Ministry for the Environment
Manatū Mō Te Taiao

Working Towards a Comprehensive Policy Framework for Managing Contaminated Land in New Zealand

Position Paper

New Zealand Government

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Executive Summary

This paper sets out a prioritised work programme designed to address the main issues for managing contaminated land. Three initiatives are considered by the Ministry to be *high priority*.

The three high priority projects are:

- nationally consistent methods and numbers that protect human health, delivered via a standard and guidance
- nationally consistent land-use and subdivision rules, possibly delivered via a standard
- continued advocacy of the Contaminated Sites Remediation Fund (hereafter referred to as the Fund).

These projects have been graded by submitters as having a high importance, help to address the main issues, and while some projects are complex they are all considered achievable.

A summary of the work programme is set out in Table 1, which has been confirmed after extensive consultation. Submitters largely supported the work programme and the priorities proposed in the discussion paper. As a result the Ministry's work programme is reasonably similar to that originally proposed. The main change is the addition of a project that promotes, or requires (through a standard), nationally consistent land-use and subdivision controls where they relate to contaminated land.

Table 1: Priorities for the contaminated land work programme

	Initiative	Priority
1.	Develop nationally consistent **methods** for deriving soil contaminant levels and **numbers**	**High**
2.	Develop nationally consistent **land-use and subdivision rules**	
3.	Expand the **Contaminated Sites Remediation Fund**	
4.	Develop **roles and responsibilities** guidance for local government	**Medium**
5.	Assist the setting up of good systems to **manage information**	
6.	Require **tracking** of contaminated soil and waste using WasteTRACK	
7.	Investigate and recommend options for addressing **liability** barriers	
8.	Collect **national information**	
9.	Develop new **guidance,** and review and revise the existing national set	**Low**
10.	Encourage and support an **accredited practitioners** scheme	

1 Introduction

In November 2006 the Ministry for the Environment published a discussion paper titled *Working Towards a Comprehensive Policy Framework for Managing Contaminated Land in New Zealand* (Ministry for the Environment, 2006c), hereafter referred to as the discussion paper. This discussion paper formed the basis for discussion with stakeholders, and comprised three main elements:

- an overview of the policy measures that make up New Zealand's existing contaminated land policy framework
- an assessment of the framework to identify gaps and possible solutions
- a proposed Ministry work programme drawing on the identified solutions.

Submissions were sought and workshops held to inform and confirm the Ministry's indicative contaminated work programme.

During the submission period 320 people participated in 13 workshops held throughout the country. These workshops aimed to prompt submissions on the paper and facilitate discussion about contaminated land issues. Participants represented local authorities, health agencies, industry, consultants, the community, professional groups and iwi authorities.

Sixty-two submissions were received on the discussion document. These submissions and the workshop findings are summarised and reported in a companion to this paper, *Working Towards a Comprehensive Policy Framework for Managing Contaminated Land in New Zealand – Report on Submissions* (Ministry for the Environment, 2007), hereafter referred to as the Report on Submissions.

This paper sets out a prioritised Ministry work programme designed to help manage contaminated land, as follows:

- chapter 2 describes the main issues
- chapter 3 confirms the indicative work programme
- chapter 4 describes the next steps and expected timeframe.

2 What are the main issues?

Submitters and workshop participants identified a wide range of interrelated issues that were considered barriers to effectively managing contaminated land. The full range of issues raised is described in the Report on Submissions.

The Ministry has identified what it considers to be the 10 main issues. To highlight the similarities and connections between these issues, they have been grouped into three main categories: functional and legislative issues, technical issues, and capacity and capability issues.

2.1 Functional and legislative issues

These issues relate to who does what, who is liable for contaminated land, and how contaminated land is defined. Clarity on these issues is important to enable councils to consistently and effectively manage the effects of contaminated land. The main functional and legislative issues are as follows:

- *Roles and responsibilities* – the main agencies are uncertain how they should work together, and what their roles should be.
- *Resource Management Act (RMA) definitions and controls* – practitioners have differing understandings of what contaminated land is. Council planning and regulatory controls are also inconsistent.
- *Liability* – there is uncertainty over who is responsible for cleaning up historical contamination because there is no clear liability regime for historical contamination (ie, contamination that was caused prior to the enactment of the RMA in 1991).

2.2 Technical issues

These are diverse, but are generally associated with the non-regulatory tools (eg, methods, systems, guidelines and information) practitioners use to help them in their roles and functions. These tools serve an important role in ensuring that best practice is shared and national consistency is promoted. The main technical issues are as follows:

- *Identifying land and gathering information* – councils face difficulties identifying contaminated land and obtaining information on land.
- *Managing information* – databases or registers are often inconsistent between regional councils and district/city councils, and in some cases are absent.
- *Use of guidelines* – there is inconsistent and variable use by practitioners of contaminated land guidelines.
- *Remediation and disposal* – limited information on techniques to remediate sites, the high cost of remediation, and a preference by industry and developers for remediation by offsite disposal were seen by submitters as the main barriers to the remediation of land.

