precision breeding, makes use of gene science to better understand the traits that are sought to be transferred from one plant to another, but the process of creating the new organism is based on traditional non-GM techniques - such that the result is not a GMO. MAS is generally capable of delivering the same scope of new varieties as GM.⁵⁸

Therefore, as GM is almost never a unique route to a particular productivity enhancement, and non-GM techniques can generally achieve similar outcomes, in principle there need not be any foregone benefits arising from prohibiting the release of GMOs. Actual costs will be scenario dependent, and in particular could depend on whether a New Zealand-based company has devoted its research effort to use of a GM route (versus a non-GM route) and whether competing non-GM options have been pursued locally or not.

Forecasting outcomes is further complicated at this point due to the potential for circularity in the analysis. If councils do not have controls to manage GMO activities in place, then developers are less likely to avoid GM routes to productivity enhancement, whereas if a number of councils have adopted such rules, local developers will tend to choose non-GM routes. In the long run, because of the availability of non-GM routes, the cost of prohibiting GMO release activities will tend to zero.

The overall analysis is however simplified by the ability to alter a plan so as to make a particular GMO or class of GMOs a discretionary activity as new information becomes available. As described in Section 4.3, where a GMO is considered to provide net benefits to the jurisdiction, a plan can be changed in a manner that minimizes the

⁵⁷ Professor Jack Heinemann, Presentation to Hastings District Council, 24 October 2012.

⁵⁸ GM does not enjoy a timing advantage either. Dr Robert Reiter, a molecular biologist and VP Biotechnology at Monsanto recently stated that: "Conventional crop breeding requires a 7 – 8 year cycle, compared to 10 – 15 years from inception to development for genetically modified crops..." <http://www.sciencemediacentre.co.nz/2012/09/04/gm-biotech-players-outline-their-science-roadmaps/>

potential for delay in securing those benefits. The existence of this option to reverse the constraint effectively caps the potential value of any lost opportunities arising from a GMO release at the cost of making a further plan change.

With respect to field trials, many of the controls set by the Plan Change are common to those required under the HSNO Act for a field trial – for example the prohibition on altered genetic material moving beyond the boundary of the test site. The financial accountability provisions are additional costs to the developer but as they are intended to internalise any costs otherwise externalised, there is no net cost to the community. A further overall feature of field trials is that these can generally be conducted in another part of New Zealand without affecting the prospects for later use of the GMO in question within a council's jurisdiction. There would nonetheless be additional transaction costs to the GMO proponent involved in making a separate application to a council as well as the EPA if a field trial were sought to be conducted in the council's area, but these costs will be minor. It is not unusual for consent applications to be made under different statutory codes in respect of a particular land use.

The residual cost that is not contingent (other than on this Plan Change proceeding) is the administrative cost of making the Plan Change. As described in Section 4.3, costs on a par with a plan change, if not actually a plan change of some form, may prove difficult to avoid if a community is strongly minded to seek a precautionary response.

4.5.3 Benefits

The principal benefit of the Plan Change is the ability to set community determined levels of risk and cost exposure with respect to GMO activities within a council's jurisdiction. Establishing appropriate standards of protection will have benefits that are financial and non-financial.

Financial benefits arise from avoiding the risk of lost income due to GM contamination of non-GM crops, avoiding the need to curb or eradicate a GMO in the environment that proves to be unwanted, and potentially from price premiums delivered by branding that is in part reliant on a GM Free status for an area.

Pastoral farming, horticulture and forestry constitute the predominant land uses in the Northland Region and are also important land uses in the Auckland Region, though these are considerably less significant to its overall economy. GM varieties relevant to each of these sectors are either commercially available today or under active development. Both regions are also home to ecologically sensitive areas.

The main relevant land-based industries in Northland and Auckland are:

- Pastoral agriculture accounts for over half of land use in Northland,⁵⁹ and carries 6% of the nation's dairy stock and 10% of its beef stock, while Auckland carries 2% of the nation's dairy stock and 3% of its beef stock.⁶⁰ Potential uses of live GMOs in pastoral farming include GM feed and pasture grasses and GM livestock.

