

# Appendix 1

## The Rio Declaration and Agenda 21

The Rio Declaration on Environment and Development: the principles of Agenda 21

### Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

### Principle 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

### Principle 3

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

### Principle 4

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

### Principle 5

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

### Principle 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

### Principle 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

### Principle 8

To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

### Principle 9

States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

### Principle 10

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is

held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

### Principle 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

### Principle 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

### Principle 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by

activities within their jurisdiction or control to areas beyond their jurisdiction.

#### **Principle 14**

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

#### **Principle 15**

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. 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.

#### **Principle 16**

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

#### **Principle 17**

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

#### **Principle 18**

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

#### **Principle 19**

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

#### **Principle 20**

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

#### **Principle 21**

The creativity, ideals and courage of the youth of the world should be mobilised to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

#### **Principle 22**

Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

#### **Principle 23**

The environment and natural resources of people under oppression, domination and occupation shall be protected.

#### **Principle 24**

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

**Principle 25**

Peace, development and environmental protection are interdependent and indivisible.

**Principle 26**

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

**Principle 27**

States and people shall cooperate in good faith and in a spirit of partnership in fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

## Appendix 2

### A Stocktake of New Zealand's Environmental Management

#### A2.1 Framework for the stocktake

The first step in reporting this stocktake is to define its boundaries. Chapter 1 explained the rationale for the decision to base the 'looking-back' part of this report primarily on the substantive reports produced by the Commissioner on key issues that are relevant to Agenda 21 since the UN Earth Summit in Rio de Janeiro in 1992. The key issues assessed in this stocktake are covered in Sections A2.2, A2.3 and A2.4. By applying this filter to the more extensive range of PCE reports, both in terms of time (excluding reports prior to 1992) and subject matter, some reports that would be relevant to a full assessment of New Zealand's environmental management performance will not be included.

Therefore, this is a review of aspects of environmental management relative to sustainable development rather than a comprehensive analysis of environmental management in New Zealand since Rio. That is a different task and one that is undertaken from time to time by OECD reviews (OECD, 1996). Also, since the major PCE investigations invariably originate from a perspective that there may have been an adverse impact on the environment,<sup>1</sup> the reports used for this stocktake do not identify all the positive developments in environmental management that have occurred over the last decade. These will doubtless be covered in the New Zealand country report to the WSSD. Nor should it be assumed that the absence of a particular issue, land use change impacts, climate change or transport policy, for example, indicates an absence of concern. It indicates that the Commissioner has not investigated that issue so far, for reasons of resourcing, priority or timing. The Commissioner acknowledges that trends and changes in these issues will be fundamental to New Zealand's sustainability in the future. The

final, and perhaps the most important caveat is that, given the role of the Commissioner as defined by the Environment Act 1986, this stocktake focuses on the environmental aspects of sustainable development while acknowledging that sustainable development must, of necessity, be integrated with social and economic objectives.

## A2.2 Management of major ecosystems

The grouping of subject categories in this section follows the format used by the Secretary-General of the United Nations in his report of December 2001, Implementing Agenda 21.<sup>2</sup> The UN report grouped the equivalent 'stocktake' topics under two chapters entitled Protecting the Integrity of Life-Supporting Ecosystems and Sustainable Consumption and Production. In the UN report, the chapter Ecosystems covered integrated land management, forests, oceans, freshwater resources, atmosphere and climate and impact of natural disasters. The chapter, Consumption/Production covered energy and transport, industry and tourism. Most of these topics have been the subject of investigations by the Commissioner as the following sections make clear.

In subsections A2.2 and A2.3, the stocktake will first review, for each topic, the major changes with respect to legislation, the development of strategies, policies and priorities and outcomes since the Earth Summit. For each topic the progress that has been made in establishing an effective institutional framework for sustainable development is then summarised. The institutional response is important because legislation is enforced through institutions and policy decisions are delivered by institutions. In short, whether institutions are formal or informal, social or economic, small or large, they "are the means by which we collectively pursue goals" (Dovers, 2001). The nature, capacity and performance of our institutions is therefore a key consideration in examining performance in environmental management. The performance of institutions is central to progress, or lack of

progress, towards ecologically sustainable development. This section of the stocktake examines the institutional response by agencies with responsibilities for environmental management. Section A3.4 looks at how obligations to tangata whenua with respect to environmental management have been met. This is followed by New Zealand efforts to measure progress towards sustainability before presenting a summary of the stocktake in Section A2.6.