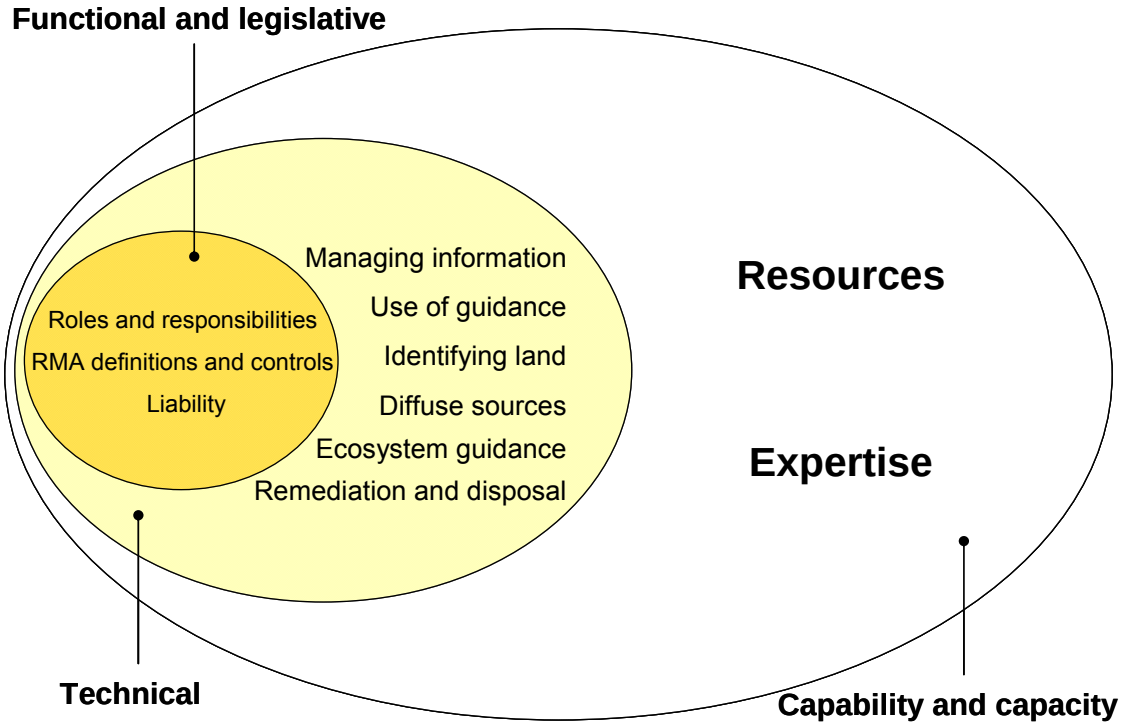
- *Diffuse sources* – there is often a lack of understanding about soil contaminants from common urban and rural practices (ie, soil contamination from common contaminants used in cities and towns, and in farming and horticultural practices).
- *Ecosystem guidance* – guidance is needed on the effects of soil contaminants on terrestrial ecosystems.

2.3 Capability and capacity issues

These issues relate to the scarcity of resources and expertise that are used in managing contaminated land by local government, industry and consultancies. They directly affect the quality of outcomes and the degree to which the risks of contaminated land are addressed.

The overlapping and interconnected nature of the main issues is represented in Figure 1.

Figure 1: The main issues for managing contaminated land



3 The Work Programme

This section outlines the work programme and the relative priorities. Each project is expanded and discussed in detail, including how the project will be developed and how it will contribute to the outcome of better management of contaminated land.

The projects, the main issues addressed and each project's relative priority are shown in Table 2.

Table 2: Work programme, issues addressed, and their relative priority

No.	Project	Main issues addressed	Priority
1.	Nationally consistent methods for deriving soil contaminant levels and numbers for triggering defined management actions (NES and guidance)	Use of guidelines (T) RMA definitions and controls (F)	High
2.	Nationally consistent land-use and subdivision rules (NES or guidance)	Roles and responsibilities (F) Capability and capacity (C) Identifying sites and gathering information (T) Managing information (T)	High
3.	Contaminated Sites Remediation Fund	Capability and capacity (C) Identifying sites and gathering information (T)	High
4.	Roles and responsibilities protocol	Roles and responsibilities (F) RMA definitions and controls (F)	Medium
5.	Assistance in setting up good information management systems	Managing information (T) Identifying sites and gathering information (T)	Medium
6.	Require tracking of contaminated soil and waste using WasteTRACK	Remediation and disposal (T)	Medium
7.	Investigate options for addressing liability barriers	Liability (F)	Medium
8.	National information	Managing information (T)	Medium
9.	Guidance (new and revised)	Use of guidelines (T) Remediation and disposal (T)	Low
10.	Accredited practitioners	Capability and capacity (C)	Low

Notes: Letters in parentheses denote the issue group as follows: (T) = technical; (C) = capability and capacity; (F) = functional and legislative. NES = national environmental standard.

The work programme projects have been ranked as having high, medium or low priority. The priority has been allocated based on:

- submitters' assessment of their importance
- effectiveness in addressing the main issues (as identified in section 2)
- achievability/complexity.

High-priority projects have been graded by submitters as having a high importance in terms of helping address the most important issues. Although some projects are complex, they are all considered achievable.

Medium-priority projects have been graded by submitter as being of medium priority, but would still result in significant improvements to the management of contaminated land. Some of these projects are complex (eg, liability) and require time for the Ministry to adequately assess their consequences.

Low-priority projects have been graded by submitters as being of low priority relative to the other projects. Although these projects are assigned a low priority, they are still considered important enough to be discussed in this paper.

3.1 Nationally consistent methods and numbers for deriving soil contaminant levels

Recommendation 1 (high priority)

Develop a standard and supporting guideline that provide:

a. a nationally consistent New Zealand risk-based methodology for deriving soil contaminant levels for human health

b. numerical criteria for priority contaminants that define appropriate management actions, ie, the numerical criteria may:
   - serve as conservative clean-up targets
   - inform on-site management actions to reduce the potential for adverse effects
   - trigger further investigation to determine site-specific criteria.

Developing nationally consistent risk-based methods and soil contaminant levels for human health is strongly supported by stakeholders, is achievable, and is expected to help local government better protect human heath. This project fills an urgent gap in the policy framework by directly addressing some of the main problem areas.

How will Recommendation 1 help?

Delivering the methodology as a standard will ensure that one method for deriving soil contaminant levels is used nationally. The assessment methodology will also help practitioners to assess whether land is contaminated land for the purposes of the RMA definition.

Consequences of not doing this

There would be continuing uncertainty about the most appropriate criteria and method to apply, and, as a result, different understandings of what contaminated land is.

What were the findings from consultation?

Submitters strongly supported, as a high priority, a project to develop and deliver a nationally consistent methodology and numerical criteria by means of a guideline and a standard. The recommended content and function of the standard are closely aligned with many submitters' views on how a standard should operate.

For more detail on related submissions and consultation findings, see sections 3 and 4 of the Report on Submissions.

How will Recommendation 1 be developed?

Nationally consistent methods and numbers for human health, while complex and technical to derive, are considered to be achievable. A previous technical working group (Ministry for the Environment, 2005) has already done a lot of the initial thinking for guidance and standards, which is consistent with this project.

A technical working group will be reconvened. This group will build on previous work and is anticipated to have a similar membership, comprising representatives from the Ministry for the Environment and other relevant central government agencies (the Ministry of Health, Ministry of Agriculture and Forestry, Environmental Risk Management Authority, New Zealand Food Safety Authority). The working group will invite technical advice from local government and industry.

