Written Statement of Evidence for Whangarei District Council Proposed Plan Change 131 and Far North District Council Proposed Plan Change 18

Prepared by the Ministry for the Environment on behalf of the Minister for the Environment

13 June 2016

Introduction

1. New organisms, including genetically modified organisms (GMOs), offer both opportunities and risks to New Zealand. Throughout our history, new and improved plant species, biological control agents, medicines, and animal vaccines have improved our economic well-being, productivity, and health. At the same time, new organisms can create risks if released into the environment. Because such organisms are new to New Zealand, their potential effects cannot be known with certainty before they are introduced. The HSNO Act helps minimise risks of environmental harm by regulating research into, and release of, all living things that are new to New Zealand.
2. The Minister seeks that Whangarei District Council's (WDC) proposed Plan Change 131 and Far North District Council's (FNDC) proposed Plan Change 18 are not adopted. Decision-making under the HSNO Act is the most appropriate way to make decisions regarding GMO applications. Throughout this evidence, it will be shown that the supposed gaps in the HSNO process, which have been used to justify the proposed provisions by FNDC and WDC, are not gaps at all. Under the HSNO process:
    - the expertise is provided to facilitate clear and robust decision-making on a technically complex topic;
    - economic considerations are taken into account;
    - appropriate monitoring conditions are imposed on approval holders;
    - pecuniary penalties and modified strict liability claims apply in the unlikely event of a GMO escape;
    - a precautionary approach is taken to dealing with GMO applications;
    - consideration of Māori cultural values is a statutory requirement;
    - public participation is a key component and provides a voice for local concerns; and
    - a comprehensive and consistent national-level framework applies that is specifically tailored towards protecting the environment and the health and safety of people and communities from the unique adverse effects of GMOs.
3. Additionally, there are fundamental flaws to the argument that local level regulation is needed to set bond requirements.
4. To provide examples, this evidence will refer to two decision documents released by the Environmental Risk Management Authority (now the Environmental Protection Authority (EPA)). Both of these applications were approved in 2010 and are for field tests in containment. The first decision relates to an application to develop genetically modified (GM) goats, sheep, and cows in containment (Decision 1), and the second relates to an application to field test GM *Pinus radiata* (Decision 2). Both these documents are available on the EPA's website.

Preliminary Matters

5. Before discussing the main body of evidence, two preliminary matters ought to be addressed: the officer's recommendations and the Environment Court decision currently on appeal to the High Court.

Environment Court Decision

6. The Environment Court decision of 12 May 2015 (Decision No. [2015] NZEnvC 89) found that regional councils have jurisdiction under the RMA to regulate GMOs. This decision was part of Federated Farmers' Environment Court appeal on the Northland Regional Policy Statement opposing a provision relating to GMOs.
7. The Court's finding is in line with statements from Government in the past and Crown Law advice. However, these statements and the Crown Law advice emphasised the requirement to pass the statutory tests in the RMA. For reasons described in this evidence, we maintain that the Councils have not passed these statutory tests. For the proposed plan changes, either the HSNO Act comprehensively covers them, or they are neither efficient nor effective for other reasons.
8. I note that the Federated Farmers have appealed this decision to the High Court and that a decision is still pending.

Officer's Recommendations

9. I also wish to acknowledge the response to my submission in the section 42A report. The discussion and recommendations on relevant matters has been reviewed. I maintain that WDC's Plan Change 131 and FNDC's proposed Plan Change 18 are not adopted for the reasons outlined in my original submission. This evidence will provide support to the arguments raised in that submission.

Statutory Context

10. The Ministry for the Environment (the Ministry) administers numerous pieces of legislation, including the RMA and the HSNO Act. Both Acts (and others) are administered under the one ministry to ensure the environmental management system achieves the best environmental, economic, social, and cultural outcomes. It is important that this legislative environment functions effectively and without duplication.
11. New Zealand is a small country, both in population and landmass, and its 'clean and green' branding is national, rather than being unique to a particular region. There are certain activities that pose nationally significant risks to New Zealand, requiring regulation at the national level. National level regulation ensures these risks are appropriately addressed and the potential costs and benefits are shared equitably. The management of hazardous substances and new organisms (including GMOs) are such activities, and the HSNO Act has been put in place is to provide a national framework for managing these risks.