### A2.2.1 Land and resource management

The Resource Management Act (RMA) became law in August 1991, replacing more than 150 other laws and regulations. Its passage into law was preceded by a well funded, intensive and extensive process, called the Resource Management Law Reform (RMLR), that was tasked to explore new approaches to resource management, influenced by concepts of sustainability as well as by ideas of efficiency and accountability. There was extensive public and sectoral consultation before the Resource Management Bill, the most significant overhaul of environmental legislation in New Zealand's history, was introduced in Parliament.

The purpose of the RMA is 'to promote the sustainable management of natural and physical resources'. The Act specifies a variety of additional matters that must be recognised and provided for by those exercising functions under the Act. These include 'matters of national importance' and the relationship of Maori and their culture and traditions with their ancestral lands, water, sites and spiritual beliefs. The RMA establishes a planning framework consisting of a tiered hierarchy of documents that match the tiered structure of local government.

The central tier of government may prepare national policy statements, national environmental standards and national regulations. To date, the only national policy statement<sup>3</sup> is the New Zealand Coastal Policy Statement, although work commenced in 2001 on a national policy statement on biodiversity. Each council at the

regional tier of local government is required to prepare a regional policy statement (RPS). An RPS must not be inconsistent with any national policy statement. Each RPS then leads to the preparation of one or more regional plan to help regional councils to carry out their functions. The third tier of territorial authorities (such as city councils) must produce at least one district plan which must not be inconsistent with any national policy statement, nor regional policy statement or regional plan(s) for the region within that district is located.

Given the magnitude of the changes introduced by the RMA it was natural that the emphasis of several PCE investigations on resource management issues in the 1990s would focus on assessing the effectiveness of the RMA. In reviewing the implementation of the RMA the Commissioner concluded that it had improved the potential for integrated land use management and assisted the participation of people and communities, including tangata whenua, in the environmental management of their areas (PCE, 1998e). As law, the RMA has its limitations, however, with regard to sustainable development. Its purpose - sustainable management - is more narrowly defined than sustainable development. That the RMA was only addressing a sub-set of sustainable development actions was recognised in the legislative phase (Young, 2001). The Commissioner made a similar observation in 1998, "If we do want to move towards more sustainable development, then the RMA is only one of a number of pieces of legislation that can or should contribute to this goal." (PCE, 1998e). In addition, the RMA does not effectively address questions of the efficiency of resource use, which is a basic precursor to sustainable development (MFE, 1997; PCE, 1998e).

While the legislation is quite justifiably regarded as innovative and far-reaching, its implementation was inadequately supported by central government. A strategic weakness identified by the Commissioner and others (e.g. Ericksen et al.,

2001) was that the concept of sustainable management set out in the RMA did not appear to be well understood. The same can be said today about the poor appreciation within New Zealand of the wider concept of sustainable development (see chapter 4). The legislative approach to promoting sustainable management in New Zealand has been reactive, although the local government reforms may change this with respect to the role of local government. The RMA is based mostly on managing environmental effects. This is rather than being about using environmental performance targets or articulating visions to improve the nature and efficiency of resource use in line with ecologically sustainable development.

In 1998, the Commissioner noted that the extensive criticism of the RMA had largely been about process (time and cost issues relating to resource consents) while "the merits of advancing sustainable development and improving environmental management appear to be largely forgotten" (PCE, 1998e). There has been little guidance from central government, for example, in the form of national policy statements or national environmental standards, that could have been expected to address a number of these problems. Only recently has attention been given to the quality of environmental outcomes.

### **A2.2.2 Institutions for resource management**

The institutions responsible for implementing the RMA are primarily the various structures of local government (regional councils, territorial authorities and unitary authorities<sup>4</sup>) although their capacity to do so is significantly influenced by the level of support and guidance they receive from central government.