A proposed process for deriving soil contaminant levels is attached as Appendix C. Appendices A and B show how national environmental standards are developed and the approximate timeframes.

What are the associated issues?

As well as guiding and informing the process of developing a standard, the technical working group will be specifically asked to consider the following issues raised during consultation, and report back on options to address them.

- *The use of bioavailability and bioaccessibility factors to assess the effect of soil contaminants:* should they be used? If so, how should they be used?
- *How to assess the ecological impact of contaminated soils:* developing ecological methods and criteria alongside human health is ideal, but it is much more complex. The Ministry recognises that there is an absence of guidance for assessing the ecological impact of contaminants in soil.
- *Soil contaminated by common farming and horticultural practices has the potential to affect large areas of land:* the working group needs to consider how farming and horticultural land relate to this project, and the potential effects of the project on farming and horticultural practices.

3.2 Nationally consistent land-use and subdivision controls

Recommendation 2 (high priority):

a. As a complementary mechanism to Recommendation 1, develop a good practice example of a land-use change and subdivision rule that:

- requires land to be investigated before subdivision or change of use can occur if it has been identified as likely to have hazardous substances in or on the land
- requires an investigation to assess the presence and quantify the risk of any hazardous substances in or on the land.

b. Explore the practicality of developing a standard to impose requirements for investigations before subdivision or land-use change can occur.

Depending on its uptake, a good practice example of a land-use and subdivision rule has the potential to significantly improve the likelihood of land containing hazardous substances being identified, assessed and appropriately managed or remediated. If a standard were developed, this would ensure improvements were made.

District and city council land-use and subdivision controls are the main way that hazardous substances in or on land are identified and the risks assessed, managed or remediated. However, a recent Ministry review of contaminated land provisions in district and city plans showed that the plans had widely variable controls. Most notably, the Ministry review found that 33 per cent of plans had no specific controls or provisions for contaminated land (Ministry for the Environment, 2006b).

How will Recommendation 2 help?

If widely implemented, a good practice rule is likely to result in a significant increase in the amount of land required to be investigated to determine the presence and risk of hazardous substances. As a voluntary measure, a good practice rule would give district and city councils guidance in undertaking their contaminated land functions under the RMA. However, it would still be voluntary, and therefore dependent on councils choosing to apply it. If a standard were implemented, it would ensure an increase in land investigations.

The increased amount of land being investigated and any subsequent follow-up actions will have the effect of:

- increasing the capability and capacity of all contaminated land practitioners – increased demand for investigations requires increased expertise and capacity within local government and consultancies
- helping to identify sites and gather information on land affected by hazardous substances
- increasing the amount of information about hazardous substances on land that is potentially contaminated – an increased amount of information is likely to highlight to councils the need for good systems to accurately record and report this information, which ideally would lead to increased investment in information systems.

Consequences of not doing this

Rules specific to contaminated land in district and city plans would continue to be variable or absent, increasing the likelihood of significant adverse effects on the environment from inappropriate subdivision and change of land use.

What were the findings from consultation?

Providing consistency in district and city land-use rules was the most commonly suggested objective for a standard. Many submitters also highlighted the importance of consistent planning controls. For more detail on related submissions and consultation findings, see section 4 of the Report on Submissions.

How will Recommendation 2 be developed?

A good practice example of a district and city land-use rule will be developed by a working group overseen by the Ministry, comprising representatives from district and city councils, regional councils and industry. The working group will also help the Ministry to explore the practicality and desirability of developing a standard.

For a more detailed description of how standards are developed, and approximate timeframes, see Appendices A and B.

What are the associated issues?

If a standard was developed, the Ministry recognises that the initial demand for appropriate expertise would probably outstrip supply in the short term. Also, by identifying more land affected by hazardous substances this project may increase the amount of land being remediated by removing affected soil offsite. Offsite disposal of slightly and moderately contaminated top soil is seen by some stakeholders as unnecessarily contributing to the filling of landfill capacity, and a waste of the soil resource.

3.3 Contaminated sites remediation fund

Recommendation 3 (high priority):

a. Consider seeking additional funding over and above the fund for the remediation of large, high-priority projects (eg, Tui, Mapua).

b. Continue to promote, encourage and help regional councils to prepare applications to the fund.

The fund continues to be strongly supported by stakeholders, and directly contributes to real on-the-ground actions. The Ministry will continue to build on the success of the fund by further promoting it and helping regional councils to apply for priority sites. The Ministry will also consider seeking more funding for large projects that cannot be addressed by the fund.
In line with these recommendations, the Ministry has recently secured:

- an increase in baseline funding of an additional $1.7 million over three years (2006–2009)
- $9.88 million over two years in the 2007 budget to help local councils remediate the Tui Mine, located on Mount Te Aroha in the Waikato region.

The Ministry has also recently:

- widened the scope of the fund to consider applications to help regional councils identify sheep dip sites
- made administrative changes to ensure the decision-making process is robust, transparent and timely, fund eligibility is clear, and making an application is easy
- applied additional staff resources to help regional councils pull together applications for priority sites.

How does Recommendation 3 help?

As well as cleaning up high-priority contaminated sites, the fund directly contributes to improving local government capability and capacity by:

- helping councils to gather information on hazardous substances in or on funded sites
- helping regional councils to identify sites (eg, historical sheep dips).

Consequences of not doing this

Large and high-risk sites where there are significant barriers to remediation (eg, liability, inequity, capacity to act) are unlikely to be remediated without the assistance of the fund.

What were the findings from consultation?

Submitters strongly supported the fund as a high-priority project. When asked how the fund could be modified, most submitters considered that it should be expanded to fund more sites and/or bigger clean-ups, especially in the absence of a clear liability regime for historical contamination. Submitters also suggested that the fund accept applications directly from the public or from district and city councils, and be widened to help regional councils to identify sites.

For more detail on related submissions and consultation findings, see section 7.3 of the Report on Submissions.

How will Recommendation 3 be developed?

This recommendation is largely in progress.

3.4 Roles and responsibilities

Recommendation 4 (medium priority):

a. Provide guidance on how local governments can best fulfil their respective functions by:
   - recommending the roles of each agency
   - identifying and describing best practice for these roles.