⁵⁹ <http://www.nrc.govt.nz/special/soe.2002/regional.profile/2-3-index.shtml>

⁶⁰ Statistics New Zealand, 2011 data from table builder for agriculture at: http://www.statistics.govt.nz/tools_and_services/tools/TableBuilder/agriculture-statistics.aspx

- Auckland accounts for 12% of national horticultural production and Northland 5%.⁶¹ Many of the principal fruit and vegetable crops grown in these regions are the subject of GM research and development.
- Northland accounts for 9% of the nation's planted production forest area, and Auckland 2%.⁶² Scion (a Crown Research Institute) is currently conducting field trials of GM pine and other species in Rotorua.

As set out in Section 2.2.2, there are a number of different risk pathways capable of triggering market or environmental damage that could result in significant financial consequences. The value of avoiding any one of these is scenario dependent. Experience with GM contamination events indicates that losses from a single event can amount to millions or tens of millions of dollars.⁶³ Similarly, experience with unwanted new organisms has shown that the costs of eradicating one of these can amount to tens of millions of dollars, and attempts to even limit the rate of spread can require millions of dollars.⁶⁴ The level of cost that could be expected within a particular jurisdiction depends on the type of GMO and the nature of the problem, but exposures to constituents in the millions of dollars per incident are reasonable to assume.

While the government is obliged to remove any GMO that is illegally present, it has complete discretion over whether it assists financially with the removal of a GMO that was approved for release by the EPA but later is seen as an unwanted new organism. Losses arising from GM contamination will tend to be faced by those in the community (whichever way claims between GM and non-GM growers are settled) and attenuated only to the extent that insurance can be obtained.

A further important benefit is avoiding the foreclosure of opportunities to enhance the value of a jurisdiction's production through branding and marketing. The Northern Peninsula (north of the Auckland Isthmus) is geographically distinct and this provides a demonstrable physical separation from other areas. If the area were to be marketed as having distinct food production characteristics, including being GM Free, such a geographic separation could be pointed to in order to underscore the distinction.

Even within Europe, where GMO cultivation is very rare and constitutes 0.01% of global acreage, a number of regions have branded themselves GM Free. This includes 21 regions in France and 16 in Italy – many that evoke premium food attributes such as Tuscany, Salzburg, Burgundy and Provence.

In Australia, the South Australian Government legislated for the Eyre Peninsula to be provided with separate and stronger powers to exclude GM cultivation from an area in which quite strong restrictions already apply.⁶⁵ Tasmania has gone further and adopted a policy of state-wide exclusion of GMOs and a branding strategy emphasising the region's pristine character.⁶⁶

⁶¹ Statistics New Zealand, 2011 data from table builder for agriculture.

⁶² MAF, 2007 data, "Agricultural Areas in Hectares by Usage and Region", http://www.stats.govt.nz/browse_for_stats/industry_sectors/agriculture-horticulture-forestry/2007-agricultural-census-tables/land-use-farm-counts.aspx

⁶³ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, Section 2.3. In well-defined markets, the cost of a particular risk can be revealed by insurance contracts but the issue at hand is not suitable for this.

⁶⁴ Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, Section 6.2.2.

⁶⁵ Parliament of South Australia, House of Assembly Select Committee on Genetically Modified Organisms (2003) *Final Report*.

⁶⁶ See: www.brandtasmania.com

New Zealand currently enjoys *de facto* recognition as a GM free growing area and this has allowed maize producers as a group to secure higher returns than would otherwise be the case. As the spread of GM contamination makes it harder for producers in a number of countries to be GM free, and at the same time many high value consumer markets remain resistant to GM content in food, premiums for GM free production can be expected to remain if not expand.

A plan change that excludes GMO releases would provide the underpinning for individual companies and potentially for regional bodies to further develop and promote a brand capable of adding value to existing production as part of a wider promotion of local attributes.⁶⁷

Other non-financial benefits of the Plan Change include:

- Avoidance of adverse effects on Māori cultural values;
- Reduced risk to biodiversity; and
- Reduced scope for tension between neighbours arising from any GM plantings.