12. The purpose of the HSNO Act is "to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms" (section 4). The Ministry administers the Act, while the EPA implements it. The HSNO Act requires an approval issued by the EPA for activities that involve any new organism entering or being created in New Zealand.
13. The EPA is a Crown entity, meaning it is at arm's length from the Government of the day. The EPA can make its decisions based on the evidence presented to it and through a technically rigorous risk assessment process.
14. There are three main types of approval under the HSNO Act. First, approval to import or release a new organism (this is a full release and does not have controls placed on it). Second, approval to conditionally release a new organism (this allows conditions to be placed on the approval). Finally, approval to import or develop a new organism in containment.
15. For all of these applications, the EPA carries out a detailed risk assessment taking into account social, economic, environmental, and cultural factors. A specific methodology order set out in regulations guides this risk assessment. It contains guidance on the evaluation, aggregation, and comparison of risks, costs and benefits; decision-making; uncertainty; and approaches to risk. The public is also given the opportunity to submit on applications. This would include local authorities and local communities where approvals to use GMOs are sought.
16. From the results of this comprehensive assessment, the EPA makes a decision on the application and places any controls necessary to prevent or avoid any adverse effects to people and the environment. The EPA may also decline the application.
17. Regarding new organisms, the Ministry for Primary Industries enforces the controls placed on an approval and carries out inspections for its enforcement purposes. It also responds to complaints passed to it from the public, councils, and other parties. Councils do not have responsibilities to enforce the HSNO Act with respect to new organisms.

The Need for National-Level Decision Making

Dealing with Complexity

18. The genetic modification (GM) field is rapidly evolving and scientifically complex. The assessment of applications requires the consideration of a wide variety of specific factors in the GM process. These determine the particular risk profile of the final organism. Consideration must be given to the particular host organism, the type of GM and material used, the particular technique used, the particular trait that is being produced, and how these interact to form the final organism. Figure 1, from Decision 1, shows the hierarchy of interaction between these factors.