To clarify roles and responsibilities relating to contaminated land, the Ministry for the Environment will develop guidance for local government on how they can best fulfil their functions. This guidance will build on the new RMA contaminated land functions by:

- recommending the roles regional, district and city councils, health agencies and landowners will have at the key decision points
- identifying and describing best practice for these roles.

How does Recommendation 4 help?

A roles and responsibilities protocol would help to avoid disputes over roles, role duplication or having gaps in the roles by:

- reducing the confusion among the relevant agencies over who should do what and how they should work together
- increasing certainty over roles, which may in turn lead to an improved level or more effective allocation of resources by agencies (eg, through avoidance of duplication).

Providing best practice examples within this protocol also has the potential to improve decision-making and outcomes.

Consequences of not doing this

There would be continuing confusion and uncertainty over the roles and responsibilities of different agencies, with a resulting likelihood of overlaps and gaps in managing contaminated land.

What were the findings from consultation?

The majority agreed that this project should be pursued as a medium priority. Although there was a mixed response about how well the main agencies work together, most agreed that the best way to improve this relationship is to clarify the roles of the agencies and describe how they should be working together.

For more detail on related submissions and consultation findings, see section 5 of the Report on Submissions.

How will Recommendation 4 be developed?

Any Ministry guidance will be developed in partnership with local government and public health agencies, and will recognise successful existing practice and alternative roles and responsibility arrangements. The guidance will also need to be aligned to the project on nationally consistent land-use and subdivision controls (see section 3.2).

3.5 Managing information

Recommendation 5 (medium priority):

a. Undertake a needs analysis to determine how the Ministry could best support councils to establish systems to record and report information about hazardous substances in or on land.

Good systems to manage information about hazardous substances in or on land are crucial for protecting the environment. Without good systems, councils cannot accurately report to those making decisions about sites (eg, councils, community, industry). To avoid inappropriate land use and subdivision, and to adequately inform land purchases, councils must have a good system that accurately records and reports information about hazardous substances on land.

Contaminated Land Management Guidelines No. 4: Classification and Information Management Protocols (Ministry for the Environment, 2006a) (hereafter referred to as the Classification and Information Management Protocols) promotes best practice among local authorities recording and reporting sites. However, the Ministry understands that many councils have yet to develop an effective system to manage information for these sites. For example, only 10 out of 16 regional councils were able to provide regional summaries when the Ministry recently collected information for *Environment New Zealand 2007*.

How does Recommendation 5 help?

Any assistance provided would be expected to directly improve how councils record and report information. Assistance would probably be targeted to those with the greatest need. Good systems to manage information also make it easier for other councils, consultants and the public to gather and discover information about sites.

Consequences of not doing this

There would be poor systems to manage information and poor transfer of information to those who need it. A lack of support may result in many different systems with different methods of classifying land.

What were the findings from consultation?

Producing guidance on good systems to manage information for hazardous substances on land was strongly supported by submitters as a medium priority. Developing a good practice system to manage information was most commonly suggested by submitters as a way for the Ministry to help councils implement the Classification and Information Management Protocols. A significant number of submitters also suggested that the Ministry should provide tools and/or resources for data collection and reporting to help implement the Classification and Information Management Protocols.

For more detail on related submissions and consultation findings, see section 10.2 of the Report on Submissions.

How will Recommendation 5 be developed?

Although many submitters suggested developing a good practice register for councils, a needs analysis would be required first. This would establish who needs assistance, what type of assistance they need, and how this could best be provided (eg, a good practice database, resources, training, etc). It is also important to consider the need for national consistency to enable more accurate national reporting (see "National information" below).

3.6 WasteTRACK

Recommendation 6 (medium priority):

a. Encourage the use of WasteTRACK via regional councils.

b. Require the use of WasteTRACK for fund projects.

c. Investigate the possibility of creating a group standard for contaminated soil under the Hazardous Substances and New Organisms Act 1996 (HSNO), which will include a national requirement for WasteTRACK to be used to track and control the off-site movement of contaminated soil.

WasteTRACK is an existing Ministry-owned tracking system which could be applied to the transport, disposal and treatment of hazardous waste, including contaminated soil and other waste resulting from the remediation of contaminated land. The system has been successfully used for tracking liquid waste and was recently successfully trialled for the removal of contaminated soil from a fund-assisted sheep dip site in Rarangi, Marlborough.

How does Recommendation 6 help?

Using WasteTRACK will help avoid the creation of new contaminated sites by helping councils prevent the inappropriate disposal of contaminated soils. WasteTRACK helps councils with compliance and enforcement under the RMA by providing a system to track waste, thereby enabling compliance efforts to be more effectively applied (eg, focused on cartage firms that do not use WasteTRACK).

Consequences of not doing this

Contaminated land would continue to be created through the inappropriate or uninformed disposal of soils or material containing hazardous substances. Continued ad hoc controls on the transport of contaminated soil, and the relatively high cost of its disposal, provide an incentive – and make it relatively easy – to dispose of soils containing hazardous substances inappropriately.

What were the findings from consultation?

Most agreed that this initiative is a medium priority, and that a tracking system is useful to prevent fly tipping, although some noted that its effectiveness would largely depend on the local availability of information on land.

For more detail on related submissions and consultation findings, see section 12.2 of the Report on Submissions.

How will Recommendation 6 be developed?

Initially the use of WasteTRACK will be encouraged by introducing councils to the benefits of the tool and requiring its use for Fund projects.

In the medium term, the Ministry will explore whether a requirement to use WasteTRACK for the offsite transport and disposal of soils containing hazardous substances can be achieved through an HSNO Act group standard. The Ministry will work with the Environmental Risk Management Authority and other stakeholders on issues associated with a potential group standard. The effectiveness of the system will be directly dependent on the availability of local information on sites and the connection between this information and a group standard requiring the use of WasteTRACK.

3.7 Liability

Recommendation 7 (medium priority):

a. Investigate the barriers posed by the absence of a clear liability regime for historical contamination, and identify and investigate the options for addressing this issue and their respective consequences.

b. Prepare a comprehensive report and recommendation to the Government based on the findings of the investigation.

The absence of a clear liability regime for historical contamination is an obvious gap in the policy framework. There are a number of options available to address this issue, but it remains a complex and vexed problem. Any fix could be perceived as imposing retrospective liability, and must be carefully considered so that there are no perverse or unintended consequences.