Overall, the largest potential benefit is the avoidance of the risk of incurring costs that are measured in the millions to tens of millions of dollars per serious incident, whereas the cost of this Plan Change and any contingent costs (including subsequent plan amendment) together would be considerably less than the cost of even one of the minor GM contamination events that have occurred in New Zealand to date.⁶⁸ The administrative costs involved in establishing the Plan Change are in effect the cost of avoiding these risks. While the prospect of any particular event occurring would be difficult to attach a probability to, the differential between the risks and the remedy is so large that the cost can be viewed as an insurance policy premium.

⁶⁷ Northland's current branding initiative, led by Enterprise Northland, is called "Northland Naturally", "rich in natural beauty and resource".

⁶⁸ At least three GM contamination events have occurred in New Zealand that have involved financial consequences, with each resulting in losses of \$0.5 to \$1 million. One of these is detailed in: Simon Terry Associates and Mitchell Partnerships, *Community Management of GMOs II: Risks and Response Options*, 2005, p13.

Table 2: Assessment of the proposed policies, rules and other methods under sections 32(3)(b) and 32(4)(a) of the Act.

<p>Proposed Objective 1.4.1 The environment, including people and communities and their social, economic and cultural well being and health and safety, is protected from potential adverse effects associated with the outdoor use, storage, cultivation, harvesting, processing or transportation of GMOs through the adoption of a precautionary approach, including adaptive responses, to manage uncertainty and lack of information.</p> <p>Proposed Objective 1.4.2 The sustainable management of the natural and physical resources of the district/region with respect to the outdoor use of GMOs, a significant resource management issue identified by the community.</p>			
Policy / Rule / Method	Assessment under section 32(4)(a) of the Act		Assessment under section 32(3)(b) of the Act
	Benefits	Costs	Having regard to their efficiency and effectiveness, the appropriateness in achieving the objective
<p>Proposed Policy 1.4.1.1 and 2.3.1.1 To adopt a precautionary approach by prohibiting the general release of a GMO, and by making outdoor field trialling of a GMO a discretionary activity.</p>	<p>This policy specifies what outdoor GMO activities can be undertaken in the Northern Peninsula, and prohibits those activities that are considered inconsistent with the Objectives.</p> <p>The outdoor use of GMOs has the potential to cause adverse effects on the environment, economy, and social and cultural well-being. As the level of risk inherent in the release of a GMO is not tolerable to the community for economic, environmental and cultural reasons, this policy adopts a precautionary approach by prohibiting the outdoor release of GMOs (other than vaccines). This will provide certainty to the community as to the nature of GMO activities that cannot be undertaken, and avoid the risk to the environment, economy and socio-cultural values from such activities.</p> <p>The policy requires outdoor field trials to gain consent as a discretionary activity enabling Council the ability to decline an activity where the potential risks are deemed to be too great, and to attach conditions to a consent approval to address liability and monitoring requirements.</p> <p>Community consultation has determined that a precautionary approach in the management of GMOs is warranted. The policy achieves this. If the community were to depend on the EPA approval process as currently is the case, there is no requirement for the EPA to be precautionary, and community preferences may not be achieved.</p>	<p>The prescriptive nature of the policy results in prescriptive rules, thus foreclosure of potential opportunities associated with certain GMO developments that could benefit the district or region. This cost is remedied through the ability to reverse a prohibited activity in a plan. A council or a GMO developer can initiate a plan change, if it were to become evident during the field trial stage, and in light of new information, that a particular GMO activity would be of net benefit to the Northern Peninsula. The lead time involved in gaining an EPA consent would be similar to that required to achieve a plan change. Processing a plan change would however result in costs to the Council and/or the applicant, and would be specific to a particular class or GMO variety.</p> <p>Administration costs to the Council to receive and process an application for a field trial as a discretionary activity and associated compliance monitoring costs. This cost is partially remedied as the application costs and costs of monitoring are fully recoverable from the applicant. General compliance costs are also generated by all other activities under a plan.</p>	<p>This policy will achieve the Objectives as it incorporates a prescriptive rule regime that prohibits outdoor releases of GMOs in order to protect against potential adverse effects, and provides for field trials as a discretionary activity. This recognises that the outdoor use of GMOs is a significant resource management issue to the Northern Peninsula community, including tangata whenua, and ensures potential adverse effects will be addressed at the outset, and are appropriately avoided, remedied or mitigated. There are significant benefits to be gained by this policy, and the relatively minor opportunity costs incurred by prohibiting GMO releases can be largely remedied through the ability to initiate a plan change. The prescriptive rule regime provides certainty to the community, including Māori, and achieves both efficiency and effectiveness that is not achieved with the status quo.</p> <p>This policy is effective in clearly stating that general releases of GMOs are prohibited, apart from veterinarian vaccines, while resource consent is required for any GMO field trial, enabling the Council to manage any potential effects through conditions.</p> <p>This policy is efficient and effective and will assist in achieving the Objectives. It has been determined that this policy is appropriate.</p>
<p>Proposed Policy 1.4.1.2 and 2.3.1.2 To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to conditions that ensures the consent holder is financially accountable (to the extent possible) for any adverse effects associated with the activity, including clean-up costs and remediation, including via the use of bonds.</p>	<p>Due to the weak liability and financial assurance arrangements under the HSNO Act, councils are exposed to meeting the costs of clean-up if the polluter does not pay. The Ministry of Primary Industries is only obliged to clean up illegal releases, not those approved by the EPA that have unexpected effects. Further GMO contamination could have a potentially significant impact on returns to non-GM growers in the district or region and could affect other parts of the country as well.</p> <p>This policy requires the consent holder to be financially accountable for adverse effects to the extent possible, reducing risk to the community and environment, and</p>	<p>Some costs for the Council in respect to administering the bond, clean-up activities and any remediation required.</p>	<p>The policy will achieve the Objectives as it requires GMO field trials that are granted resource consent to be subject to conditions that deems the consent holder financially liable for ensuring that the potential adverse effects of the activity are appropriately avoided, remedied or mitigated.</p> <p>While civil action may be taken using tort law, this is an inappropriate, onerous and generally ineffective way to seek compensation. The proposed policy is a more efficient way of ensuring those responsible for any adverse effects cover the costs they cause to innocent parties.</p>