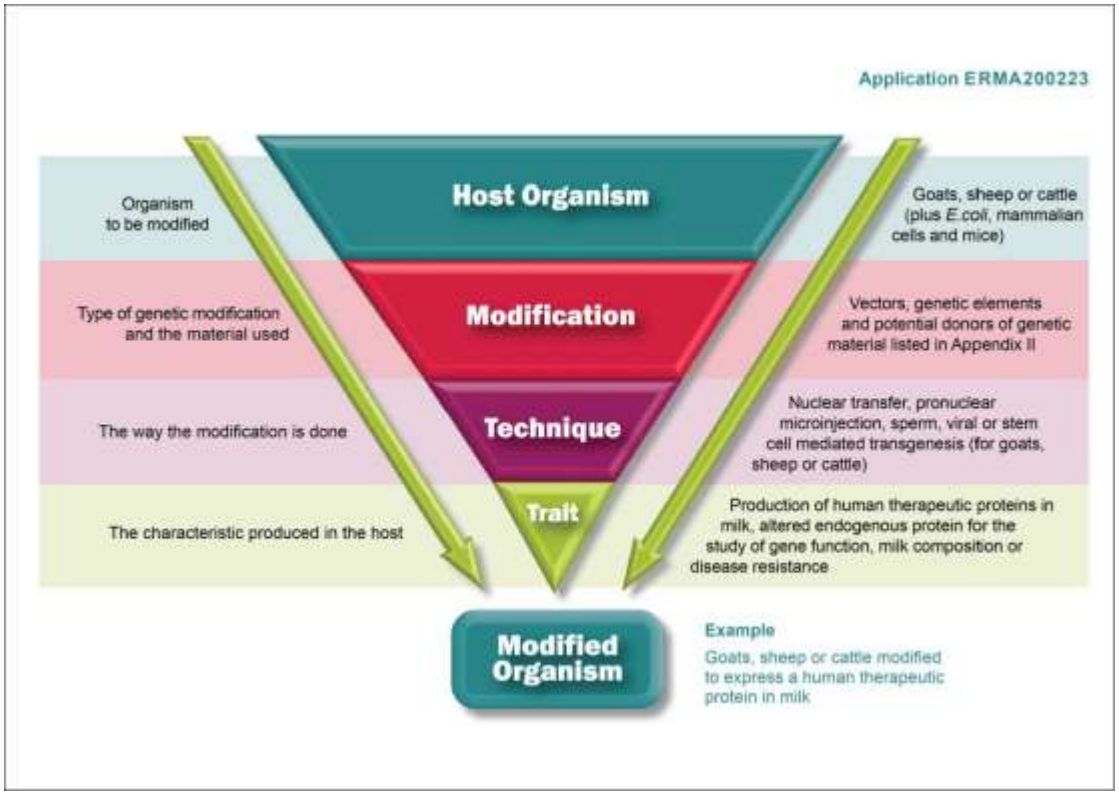

Figure 1: Technical considerations in GMO application

19. To assess the risks of these factors requires detailed knowledge of the particular variables involved. Even before carrying out this risk assessment, there are other scientifically complicated matters to overcome. For example, what falls within the definition of a GMO and what does not; and how do you manage issues of detectability, where the final product of a GM technique cannot be distinguished from one developed through traditional breeding techniques? Addressing all this requires a high degree of technical ability.

20. Upon receiving an application, EPA advisors with scientific expertise review it. The EPA can also request additional information from the applicant, or may appoint consultants with specific knowledge if required. In deciding on applications, the EPA delegates its decision-making authority to the HSNO Committee. This ensures decision makers are appropriately qualified. Currently, the HSNO Committee is comprised of eight expert members from different fields, who are appropriately qualified to make the required decisions. Attachment 1 contains a list of the Committee members and an overview of their background.

21. Considering the small size of the New Zealand scientific community and the specialised nature of the work, it is important that the EPA has the consolidated resources to enable robust decision making. Operation at the national level is necessary to ensure these resources are provided, and to ensure a networked cluster of expertise that can work together to provide the best results.

22. Providing an acceptable level of protection and certainty necessitates an assessment of the real risks posed by GMOs, as opposed to perceived risks. This requires a full risk assessment that takes into account the particular local characteristics. Given the

generally devolved nature of decision-making under the RMA, it would be difficult and costly for councils to obtain the level of expertise necessary for robust decisions.

GM Free Areas

23. One argument for local level regulation of GMOs is that it would allow regions to establish GM free areas, which would then ensure the protection of GM free branding. The 2001 Royal Commission on Genetic Modification (the Commission) reviewed such an idea. The Commission saw difficulty in its implementation for two reasons:

> First, it would require widespread acceptance in a given region before it could be put in place without impinging unduly on the rights of those who wish to avail themselves of selected genetic modification techniques. Second, … a blanket ban on applications of genetic modification would be a blunt instrument when a genetically modified form of Crop A might be quite compatible with a non-genetically modified form of Crop B (p.337).

24. An additional problem to the adoption of GE free zones is how the border between a GM free region and a region using GM technology would be managed. Depending on the crops used, there is a potential risk that GM crops cross these boundaries and enter the free zone. If this is a legitimate risk, it undermines the effectiveness of GM free zones. If it is not a legitimate risk, and due to the particular technology used (e.g. sterilisation) cross-boundary movement is not a risk, then GM Free Zones are unnecessary. This is because the GM material can already be contained.

25. Pursuing regulation under the RMA would lead to a fragmented regime. Management at the national level avoids these problems as it ensures consistency across the country. If GM free zones are found to be required, the HSNO Act does allow controls to protect particular non-GMO organisms, including crops (this is discussed more below). Regarding the RMA, the Commission also notes that widespread acceptance would be needed to justify such a zone. If this acceptance existed, it would also facilitate an agreement amongst industry to remain GM free that does not require formal regulation.

Decision-Making under the HSNO Act

26. This statement will now address the matters raised in the section 32 analysis as deficiencies in the HSNO Act and justifications for the proposed provisions.

The Precautionary Approach

27. A key justification for the proposed changes is that they represent the adoption of a precautionary approach to GMOs. The section 32 analysis states that there is no requirement for the EPA to be precautionary (p.39). However, a precautionary approach is central to decision-making under the HSNO Act.