How does Recommendation 7 help?

The investigation would enable the Government to make a more informed decision on an appropriate liability option. Any liability option recommended should at least provide certainty to the community by clarifying liability associated with land contaminated before 1991.

Consequences of not doing this

Uncertainty over liability may cause barriers to identifying, managing and remediating contaminated land.

What were the findings from consultation?

The majority of submitters agreed that this project should be pursued as a medium priority. Most felt that the absence of a historical liability regime poses at least some form of barrier to managing and remediating sites. Some thought that the biggest barrier was the lack of certainty about how this issue will be dealt with. The most favoured solution was adopting a retrospective hierarchical regime or a polluter-pays regime. Some submitters considered that more investigation is needed, while others were happy with the existing situation.

For more detail on related submissions and consultation findings, see section 7 of the Report on Submissions.

How will Recommendation 7 be developed?

The objective of any work and any subsequent recommendation to the Government should be to ensure that the overall objective of identifying and remediating contaminated land is achieved, and to provide certainty to the community. Any work should also draw on the findings of the Ministry's earlier work on this matter (Ministry for the Environment, 1995) and seek feedback and submissions from stakeholders.

3.8 National information

Recommendation 8 (medium priority):

a. Continue to collect information annually on the contaminated land indicators.

b. Use the quality issues highlighted during the recent collection for *Environment New Zealand 2007* to further refine data collection.

Collecting national information is important to enable the Ministry to measure and report on the success of its policy initiatives, and to develop smarter and better-targeted policy. National information was collected earlier this year for the next state of the environment report, *Environment New Zealand 2007*, reporting against the following indicators:

- *confirmed as contaminated* – the site meets the definition of contaminated land under the RMA
- *remediated* – so that the site no longer meets the definition of contaminated land under the RMA (ie, it has been treated so it is no longer contaminated)
- *managed* – so that the site no longer meets the definition of contaminated land under the RMA.

Collecting information from regional councils raised further issues to those identified in the discussion paper, including:

- lack of shared understanding of what "managed" and "remediated" mean
- different ways of counting sites that have been subdivided
- the indicators' consistency with the Classification and Information Management Protocols
- whether to report the total number of Hazardous Activities and Industries List (Ministry for the Environment, 2004b) sites identified (ie, those sites where there is not enough information to determine their status).

Continuing to collect national information at scheduled intervals is considered a good opportunity to further refine these indicators.

How does Recommendation 8 help?

National information provides a useful overall picture of the state of contaminated land, enabling:

- councils and the Ministry to better prioritise actions (eg, identify priority sites for funding)
- national reporting on the effectiveness of contaminated land policy (eg, periodically assessing changes in the number and severity of contaminated sites, or land that has been investigated, managed and remediated)
- improved policy development (eg, information on the numbers of sites contaminated before 1991 would be useful to tailor options for liability regimes or modify other policy measures such as the fund).

In addition, regular national reporting on the indicators may serve to align councils' understanding of the contaminated land definition. National reporting may also prompt some councils to improve the way they manage information about hazardous substances on land.

Consequences of not doing this

There would be a continuing poor level of national information on the size and extent of the issue and progress toward addressing it, with consequential impacts on the quality of policy responses.

What were the findings from consultation?

Collecting national information is strongly supported as a medium priority. The majority of respondents agreed that national information on contaminated land in New Zealand should be collected and reported.

For more detail on related submissions and consultation findings, see section 10 of the Report on Submissions.

How will Recommendation 8 be developed?

The national indicators have been, and will continue to be, refined by the Ministry in consultation with local government. Collecting national information will also be strongly linked to projects supporting councils to establish systems to record and report information (see recommendation 5).

3.9 Guidance (new and revised)

Recommendation 9 (low priority):

a. Review guidelines at pre-defined scheduled periods (eg, five years), and, if necessary, revise them to ensure their accuracy and validity.

b. Consider the need for new guidance in line with the suggestions identified during consultation.

For the existing suite of national guidelines to continue to be used as primary references for contaminated land practitioners, they need to be credible, consistent and as up to date as possible. This means reviewing the guidelines regularly and, if necessary, revising them.

All national guidelines are likely to be affected by the development of a standard and overarching guidance referred to in recommendation 1, so the consistency of all guidelines with these new projects will need to be reviewed when the projects are completed. This will include the aspects of the industry guidelines identified by stakeholders as most needing review.

To ensure that we have an up-to-date reference for selecting environmental guideline values, the Ministry will complete a review and revision of the environmental guidelines values database, attached to the *Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values* (Ministry for the Environment, 2003). This project should be completed later this year.

Other than guidelines required to support the standard, the development of new guidelines will be deferred to a later date.

How does Recommendation 9 help?

Regular review will reduce the potential for guidelines to be inconsistently and variably applied by ensuring that the national guideline set remains a credible, current and consistent source of guidance and policy advice for contaminated land practitioners. Any new guidelines would expand on the national set of best practice guidance for local government and practitioners.

Consequences of not doing this

Without review and revision, the national guidelines would lose their credibility and usefulness to practitioners as they become dated and inconsistent with newer policy initiatives. Practitioners would increasingly rely on a diverse range of overseas guidance, increasing the variability of practice.

What were the findings from consultation?

Most submitters agreed that, other than guidance associated with the high-priority projects, developing new guidance is a low priority. When submitters were asked what guidelines need to be revised, those most commonly suggested were:

- *Health and Environmental Guidelines for Selected Timber Treatment Chemicals* (Ministry for the Environment and Ministry of Health, 1997)
- *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand* (Ministry for the Environment, 1999)
- *Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils* (Ministry for the Environment, 2004a).

However, many submitters considered that all guidelines needed to be revised into one over-arching guideline.

Submitters suggested 29 guidelines. The most commonly suggested guidelines were for: remediation options, roles and responsibilities, horticultural soils, and remediation by natural attenuation.

For more detail on related submissions and consultation findings, see section 6 of the Report on Submissions.

How will Recommendation 9 be developed?

The suite of existing national guidelines will be reviewed and revised (if necessary) following the completion of the recommendation 1 projects. After the initial review the suite should be regularly reviewed at around five-yearly intervals. Review does not necessarily mean the guidelines will be revised; rather, the guidance will be assessed and a decision made on whether they require revision.