Policy / Rule / Method	Assessment under section 32(4)(a) of the Act		Assessment under section 32(3)(b) of the Act
	Benefits	Costs	Having regard to their efficiency and effectiveness, the appropriateness in achieving the objective
	<p>provisions for potential clean-up costs to be met.</p> <p>The community has indicated a desire that a liability regime be implemented that requires those engaging in a GM release to pay compensation for any harm caused by an approved release, as this is not provided for under the HSNO Act.</p> <p>This policy is designed to avoid the costs for clean-up being met by the Council or its constituents, and greatly reduces the burden of proof required by Council to obtain compensation, as well as the time and costs involved in doing so.</p>		<p>The benefits of ensuring the consent holder is financially accountable for any adverse effects associated with a GMO activity, far exceed the cost. The Objectives and rules have been designed to ensure the environment is protected from adverse effects associated with outdoor GMO use. This policy is efficient and effective in achieving the Objectives.</p>
<p>Proposed Policy 1.4.1.3 and 2.3.1.3 To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to conditions that serve to avoid, as far as can reasonably be achieved, risk to the environment from the use, storage, cultivation, harvesting, processing or transportation of a GMO.</p>	<p>It is recognised that while GM techniques are expected to offer benefits in many sectors, there are risks associated with their use. These risks could be substantial and certain consequences irreversible. This policy enables Council to apply more stringent measures than those required under the provisions of the HSNO Act, to manage potential risks.</p>	<p>There is a cost to Council to monitor compliance with conditions. There is an opportunity cost in forgoing the potential release of GMOs, however traditional non-GM techniques as well as new techniques (for example MAS) are currently capable of producing the same deliverables as GM varieties.</p>	<p>The cost to Council to monitor compliance with consent conditions is no greater than for other activities that require resource consent as a discretionary activity. The benefits of ensuring adverse effects on the environment are avoided, remedied or mitigated for the community far outweigh these costs.</p> <p>This policy is efficient and effective in addressing the Objectives to protect the environment from potential adverse effects, and ensures targeted outcomes are achieved.</p>
<p>Proposed Policy 1.4.1.4 and 2.3.1.4 To ensure that a resource consent granted for the outdoor field trialling of a GMO is subject to a condition requiring that monitoring costs are met by the consent holder.</p>	<p>The EPA is not obligated to set monitoring requirements (including beyond the consent duration) as a part of its approval process, and can only require monitoring where it is relevant to assessing environmental risk. Under section 35 of the RMA a council has a duty to monitor, which can be expensive. Requiring the consent holder to meet the costs of monitoring ensures the costs aren't borne by the Council or its constituents.</p> <p>This policy provides a clear statement of financial requirements on the consent holder, resulting in increased certainty for all parties.</p> <p>The policy is designed to reduce the likelihood that activities will impact on the environment or the economy, or financial costs will be borne by the Council or its constituents.</p>	<p>There are few costs associated with this policy, as monitoring costs will be borne by the consent holder. Council's obligations are limited to ensuring compliance and auditing the results of monitoring.</p>	<p>This policy is efficient and ensures that Council obtains the monitoring it requires to adequately protect against risk, and it is not burdened with significant expense to achieve this.</p> <p>This policy is effective and will ensure the consent holder is financially accountable for any monitoring required.</p>
<p>Proposed Policy 1.4.1.5 and 2.3.1.5 To require consent holders for a GMO activity to be liable (to the extent possible) for any adverse effects caused beyond the site for which consent has been granted for the activity.</p>	<p>Accidental or unintentional migration of GMOs that result in GM contamination and require subsequent clean-up and remediation can be expensive. Further, GM contamination of non-GM food can trigger product rejection or other forms of economic loss. Requiring the consent holder to be liable for any adverse effects beyond the site the extent possible addresses the significant Resource Management Issue.</p>	<p>No costs identified with this policy.</p>	<p>This policy is efficient and effective in achieving the Objectives by limiting the area in which GM materials may be used such that dispersal beyond the area is a breach of consent and costs of damages are recoverable.</p>