A joint study by the Commissioner and Auditor-General (PCE & Controller & Auditor-General, 1999) of local government models (regional and territorial authorities/unitary authorities) indicated that all of these models were capable of delivering integrated environment management

under the RMA provided the chosen model incorporates a range of key features which characterise an effective environmental management system. **The major finding to emerge from this study was that the form of the model adopted by local government to deliver outcomes is less relevant than other factors. An important determinant of the perceived effectiveness was a council's ability to achieve its stated environmental outcomes. Key factors were flexibility and having an integrated approach to environmental management.**

### THE KEY FEATURES FOR A LOCAL GOVERNMENT ENVIRONMENTAL MANAGEMENT SYSTEM

#### 1. Integrated management

- facilitate appropriate internal structures and processes
- manage external relationships
- think strategically. This includes having a long-term strategic approach; commitment to taking a leadership role; a region-wide perspective; willingness to use education to achieve environmental outcomes.

#### 2. Environmental outcomes

- a strategic focus and commitment to environmental outcomes
- a commitment and a capacity to monitor effectiveness in achieving outcomes
- an organisational structure and capability to understand, monitor, analyse and report on progress.

#### 3. Separation of functions

- a commitment to give appropriate effect to statutory requirements
- the clear separation of regulatory from service delivery functions
- transparent decision-making processes
- coordinated management of operational and service delivery activities.

#### 4. Interactions with the public

- easy public access to services and information
- high level of responsiveness to public concerns
- public awareness of the council's role
- public trust and confidence in service delivery and decision-making processes.

(PCE and Controller and Auditor-General, 1999.)

Although the different models may be satisfactory, implementation of the RMA has not lived up to expectations in the following areas:

- There are not enough joint formal arrangements for cross-boundary issues or management of shared resources (PCE & Controller & Auditor-General, 1999).
- Integration by regional and territorial authorities in implementing the RMA<sup>5</sup> is poor (PCE, 1998e).
- There is no national guidance on a consistent approach to local government environmental outcome setting and evaluation (PCE & Controller & Auditor-General, 1999).
- There are insufficient checks and balances and a lack of accountability of some councils in fulfilling their responsibilities under the RMA (PCE & Controller & Auditor-General, 1999; PCE, 1998c; PCE, 2001d).
- There is inadequate attention to, and management of, cumulative effects (PCE, 1995; PCE, 1998a; PCE, 2001d).
- Monitoring and enforcement is often given a low priority (PCE, 1995).

As well as little guidance for councils from central government there has been little research and information assistance to local government. One significant shortcoming, given the highly urbanised nature of our society, is the absence of an institution with a focus on carrying out research into urban environmental issues (PCE, 1998a). In an effort to improve regional and district plans a website to promote best practice in the development of plans under the RMA was established in 2001.<sup>6</sup>

Despite the initial promise and benefits that the RMA brought at a conceptual level, the RMA planning framework is still not fully in place after ten years. Although 76 regional and district plans are operative, some 77 regional and district plans are still in the process of being made operative (MFE, 2001b).

### A2.2.3 Marine environment

The Commissioner investigated the management of New Zealand's marine environment in 1999 (PCE, 1999b). This investigation followed an earlier joint study by the Commissioner and the Controller and Auditor-General on marine fisheries management (Controller and Auditor General and PCE, 1990). The 1990 study concluded:

*The findings in this report indicate a system struggling to provide the necessary information for management decisions which can control fishing at sustainable levels and ensure sustainability of the fishery resource.*

Nine years on, the Commissioner's (PCE, 1999b) wider investigation of the management of New Zealand's marine world outlined "a picture that is full of opportunity, yet deeply disturbing in its limited effectiveness and capacities to date."

At the legislative level the conflicting statutory mandates between legislation such as the RMA and the Fisheries Act 1996 is part of the problem of a system for managing the marine environment that remains arbitrary and complicated, with overlapping and fragmented management responsibilities. There are 18 main statutes, 14 agencies and six government strategies for marine management. The legislation has established different priorities for management, ranging from protection to utilisation, from the coastal marine area out to the boundary of the Exclusive Economic Zone (EEZ). In some cases the framework is incomplete.