The topic of any future project involving a new guideline will be informed by stakeholder suggestions.

3.10 Accredited practitioners

Recommendation 10 (low priority):

a. Encourage and support local government, professional bodies and the consulting profession to develop a system for accrediting contaminated land professionals.

While not a high or medium priority relative to other projects, a scheme for accrediting contaminated land practitioners was considered an important part of the contaminated land framework. It is expected that such a scheme to accredit would identify criteria for minimum qualifications and experience.

A formal auditing scheme was not considered appropriate due to the potential increase in the cost of investigation and remediation, impacts on already limited capability and capacity, and the potential for over-conservative assessment.

How does Recommendation 10 help?

Accrediting practitioners would serve as a quality mark to guide industry and developers when selecting contaminated land practitioners. Councils may also choose to preferentially refer applicants to, or require that investigation be done by, accredited practitioners.

Accreditation is likely to improve the average skill level within the sector, improve the quality and consistency of investigations among the consulting community, and improve awareness and decision-making within local government.

Consequences of not doing this

Without a scheme, clients will have limited assurance that their chosen consultant is appropriately qualified or experienced to undertake contaminated land assessment.

What were the findings from consultation?

Although most supported a scheme to accredit practitioners in principle, it was generally considered a low priority. When asked how a scheme could be administered, the most popular option was to have the system administered by an accreditation body such as the Institute of Professional Engineers of New Zealand (IPENZ).[1]

For more detail on related submissions and consultation findings, see section 8 of the Report on Submissions.

[1] IPENZ is an accreditation body for professional engineers.

How will Recommendation 10 be developed?

The Ministry does not have the capacity in the short term to develop a scheme to accredit practitioners. However, it will encourage and support initiatives by the profession to establish a scheme administered by a suitable professional body. IPENZ is open to the possibility of administering such a scheme. However, it is worth noting that the Australasian College of Toxicology and Risk Assessment has recently been formed. This organisation aims to address the advancement of the study and applications of toxicology and health risk assessment as professional scientific disciplines. It also aims to cultivate (and maintain) the highest standards of professional practice and ethics in persons engaged in the sciences of toxicology and health risk assessment.

4 Timeframe

The timeframe for the confirmed work programme is shown in Table 3. The commencement dates for each of these projects is generally in line with the high, medium and low priorities given.

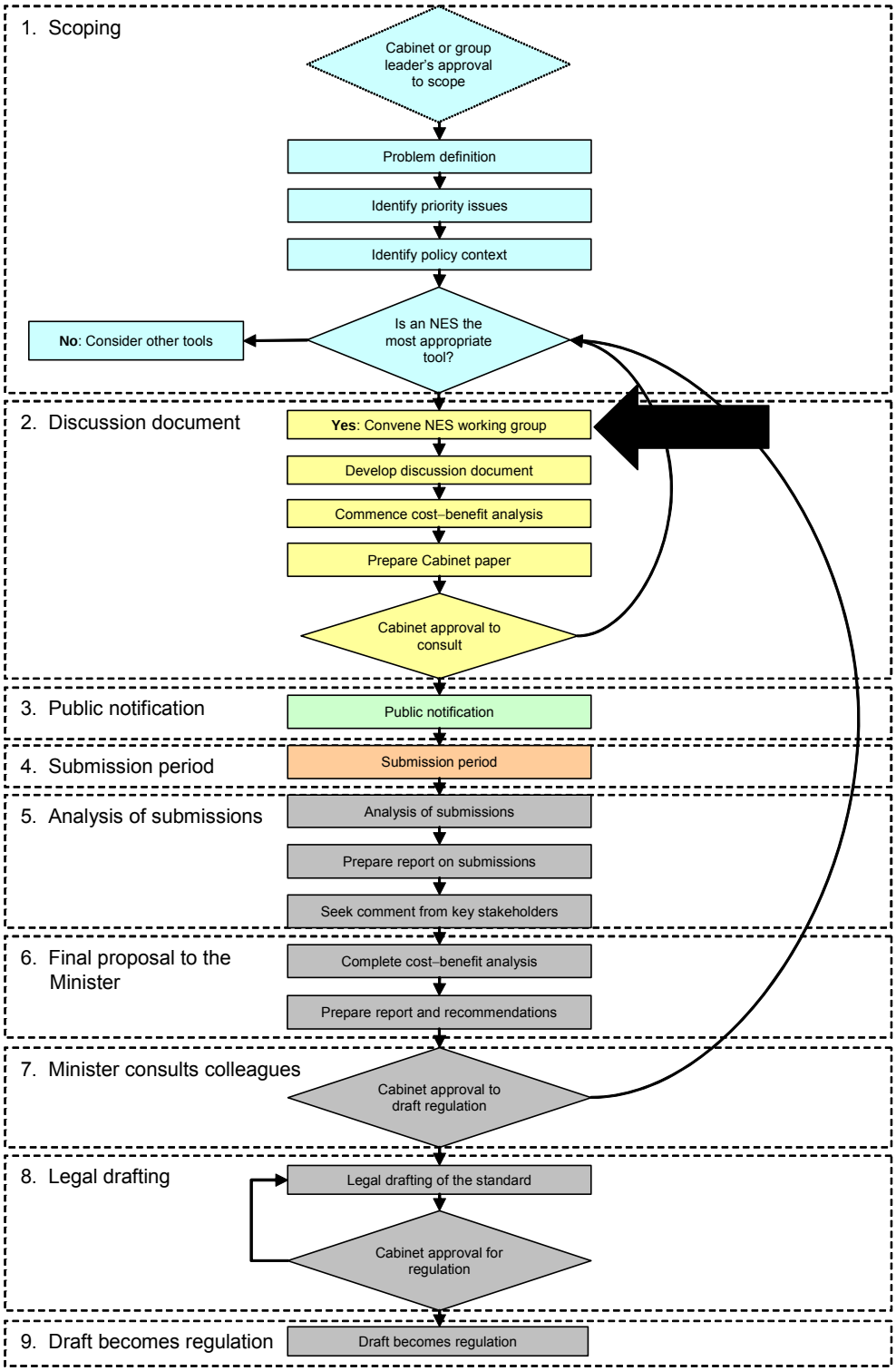
Note that these timeframes are indicative only. The actual date the projects start and finish may vary depending on the availability of resources to commence and complete these projects, although the relative priorities of the projects and the order in which they are started are expected to remain the same.