Policy / Rule / Method	Assessment under section 32(4)(a) of the Act		Assessment under section 32(3)(b) of the Act
	Benefits	Costs	Having regard to their efficiency and effectiveness, the appropriateness in achieving the objective
<p>Proposed Policy 1.4.1.6 and 2.3.1.6 To adopt an adaptive approach to the management of the outdoor use, storage, cultivation, harvesting, processing or transportation of a GMO in the district or region through periodic reviews of these plan provisions, particularly if new information on the benefits and/or adverse effects of a GMO activity becomes available.</p>	<p>Avoids foreclosure of potential opportunities associated with a GMO development that could benefit the Northern Peninsula. Can be initiated by either Council or GMO operator. Must go through plan review process and timeframes to process are similar to those to obtain GMO approval from the EPA.</p>	<p>Costs will be incurred by Council to implement a plan change, unless a private plan change is initiated.</p> <p>Transaction costs and opportunity costs to the GM proponent of having to go through two processes (EPA approval and plan change under the RMA).</p>	<p>This policy ensures that if a particular GMO or group of GMOs demonstrates potential to provide net benefits then a plan change could make them subject to discretionary activity status. This policy is efficient and effective in ensuring any potential future benefits of GMOs are provided for.</p>
<p>Permitted Activity Rule 1.7.2 and Rule 2.6.2 <i>GMOs that are not specifically provided for in Rules 1.7.3 (2.6.3) and 1.7.4 (2.6.4) are a permitted activity. These include (but are not limited to):</i></p> <p>(a) <i>Research within contained laboratories involving GMOs.</i></p> <p>(b) <i>Medical applications involving the manufacture and use of non-viable GM products.</i></p> <p><i>Such activities may require consents and / or permits under other legislation / plans.</i></p>	<p>The permitted activity rule provides clear guidance to plan users and Council alike on what GMO activities can be undertaken without need for resource consent.</p>	<p>There are no costs identified with this rule.</p>	<p>This rule is considered to be efficient as the absence of a permitted activity rule would mean all GMO activities would require a consent.</p> <p>This rule is efficient and effective as it permits medical applications involving the manufacture and use of non-viable GM products, and vaccines that tend not to persist in the environment, appear to be low risk and are difficult to monitor.</p> <p>This rule is efficient and effective in achieving the Objectives.</p>
<p>Discretionary Activity Rule 1.7.3 and Rule 2.6.3 <i>The following are discretionary activities throughout the district or region:</i></p> <p>(a) <i>GMO field trials.</i></p>	<p>Providing for field trials as a discretionary activity allows Council to decide on what GMO activities are suitable for the district or region, presents a low level of risk to the community, and provides Council the opportunity to decline high risk or information poor applications. As an application requirement is that the EPA has already approved the activity, Council's role is limited to determining whether there are additional conditions required to make the activity acceptable, or whether to decline the application.</p> <p>Assessment criteria under the HSNO Act does not include liability provisions, therefore the discretionary activity status enables councils to address liability through general development and performance standards.</p> <p>Activities can be undertaken subject to conditions designed to avoid more than minor effects on the environment.</p>	<p>No certainty for GMO operators who may wish to undertake an activity in the area, even though they have EPA approval. This may result in an unwillingness to seek a consent and foreclosure of potential opportunities that could benefit the district or region.</p> <p>Resources and costs required by Council to implement and administer the rules.</p>	<p>The discretionary rule is effective as conditions can be tailored to uniquely fit each activity. It is also efficient as it is supported by a range of compliance and enforcement powers under the RMA.</p>
<p>General Development and Performance Standards Rule 1.7.4 and Rule 2.6.4 Discretionary activities are to comply with the following general development and performance standards in order to establish in the district or region. The general development and performance standards are in addition to any controls/conditions imposed by the EPA.</p>	<p>Council can set higher standards for control than the EPA has or could be expected to.</p> <p>Provides clear guidance to applicants and Council alike on the standards GMO field trials must achieve.</p>	<p>Resources and costs to Council to implement and administer the standards.</p>	<p>Listing the general development and performance standards that the consent holder must achieve is efficient in that it provides clear guidance to applicants of the required standards that must be met in undertaking the activity.</p> <p>It is effective to set performance standards under the RMA, such that certain outcomes are assured. Performance standards are effective in mitigating risks.</p>