28. Section 7 (Precautionary approach) of the HSNO Act legally requires that:

> All persons exercising functions, powers, and duties under this Act … shall take into account the need for caution in managing adverse effects where there is scientific and technical uncertainty about those effects.

29. This approach permeates all aspects of the GMO application process, and is central to any robust risk analysis.

30. There are many different versions of the precautionary approach and the precautionary principle, each representing different levels of stringency and different placements of duties. The approach in the HSNO Act is described in more detail in a 2006 Treasury Policy Paper that looks at precaution in New Zealand's risk management framework, it states:

> The regulation of genetically modified organisms is currently based on both the weak and strong forms of the precautionary principle. When there are high risks, high irreversibility of impacts, and a high degree of uncertainty about those impacts, the strong form of the precautionary principle is applied and the application declined. Such an application would be declined regardless of whether the available evidence showed the genetically modified organism to be safe or unsafe, as the impacts associated with getting it wrong would be too great. On the other hand, where there are low risks, low irreversibility and a low degree of uncertainty, minimal regulation and monitoring may be applied (p.7).

31. Decision-makers under the HSNO Act then have the flexibility to apply the level of precaution appropriate to the application. Importantly, the EPA also has the ability to place the onus on the applicant to provide evidence to allow an informed decision. The application can be declined if there is insufficient information to assess the application.

32. The HSNO Act also has a number of safeguards to ensure an appropriate level of precaution in the decision-making process. The minimum standards in section 36 of the Act specify that an application must be declined if it is likely to cause any significant adverse effects on native species, natural habitats, human health, New Zealand's inherent genetic diversity, or cause disease or be a vector for disease (unless that is the purpose of the application). In addition to these specific matters, the other matters (e.g. economic considerations, effects on Māori cultural values etc.) must be considered.

33. An example of how precaution is applied in practice comes from Decision 1. In their deliberation, the Committee was satisfied that the level of risk was low; however:

> …as part of the committee's cautious approach to risk assessment it decided to limit the duration of the approval to twenty years and to require a report on adverse and beneficial effects after ten years. Depending on the content of this report, there could be grounds for a reassessment of the approval (p.23).

34. Despite the application having a low risk profile, the Committee still applied the precautionary approach (as it is required to by section 7) and applied caution.

35. Proposed Objective GMO.2.1.1 of the WDC Proposed Plan and Proposed Objective 19.3.1 of the FNDC Proposed Plan is:

> 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.

36. The above evidence shows that the proposed Objective to adopt a precautionary approach is not justified and not the most suitable means of achieving the purpose of

the RMA, as it is already included in the HSNO decision-making process. There is no gap to address as the HSNO Act does provide certainty on the application of precaution.

Economic Considerations

37. The proposed plan changes rely heavily on economic justifications in the section 32 analysis. Broadly, there seems to be an impression that the HSNO Act is not well equipped to take into account economic effects and place controls accordingly. However, decision-making under the HSNO Act is required to include a consideration of economic effects. Decision makers (e.g. the HSNO Committee) must prevent or manage any adverse effects through placing appropriate controls on, or declining the application.

38. The HSNO Act requires decision makers to consider economic effects in several of its provisions. Section 5(b) requires decision-makers to recognise and provide for the maintenance and enhancement of the capacity of people and communities to provide for their economic well-being. Section 6(e) requires them to take into account "the economic and related benefits and costs of using a particular hazardous substance or new organism." In addition, the definition of 'environment' gives explicit recognition to the role of economic—along with social, aesthetic, and cultural—conditions in the environmental system.

39. An example from Decision 1 shows how the decision-maker considers these economic effects. In this case, decision-makers considered the potential adverse effects on the market through potential damage to New Zealand's 'clean green' image. They stated:

> It was considered highly improbable that any GMO could escape from containment … this is a small scale research in containment application and that there has been no effect on the market economy resulting from other field tests and outdoor development research undertaken in New Zealand. Therefore, the magnitude of any effect on the market economy was considered to be **minimal**.
>
> The committee considered that international market perceptions may be affected by release of GMOs but that any adverse effect on the market economy through a deterioration of our clean green image as a result of this development is **negligible** [original emphasis].
>
> (p.32)

40. This shows that the decision-making process under the HSNO Act does take into account economic factors. Importantly, it highlights how the HSNO Act considers such impacts at the national level; for example, on New Zealand's 'clean and green' image.