Table 3: Indicative timeframe for the confirmed work programme

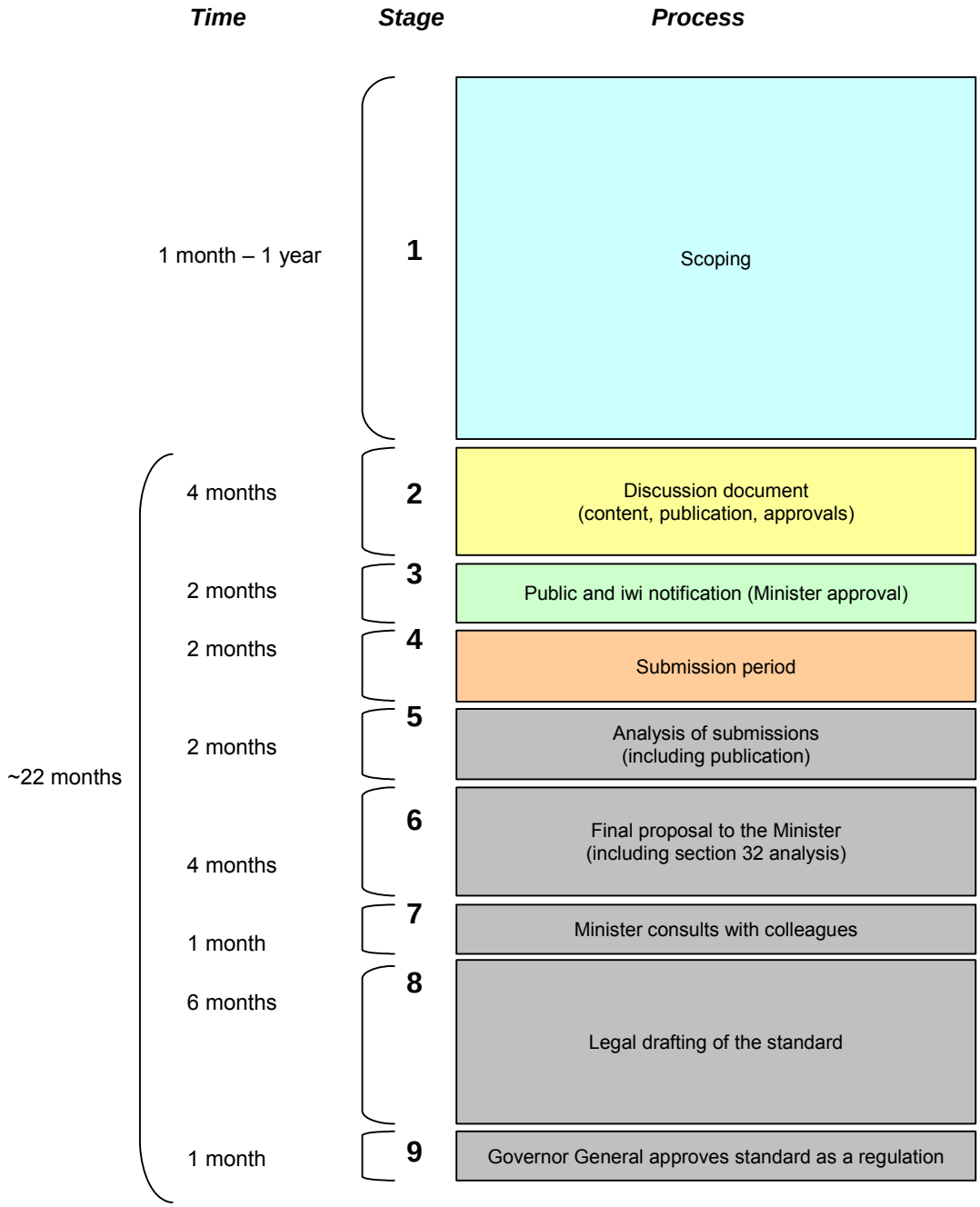
No.	Initiative	2007	2008	2009	2010
1.	NES/guidance – methods and numbers HIGH				
2.	Nationally consistent land-use and subdivision rules HIGH				
3.	Contaminated Sites Remediation Fund HIGH				
4.	Roles and responsibilities protocol MED				
5.	Assist setting up information management systems MED				
6.	Require tracking of contaminated material using WasteTRACK MED				
7.	Investigate options for addressing liability barriers MED				
8.	National information MED				
9.	Guidance (new and revised) LOW				

Notes: Recommendation 10 is not shown because no Ministry-led project is proposed.