The Commissioner emphasised the importance of taking a 'whole systems' approach to the reality that the marine world is a mosaic of complex ecosystems, despite the dominance of fishing and fishing practices in discussions about marine management issues. Marine management systems must recognise the complex, variable nature of the marine environment. Hence the Quota Management System (QMS), while it is a significant improvement over pre-1986 fisheries management, does not equate with sustainable

management of the marine environment as a whole. In addition, even with the QMS, shortcomings in knowledge, both of key stocks and their component ecosystems, has led to serious declines of some stocks and concerns about the underlying rationale for their management. Risks to sustainable utilisation of fisheries were identified in the Environment 2010 Strategy (MFE, 1994).

There are also related problems with the fisheries management rights regime. It is immature and poorly integrated with other rights. It therefore cannot ensure sustainable management of the resources. There are significant difficulties in trying to mesh a property rights framework for fisheries management onto a very diverse 'public good' management framework for managing the marine environment. Some of these conflicts are being addressed by current Government initiatives with respect to proposed changes to the RMA, Fisheries Act 1996 and Marine Reserves Act 1971. There has also been rather belated recognition of the significant economic and environmental risks posed by invasive alien species in the marine environment. These risks are now being considered as part of the development of a biosecurity strategy for New Zealand (see section A2.2.7).

On a more positive note, the Commissioner's report (PCE, 1999b) also concluded that there had been constructive initiatives by Government and by communities to work towards sustainable marine practices. They include: the establishment of the QMS in 1986, the establishment of taiapure and mataitai, and the conservation services levy in fisheries management. Numerous community 'care' groups have been established in coastal areas and educational initiatives aim to increase understanding of the marine environment.

**The major recommendation by the Commissioner was for the establishment of a Coastal and Oceans Task Force to develop a strategy with goals and principles, then actions and policies, for the future sustainable**

### **management of New Zealand's marine**

**environment.** In October 2000, the Government initiated the development of an Oceans Policy through a three-stage process that may well lead to a mix of policy and legislative initiatives that improve the current practices concerning the use and protection of the marine environment. The urgent need for such initiatives and reforms has been clearly articulated.

The Ministry of Fisheries is in the process of preparing a Fisheries Environmental Management Strategy.<sup>7</sup> The strategy is designed to contribute to the Ministry's strategic intent - sustainable fisheries in a healthy aquatic ecosystem. It is intended that the strategy will provide a vision and overall approach by which the Ministry of Fisheries will align and improve its processes to meet fisheries-related environmental obligations. The strategy is due to be completed by October 2002.

#### **A2.2.4 Institutions for marine management**

With respect to management of the marine environment, the Commissioner's 1999 investigation concluded that the institutional structures fail to reflect the complexities of, and the interconnections within, the natural, cultural and economic systems that require management (PCE, 1999b). This reflects the lack of an overarching framework or strategy to guide the many stakeholders towards sustainable management of the marine environment. Instead, the management structures are narrowly compartmentalised and focus on outputs rather than outcomes. In addition to structural barriers, the Commissioner's investigation concluded that the lack of communication and a "grave lack of trust" between stakeholders is severely inhibiting the advancement of sustainable management of the marine environment.

For marine matters beyond the 12-mile limit there are many agencies and many Acts involved, but no lead agency and a perceived lack of

coordination in legislation. Procedures for environmental management beyond the 12-mile limit are not consistent with procedures inside the 12-mile limit (PCE, 1996a). The planning stages of off-shore developments provide no opportunities for public comment and once the marine protection rules are promulgated, in general, there are no consultation procedures. The lack of a lead agency for matters beyond the 12-mile limit makes it more difficult to coordinate consultation or conflict resolution.

The Oceans Policy initiative, referred to in section A2.2.3, provides an important opportunity to take a holistic view of the major strategic issues regarding marine management and define a coherent system, which will require addressing the institutional problems.

#### **A2.2.5 Biodiversity**

In the last decade there have been major additions to our national parks system. Kahurangi National Park was opened in 1996 and Rakiura National Park on Stewart Island was opened in 2002. These two new parks alone add 600,000 hectares to the national park system. In May 2001, the Government transferred 130,000 hectares of indigenous forest lands on the West Coast to the management of the Department of Conservation. These publicly-owned forests were previously managed for timber production by Timberlands West Coast. Government has signalled its intentions to consider adding significant portions of these forests to existing national parks. In addition, World Heritage status was granted to New Zealand's Sub-Antarctic Islands in 1998.