Policy / Rule / Method	Assessment under section 32(4)(a) of the Act		Assessment under section 32(3)(b) of the Act
	Benefits	Costs	Having regard to their efficiency and effectiveness, the appropriateness in achieving the objective
<p>1.7.4.1 Approvals</p> <p>All GMO discretionary activities shall:</p> <p>(a) Have the relevant approval from the EPA. (b) Be undertaken in accordance with EPA approval conditions for the activity.</p> <p>1.7.4.2 Bond Requirements</p> <p>Council requires the applicant for the resource consent to provide a performance bond (akin to a bank guarantee) in respect of the performance of any one or more conditions of the consent, including conditions relating to monitoring required of the GMO activity (prior to, during and after the activity), and that this be available for payment to redress any adverse environmental effects and any other adverse effects to third parties (including economic effects) that become apparent during or after the expiry of the consent.</p> <p>The exact time and manner of implementing and discharging the bond shall be decided by, and be executed to the satisfaction of Council.</p>			<p>The requirement to post a performance bond rather than commit cash resources means the applicant's available capital is not reduced by the requirement.</p>
<p>Prohibited Activity Rule 1.7.5 and Rule 2.6.5</p> <p>The following is a prohibited activity in the district or region for which no resource consent shall be granted:</p> <p>(a) Outdoor GMO releases (food-related and non-food-related) not otherwise provided for by Rules 1.7.2 and 1.7.3.</p>	<p>Costs to Council associated with administering this rule are limited as the activity is prohibited. No costs can arise from legal challenges to individual decisions that could be made under a discretionary regime.</p> <p>The potential adverse effects of GMO releases on the environment, economy and socio-cultural values have been identified by the community as key concerns. The prohibited activity status is consistent with a precautionary approach and provides certainty to the community that no GMO releases can be undertaken without specific further consideration and subsequent plan change. Prohibited activity status avoids entirely the high levels of potential harm and uncertainties about costs associated with an unforeseen event. The matter of provision of compensation and its adequacy, particularly in terms of opportunity costs is avoided.</p> <p>Prohibited activity status would not be subject to the option, as under a discretionary approach, that the EPA could call in an application or it could be referred directly to the Environment Court. Therefore the Council and the community it represents would retain the capacity to determine its own policy in terms of outdoor release of GMOs.</p> <p>Application of the prohibited rule throughout the Northern Peninsula will provide for consistency in the</p>	<p>By prohibiting certain activities from establishing, new developments/technologies face uncertainty and delay in seeking approval by way of a plan change. This could result in foreclosure of potential opportunities associated with a GMO development that could benefit the Northern Peninsula. This cost is remedied through the ability to reverse a prohibited activity in a plan. A council or a GMO developer can initiate a plan change to make it subject to discretionary provisions, if it were to become evident during the field trial stage and in light of new information that a particular GMO activity would be of net benefit to the Northern Peninsula. The lead time involved in gaining an EPA approval would not be dissimilar from that required to achieve a plan change. The change would however be specific to a particular class or GMO variety.</p> <p>The District/Unitary Plan will need to be amended if a prohibited activity demonstrates it would be of benefit.</p> <p>Time and monetary costs associated with the plan change process for the Council, GMO developer and community.</p>	<p>The rule will achieve the Objectives, as it will ensure that potential adverse effects from general releases of GMOs will be avoided.</p> <p>The rule also provides clarity to the Council and the community about what GMO activities can and cannot be undertaken.</p> <p>The policy is effective in addressing cross-boundary effects and associated risks, such as perception, opportunity costs and transportation risk, through a consistent application of the rule throughout the Northern Peninsula.</p> <p>Periodic review can consider whether clear benefits of GMO technology can be identified and risks managed, and whether specific classes of GMO releases could be made a discretionary activity. The prohibited activity status places the onus on the GMO proponent to provide sufficient information on the level of risk in resource management terms when proposing a plan change.</p> <p>The rule is specific to GMO releases, which makes it efficient in achieving the Objectives and addressing the significant Resource Management Issue. It recognises the potential risk associated with GMO releases and the lack of provisions for strict liability in the District/Unitary Plan. This rule is particularly effective in achieving the Objectives.</p>