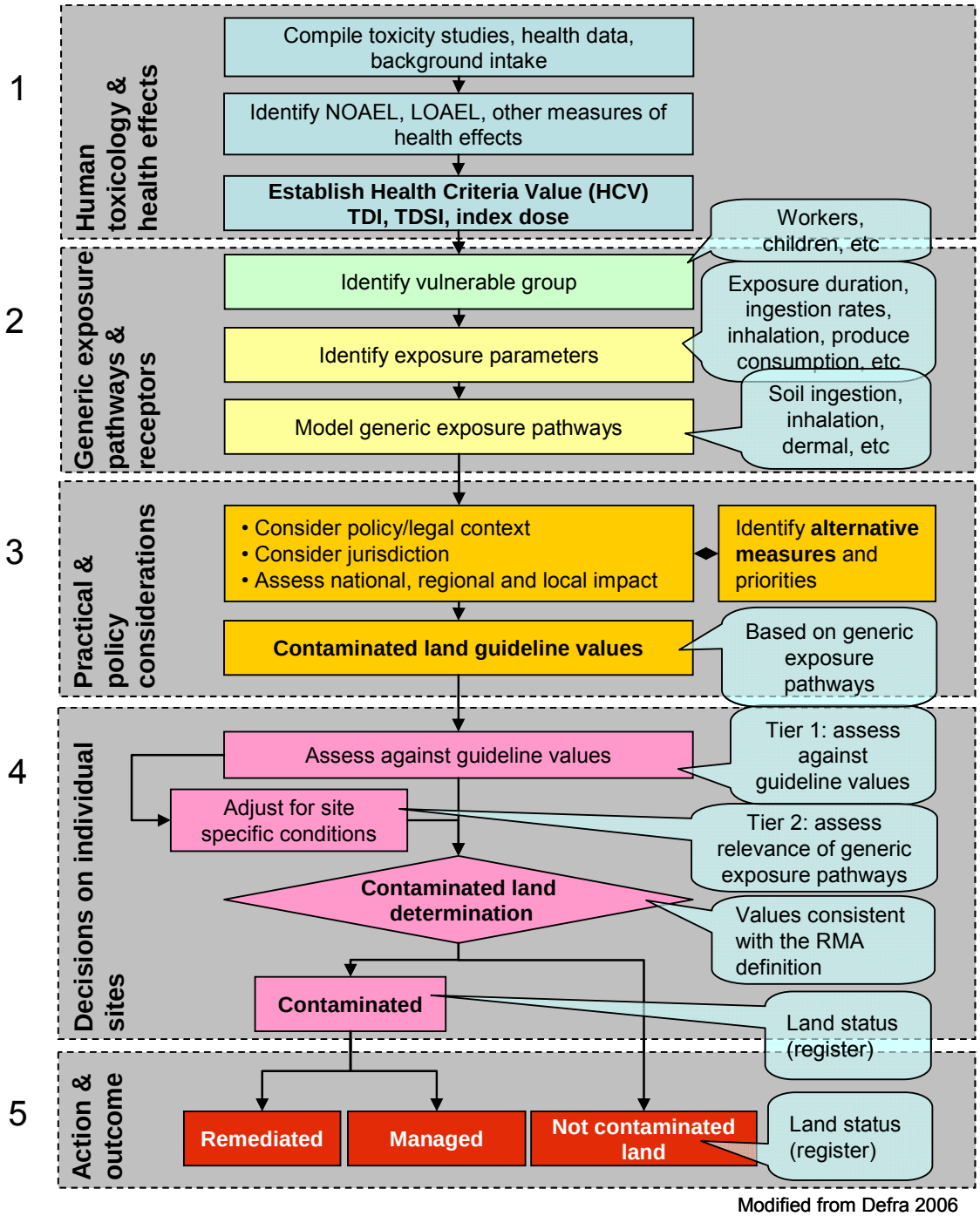
Appendix A:
Detailed NES Process Diagram



Appendix B: Approximate Time Taken to Develop NES



Appendix C: Proposed Framework for Deriving Soil Contaminant Values



Modified from Defra 2006

Stage 1: Human toxicology and health effects

Toxicological information about each substance or group of substances is collated from jurisdictions recognised by the Ministry of Health, including:

a) tolerable daily intakes (TDIs), mean daily intakes (MDIs), no observed adverse effects levels (NOAELs) and lowest observed adverse effect levels (LOAELs), and index doses for non-threshold carcinogens

b) risk information, including uncertainties relating to quantitative estimates, relevant to estimating the toxic effects of these substances arising from their presence in soil.

At the end of this step, the toxicological criterion appropriate to each substance or group of substances is identified.

Stage 2: Generic exposure pathways and receptors

The consideration of exposure pathways includes:

a) estimating the levels of contaminants in the media (air, water, groundwater, food, etc) that potentially convey the contaminants from soil to people (the "receptor")

b) identifying the typical physical characteristics of New Zealanders (area of skin, weight, air breathed, food and water ingested, etc) that collectively determine a standard exposure model in association with the exposure pathways; this involves making a number of judgements about (for example):
   - the groups of people (children, adults, workers, etc) who may potentially be exposed, as well as the group considered the most sensitive to the toxic effect of contaminants
   - the time periods over which exposure occurs
   - the age-related ingestion and inhalation rates
   - how much produce people consume from their own home gardens.

These assumptions are then combined with the findings from stage 1 to estimate provisional soil guideline values for specific contaminants.

Stage 3: Practical and policy considerations

This stage "reality tests" or "bench marks" the provisional soil guideline value to take account of New Zealand's physical environment. For example, a relevant factor is the background levels of contaminants commonly found in New Zealand soils, such as copper, arsenic and PAHs.[2]

The costs and benefits of implementing the guideline values also need to be assessed. If a specific soil contaminant proves too costly or difficult to implement, a supportive approach to address the risk posed by this contaminant may need to be explored.

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[2] Polycyclic aromatic hydrocarbons.

The policy and legal contexts are also critical. It may not be appropriate to derive soil guideline values for some land uses. For example, it has been argued that hazardous substances in agricultural soils are more appropriately managed under our food safety regime rather than under the RMA.

The outcome of this consideration is the RMA-based policy decision that defines that a certain level of the contaminant in soil *has or is reasonably likely to have significant adverse effect*. A major influence on this decision is the toxicity of the substance.

Stage 4: Decisions on individual sites

On a site-specific basis there may be scope to adjust some of the generic assumptions (within specified limits) to derive a site-specific soil guideline value if a valid case can be made.

In this stage, generic guideline values are applied at an individual site level to determine whether the site meets the RMA definition of contaminated land. Generic assumptions may not be relevant to all sites. Good practice requires assessors to check that the circumstances of their site match the circumstances and assumptions in generic guidance.

However, collecting data from sites can be complex, and difficult to understand and interpret. Increased data collection can add substantial costs and is not always cost effective in providing further answers. The appropriate use of guideline values is intended to simplify decisions and provide a cost -effective approach.

Stage 5: Action and outcome

If a site contains hazardous substances at levels that exceed soil guideline values, then the site requires action to make it safe. There are two types of actions that can be applied to contaminated land:

- *remediation* – removing or reducing soil contaminants to levels below guideline values
- *management* **–** instituting a regime to ensure that people do not come into contact with the hazardous substances present (a management regime may include actions such as laying down physical barriers, providing signage, and restricting site access or site use).

If a site contains hazardous substances that are below the guideline values, then the site is not contaminated land (for the purpose of protecting human health) and no further action is required.

Note: this assessment considers only the human health effects of soil contaminants. The land may still be "contaminated" under the RMA definition of contaminated land based on other environmental effects.

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All cited Ministry for the Environment publications, with the exception of Ministry for the Environment 2005 and 2006b, can be downloaded from: http://www.mfe.govt.nz/publications/.