41. The HSNO Act provides for a conditional release of new organisms (ie, a release with controls), rather than only providing for a full release. The EPA has the ability to impose specific controls to manage economic effects on particular regions. Particular GMOs can also be excluded from areas where their presence would be a significant threat to an established non-GM crop use. This is reflected in the broad control making provisions provided in section 38D of the HSNO Act. These include controls to:

    - limit the dissemination or persistence of GM material in the environment

- limit the proximity of the organisms to other organisms, including those that could be at risk from the conditionally released organism
- control the extent and purposes for which the organism can be used.

42. Therefore, the HSNO Act gives the EPA the ability to impose controls to protect a particular existing use, if the evidence presented to it justifies such a control and the control would be effective. The HSNO Act contains public participation provisions (discussed more below), which provides the opportunity for such evidence to be provided.

Effects on Māori Cultural Values

43. The section 32 analysis states the proposed 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" (p.32). The HSNO Act already requires all persons exercising functions, powers, and duties under the Act to take into account "the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, valued flora and fauna, and other taonga" (Section 6(d)). Section 8 states that "All persons exercising powers and functions under this Act shall take into account the principles of the Treaty of Waitangi (Te Triti o Waitangi)." The EPA is clearly then mandated to take into account effects of GMO applications on Māori cultural values.

44. Under the Environmental Protection Authority Act 2011, the EPA is also required to have a Māori Advisory Committee (called Ngā Kaihautū Tikanga Taiao). This committee is comprised of four to eight people appointed by the EPA Board. Ngā Kaihautū Tikanga Taiao provides the EPA Board with a broad overview of Māori interests and perspectives. The EPA also has a designated Māori Policy and Operations Group (Kaupapa Kura Taiao) to ensure the EPA's decision-making and other processes incorporate Māori perspectives.

45. The Committee considered these perspectives and effects in Decision 1. The Committee considered what consultation with Māori had been undertaken to give effect to section 6(d) and section 8 (described above). To ensure opportunities for future consultation and enable active monitoring of intangible effects, the Committee imposed a control requiring the approval holder establish an iwi liaison group to ensure iwi/Māori cultural matters were addressed. Specifically, the approval holder had to invite mandated representatives of Ngāti Waitere and Waikato-Tainui to participate and establish a Terms of Reference. The expectation was the approval holder would also invite other iwi/Māori groups to participate.

46. The justification in the section 32 analysis relating to this matter is not applicable because decision-makers under the HSNO Act are already required to consider potential effects on Māori cultural values. To ensure additional consideration interested parties can also make a formal submission.

Public Participation

47. The EPA values public participation when making decisions on GMO applications, and the HSNO Act contains appropriate provisions that give the public the ability and right to be heard. In justifying the proposed plan provisions the section 32 analysis states that the proposed provisions would allow community determined outcomes and full public participation for field trial applications (p.26). However, the more specific HSNO Act already allows for the same level of public participation.

48. It is worth summarising the relevant provisions in the HSNO Act, as these establish the requirements placed on the EPA. First, the HSNO Act sets out the criteria for when public notification and participation must occur:

    - applications to conditionally release or full release new organisms that have not undergone a rapid assessment (which can be used only when risk and uncertainty is very low)
    - applications to field-test GMOs
    - applications to import or develop a GMO in containment, where the EPA considers there is likely to be significant public interest.

49. The process for public notification is also found in legislation. Where the EPA has publicly notified an application, any person may make a written submission on the application. The EPA must also specifically notify any local authority "that is likely to have an interest in the application" (section 53(4)(c)). This helps ensure that councils have the opportunity to represent their community's interests in the decision making process. The EPA must allow 30 working days to receive submissions. All submitters have the opportunity to be heard at a public hearing. The results of public participation form a central element of the evidence used by the Committee in their decision-making.