Policy / Rule / Method	Assessment under section 32(4)(a) of the Act		Assessment under section 32(3)(b) of the Act
	Benefits	Costs	Having regard to their efficiency and effectiveness, the appropriateness in achieving the objective
	approach to GMO releases and will largely eliminate cross-boundary controls (apart from the southern boundary).		
Introduction of Definitions	<p>Including definitions will result in greater certainty and efficiencies in plan administration, and for potential applicants.</p> <p>GMO activities (field trials and releases) are not currently provided for in the District/Unitary Plan. The introduction of these definitions provides certainty around what GMO activities are provided for in the Plan Change.</p>	If the definitions do not accurately define the GMO activities they are intended to provide for, there could be confusion in determining what activities are specified in the provisions. To mitigate against these risks, the definitions are intended to be consistent with the national level regulation.	<p>The definitions are necessary to enable the new policies and rules to be workable, and to provide certainty to consenting authorities. It is an appropriate way to ensure that specific GMO activities are provided for.</p> <p>The efficiency and effectiveness of the new definitions will make progress towards achieving the Objectives.</p>

5. NEXT STEPS

Schedule 1 of the RMA outlines the requirements for consultation in the plan development process. In respect to a section 32 evaluation, consultation is important as it assists to identify and assess issues, gather information from, and understand the needs of, resource users and others in the community, including tangata whenua.

The initial evaluation of community responses has indicated that the Northern Peninsula community, including tangata whenua, seek a relatively strong degree of precaution in respect to the management of GMOs, but also remain open to opportunities that new GMOs may provide. This community preference has informed the development of the Plan Change.