50. An example from Decision 1 shows how the Committee considers this. On this application, the Environmental Risk Management Authority received 1545 written submissions and 37 of them presented oral submissions at the hearing. This hearing was held in Hamilton specifically due to its proximity to the containment facility, giving those closest to the facility the best opportunity to present their views. Throughout Decision 1 matters raised by submitters are explicitly considered. For example, one submitter was concerned about the potential contamination of goats used to maintain the grass between the perimeter fences from GM goats within the facility. Considering this, the Committee imposed the following control:

    > The approval holder must ensure that any animals used to control grass in the space between the double perimeter fences are not of the same species as the animals being held within paddocks, which are adjacent to the inner fence (p.42).

51. The above example, and the sections within the HSNO Act that it is based on, show that the standard of public participation under the HSNO Act is appropriate and effective for giving voice to local concerns at both the individual and council level. The process is very similar to that under the RMA, but specifically designed to deal with GM applications. This is then the most effective and efficient way of addressing community concerns.

Monitoring Requirements

52. The proposed plan changes include the ability to set conditions for monitoring at the cost of the applicant. In justifying this, the section 32 analysis states that it is a risk to have to rely on the EPA imposing monitoring requirements and that monitoring costs could fall on Council.

53. However, under section 38D of the HSNO Act the EPA already imposes monitoring controls where they are necessary to give effect to the purposes of the Act, and these controls place the cost of monitoring on the applicant. The Ministry for Primary Industries, as part of its enforcement function, then ensures that applicants are fulfilling these monitoring requirements.

54. Decision 2 provides an example of a monitoring requirement where the costs were born by the applicant. The decision required the applicant to monitor and inspect the development of male or female reproductive structures on the plants. It stated that the applicant must ensure that "They remove from the approved organisms any developing male or female reproductive structures before they mature" (p.24). The applicant was required to kill the plants on which reproductive structures appeared. The EPA required an annual public reports on activities, including an environmental impact assessment, to be produced. Post-field test monitoring was also required for two years. These monitoring requirements ensured that any potentially heritable material could not escape the field-testing site.

55. If an applicant breaches these controls and escape occurs, the applicant would be open to civil liability and pecuniary penalties under Part 7A of the Act and for prosecution under Part 7.

56. The Government holds that the HSNO Act covers all required aspects of a GMO application; therefore, the Act is suitable for imposing monitoring controls on these matters. It does this in a way that does not result in costs for councils. This is unlike the proposed provisions, which would require councils to monitor compliance with consent conditions.

Liability Provisions

57. A key justification for the proposed rules is that in the event of the escape of GM material, the HSNO Act does not have sufficient liability provisions to hold application holders financially accountable for damages.

58. The main objectives of liability rules are to encourage precaution, provide compensation for harm, and remediate damage. Of these, the most important is to encourage precaution, as this is the only way to prevent damage.

59. Accordingly, the HSNO Act provides for modified strict liability (with some defences). Section 124G states:

> (1) A person is liable in damages for any loss or damage caused by an act or omission of the person while—
>
> (a) developing, field testing, importing, or releasing a new organism in breach of this Act:

(b) possessing or disposing of any new organisms imported, developed, or released in breach of this Act; or

(c) failing to comply with any controls relating to a new organism—

(i) imposed by an approval granted under this Act; or

(ii) specified in any regulations made under this Act.

60. Such liability provisions incentivise compliance by raising the cost of non-compliance. However, for liability provisions to be effective it is important that persons suffering harm can bring a claim and that it has a fair chance of success. This is an important consideration in situations where it is difficult to show causation. Causation can be very difficult to determine in the case of GM technology (a matter raised by the Commission and that also applies to liability provisions under the RMA).

61. To address this matter, the HSNO Act also provides for a pecuniary penalties regime. This allows the Crown (rather than individuals) to impose monetary penalties for the same reasons set out in section 124G as cited above. The crucial difference being that causation between breach and harm is not necessary to impose a penalty. This then covers situations not covered by the liability provisions, ensuring the maximum incentives for compliance.

62. Finally, even if harm from the escape of GM material occurred, and somehow there was no breach of the HSNO Act and the section 124G liability provisions did not apply, the normal common law remedies (e.g. nuisance and negligence) could still be sought.

63. The section 32 analysis advocates for a stricter form of liability. This is shown on page 25, where it states that it is a cost that the HSNO Act does not impose liability in the case of unanticipated events. The Government considers that such provisions would deter activities that are socially beneficial and consequentially stifle innovation and growth. Absolute liability would effectively amount to a prohibition on GM technology. This is due to the potential costs of having consent holders liable for things outside their control. This is unreasonable. Absolute liability would also still be subject to the establishment of causation between the breach and the harm (which pecuniary penalties are not).

64. For these reasons, the liability and pecuniary penalties regimes in the HSNO Act are the most effective and efficient ways of ensuring compliance and providing access to compensation for those harmed by non-complying activities.

Financial Fitness

65. In a related concern about the ability of the HSNO Act to hold GM users liable for damages, the Councils propose that a resource consent for the outdoor field trialling of GMOs is subject to bond requirements. This would ensure funds are available for payment to address any adverse effects to third parties. Both the Commission and the Government have considered bond requirements in the past, but found they would not be effective.

66. One important reason for the inappropriateness of bonds is that applicants rarely provide substantial bonds in cash. Usually the applicant provides a performance bond and an insurance company underwrites this. The arrangement is therefore contingent

on insurance companies being willing to issue these bonds. The Commission stated that difficulties would arise due to the limited knowledge and experience of insurance companies dealing with GM technology. It is questionable if insurers would be able to adequately monitor the precautions taken by the insured and reflect them in the terms of insurance. This could lead to substantial premiums that do not necessarily reflect the real risk. The Commission concluded bond requirements would effectively prohibit the activity. This would deter potentially socially beneficial activities and lead to an opportunity cost for that capital tied up in bonds.

67. The Government in considering the Commissions' findings also found problems with bond requirements. Given the uncertainties and technical complexity, it would be difficult and resource intensive to determine an appropriate bond level. There would then be an increased risk of judicial review/appeal of those who disagree with the conditions. This could have significant resourcing implications for the organisation issuing the bond and open the council up to appeal costs.

68. In short, bond requirements are not an effective way to ensure financial fitness regarding GM applications as they open the issuer to legal challenge and would effectively act as a prohibition on the activity. The proposed requirement in the district plan is therefore not effective or efficient.

Conclusion

69. This evidence has shown that decision-making under the HSNO Act is the most appropriate way to make decisions regarding GMO applications. Under the HSNO process:

    - the expertise is provided to facilitate clear and robust decision-making on a technically complex topic
    - economic considerations are taken into account
    - appropriate monitoring conditions are imposed on approval holders
    - pecuniary penalties and modified strict liability provisions apply in the unlikely event of a GMO escape
    - a precautionary approach is taken to considering GMO applications
    - consideration of Māori cultural values is a statutory requirement
    - public participation is a key component and provides a voice for local concerns
    - a comprehensive and consistent national-level framework that is specifically tailored towards protecting the environment and the health and safety of people and communities from the unique adverse effects of GMOs is applied.

70. Additionally, there are fundamental flaws with the argument that local level regulation is needed to set bond requirements.

71. Even if there were deficiencies in the HSNO regime, the appropriate place to address these is through reviewing and improving the HSNO Act, not through the ad-hoc development of district and regional regulations.

72. Pursuing regulation under the RMA would lead to a fragmented regime, conflict along regional and district boundaries, and a general loss of opportunities that could benefit the whole of New Zealand. It would also be difficult to find and pay for the expertise required to manage GMOs. This is due to the devolved decision making regime that exists under the RMA.

73. For these reasons, the provisions proposed to regulate GMOs under the RMA are neither efficient nor effective, and the objectives themselves are unnecessary because the HSNO Act provides a more specific and effective way of achieving sustainable management regarding GMOs. Therefore, WDC's proposed Plan Change 131 and FNDC's proposed Plan Change 18 should not be adopted.

Attachment 1: The HSNO Committee (obtained from the EPA website)

Dr Kevin Thompson, Chair

Kevin Thompson is an experienced engineer and general manager who brings strategic management and technical leadership skills to the HSNO Committee.

He is the former Chief Executive of Opus International Consultants Ltd and previously served as Chief Executive of Works Civil Construction.

Dr Thompson is highly skilled in governance and organisational change and growth. He has good knowledge of New Zealand's environmental management system.