Schedule 1 requires targeted consultation and allows for public consultation during the preparation of a plan or change to a plan. It is proposed that the Plan Change and Section 32 Report are now subject to consultation as required under Schedule 1 of the Act to assess community views on the Plan Change.

The consultation process should acknowledge the Waitangi Tribunal Wai 262 findings and should include engagement with Mana Whenua iwi authorities and with Mataawaka.

A good opportunity to undertake consultation in the context of the Auckland Council jurisdiction is in the form of the proposed March 2013 Unitary Plan Discussion Draft. The inclusion of the Plan Change provisions associated with this section 32 evaluation is a matter for the determination of the Auckland Council.

6. CONCLUSION

This report, along with the supporting documentation in Volume 2, provides a section 32 analysis with respect to a Plan Change that proposes new provisions for the Northern Peninsula's respective District / Unitary Plans to manage the outdoor use of GMOs. While there may be a range of benefits associated with the outdoor use of GMOs, there are also environmental, economic and socio-cultural risks that could be substantial, and irreversible. A wide range of GMO products are being researched and developed, including ones that GMO developers/operators may consider introducing to the Northern Peninsula. The current lack of provisions to manage GMOs in the District / Unitary Plans with respect to GMO activities does not protect the environmental, economic or socio-cultural resources of the Northern Peninsula, nor does the absence of provisions reflect the level of control desired by the communities (including Māori) to manage GMO activities.

There are key gaps in the national regulation of GMOs, namely the absence of adequate liability provisions and applicant financial fitness requirements, the absence of a mandatory precautionary approach, and a lack of surety of outcome for local government and communities. Changes to the national level regulatory regime to address these gaps have not been forthcoming, despite substantial on-going local government pressure for such change. Where a local authority has determined that a precautionary approach to GMO risks is warranted, and that higher standards than those set by the EPA are warranted, or that the EPA can not be relied on to undertake the level of monitoring or financial accountability sought, it has jurisdiction under the LGA and RMA to manage land and water uses involving GMOs. This interpretation is based on legal advice provided to the Working Party, and is consistent with Crown Law and Ministry for the Environment advice.

The purpose of the Plan Change is to apply a precautionary approach to manage the outdoor use of GMOs to minimise the risk to the environment, economy and socio-cultural resources and values. The Plan Change is established such that Northern Councils are employing supplementary, not duplicative, regulation. Local government is determining to impose stricter provisions to ensure community determined outcomes can be achieved and that it can fulfil its duty of care to its constituents.

The Plan Change inserts a new significant Resource Management Issue, Objectives, Policies and Methods (including new definitions) into the District / Unitary Plan. The purpose of this is to ensure that the outdoor use of GMOs, including in the CMA, is managed in accordance with the purpose of the RMA. The Plan Change provisions have been drafted generically, to enable individual councils to tailor the provisions to their specific District / Unitary Plan.

Initial consultation has found strong support for local authorities to have a role in regulating GMOs in their areas. Local or regional level regulation of the outdoor use of GMOs is supported by the Northern Peninsula communities, including Māori. Issues raised during consultation have been addressed through the commissioning of technical assessments, the refinement of the Plan Change provisions, and this section 32 evaluation.

An assessment of the proposed provisions under section 32 of the Act has determined that the Objectives are appropriate to achieve the purpose of the Act, and that the proposed policies, rules and other methods are the most appropriate way to achieve the Objectives. The provisions are an appropriate response to community aspirations to manage risks associated with GMO activities, and are consistent with the

precautionary approach provided for under the RMA, where activities may be prohibited if there is uncertain or insufficient information. The assessment has also determined that the risk (and cost) arising from acting is low, but that the risks and potential costs arising from not acting are high.

Targeted consultation and discussion with key interest groups and the community is required to assist the Northern Councils to further refine the significant Resource Management Issue and determine the appropriateness, costs and benefits of the Plan Change.

The various provisions detailed within this report are considered to be the most appropriate way to address the significant Resource Management Issue. Based on the assessment provided in this report, it is appropriate for the Northern Councils to proceed with the Plan Change.

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