Kerry Laing

Kerry Laing is a senior environmental scientist who is recognised as one of New Zealand's leading resource management specialists. He has 40 years' experience in environmental management and hazardous substances and waste management.

Kerry has a background in industrial chemistry and research. He has extensive experience in industrial operations and the regulatory and policy development area, as well as in consulting.

For nine years Kerry was the principal New Zealand representative for the development of the ISO (14000 series) Environmental Management standards. Earlier and recent projects have included aspects of resource consent programmes, assessments of environmental effects, and contaminated land.

Louise Malone, PhD

Louise Malone has a PhD from Imperial College, University of London, and 34 years of experience in entomological research. She has a researcher's working knowledge of the HSNO Act. For many years she has conducted research to support environmental risk assessment of plant biotechnology applications (and more recently, nanotechnology applications) being considered for use in New Zealand.

This research has entailed close communication with regulators and developers of new technologies in New Zealand and overseas and collaborations across different New Zealand and overseas research organisations.

Louise is currently Leader of the Applied Entomology Group at Plant & Food Research in Auckland.

Deborah Read, MB ChB, DComH, FAFPHM(RACP)

Deborah Read is a public health medicine consultant and Associate Professor at the Centre for Public Health Research, Massey University, Wellington.

She was formerly a member of the Environmental Risk Management Authority and Deputy Chair of the Medical Council of New Zealand.

Deborah has published extensively on issues relating to environmental risks and public health. She received a World Health Organisation Fellowship in 1995.

John Taylor, PhD

John Taylor is a Senior Lecturer in Virology in the School of Biological Sciences at the University of Auckland and holds a PhD in Microbiology from the University of Edinburgh.

His scientific interests are in the biology of animal viruses and their development as vaccines and therapeutic tools.

John brings considerable expertise in the area of genetic engineering to the HSNO Committee including the regulation of biological safety and genetic modification under the HSNO Act having chaired the Biosafety Committee at New Zealand's largest University since 2004.

Dr Nicholas (Nick) Roskruge, BHort Tech(Hons), PGDip Māori ResDev, PhD

Dr Nick Roskruge is currently senior lecturer with the Massey University Institute of Agriculture and Environment and Kaiārahi Māori to the College of Sciences in the university. Nick has a PhD in Soil Science, a Post-graduate Diploma in Māori Resource Development and a Bachelor of Horticulture (Technology).

His professional specialty is horticulture and sustainable Māori economic development. He is currently Chair of Tāhuri Whenua Incorporated Society — a National Māori Horticultural Collective. Nick is also the Tumuaki Tuarua (Deputy Chair) of Ngā Kaihautū Tikanga Taiao, the EPA's Māori Advisory Committee. Having served on Ngā Kaihautū since 2008, Nick brings extensive knowledge to the HSNO Committee.

Ngaire Phillips, PhD

Ngaire Phillips is co-Director of Streamlined Environmental, an environmental science consulting company based in Hamilton. She is an experienced environmental scientist with expertise in toxicology associated with environmental and human health, having honed her skills as a Toxicologist with the NZ Department of Health in the late 1980s. She has practical experience in the derivation of toxicological data and in the undertaking of risk assessments through her role as a research scientist in New Zealand and Australia. Much of her recent research has focused on resource management issues related to Treaty settlements. She is also a registered RMA Independent Commissioner. She brings a wealth of knowledge based on practical and extensive experience in a wide range of scientific disciplines, including freshwater and estuarine ecology, customary fisheries management, water quality and land management.

Sharon Adamson, PhD

Dr Sharon Adamson has a PhD in genetics and molecular biology from the University of Cambridge. Sharon spent twelve years as a public servant with what is now the Ministry for Primary Industries, working on scientific and strategic policy as both an analyst and a manager. Over that time she has worked extensively with the HSNO Act, particularly on the practical and policy implications of how it is implemented for new organisms. She was also one of the architects of the significant package of amendments to the HSNO Act in 2003, which represented the then-Government's response to the Royal Commission on Genetic Modification.

Sharon has recently moved on from the public service and has been appointed as the inaugural Director of Development and Operations with REAP Aotearoa New Zealand, the national body that represents the thirteen Rural Education Activities Programmes, which deliver education opportunities to rural communities.