Although a significant proportion of New Zealand's biodiversity is protected on public conservation lands there is also considerable biodiversity of value on private land. The Government established a Ministerial Advisory Committee on Biodiversity and Private Land in 1999 which presented its final report in August 2000 (MFE, 2000). This committee arose out of two concerns of Government. The first was that

biodiversity was continuing to decline and private land was playing a part in that decline. The second was that there had been adverse reactions to attempts by a number of councils to protect biodiversity on private land. In some places it had come to the point that polarized positions threatened to undermine goodwill and any benefits that might have been expected. The report concluded that biodiversity should be managed at the regional or local levels with central government putting in place the structures (including funding mechanisms) needed to assist local government to effectively address biodiversity issues. This requires central government to work in partnership with local government. Further efforts were signalled as being needed if Maori interests in biodiversity were to be secured.

The completion of the New Zealand Biodiversity Strategy in 2000 provides the necessary framework, combined with a Biosecurity Strategy (under development), to significantly advance priorities for, and better integration of, the protection and enhancement of biodiversity. The Biodiversity Strategy has effectively replaced the previous Government's Environment 2010 Strategy that was released in 1994 (MFE, 1994a). In the 2000 Budget, the Government committed an additional \$187 million over five years to implement priority actions in the Biodiversity Strategy. Some of this money was to assist biodiversity conservation on private land as a consequence of recommendations from the Ministerial Advisory Committee (MFE, 2000).

In 2002, DOC published a summary of achievements during 2001 under the Biodiversity Strategy (Department of Conservation, 2002). Half of the additional \$18 million spent in 2000/01 under the strategy actions was on weed and pest control and related initiatives including \$1.6 million on marine biosecurity initiatives. Funding is projected to increase in each of the next four years. An additional \$30.5 million is targeted for spending to increase the protected areas on private

land over the five year period. This recognises the importance of conserving valued indigenous biodiversity on private land.

Neither the Biodiversity Strategy, nor the Biodiversity on Private Land project directly tackle issues surrounding future roles for native plants on private land other than for protection purposes. Questions regarding the ecologically sustainable uses and services of native trees and plants in the landscape and how these might contribute to biodiversity goals were not addressed in either document. These important and sometimes contentious issues were raised in a separate PCE discussion paper in June 2001 (PCE, 2001h). Submissions to the paper have been analysed and the Commissioner published a final report with recommendations in June 2002.

In 2001, the Government started the process of developing a national policy statement on biodiversity under the RMA during 2002. This initiative provides a further opportunity to bring national consistency in the approach of local government to the management of indigenous biodiversity outside public conservation lands. There had been widespread expectation that a number of national policy statements would be prepared under the RMA after its 1991 passage, but by 2001 only the mandatory Coastal Policy Statement had been prepared. The Resource Management Amendment Bill, currently before Parliament, is intended to clarify biodiversity management functions of regional councils and territorial authorities.

#### **A2.2.6 Management framework for biodiversity**

About one-third of New Zealand's land area is managed by the Department of Conservation (DOC) which has a diverse but integrated set of functions including research, pest control, protecting endangered species, management of visitors and conservation areas, including national parks. The area under national park status for which the DOC is responsible has expanded

significantly in the past decade (section A2.2.5). This has placed more demands on departmental resources. Over the past decade the Commissioner has not initiated any investigations into the institutional framework for the management of public conservation lands.

With respect to other lands, regional councils have responsibility under the RMA for functions such as pest control, air and water quality, and managing tourism impacts.

As was covered in the previous section, there is significant indigenous biodiversity of value on private land. Late in 2001, the Government launched a nation-wide initiative, Action-Biocommunity, funded by the MFE Sustainable Management Fund and managed by Local Government New Zealand. The focus of the project, which has a modest budget of \$1.1 million over three years, is to build capacity in local government for biodiversity management. It is intended to build on many existing projects and help coordinate biodiversity work across local government organisations as well as linking with efforts at the community level.

### A2.2.7 Biosecurity

In the past decade the most significant new legislation relevant to terrestrial biodiversity has been the Biosecurity Act 1993 and the Hazardous Substances and New Organisms (HSNO) Act 1996. Both Acts focus on biosecurity aspects of threats to biodiversity.

The focus of the major biosecurity investigations by the Commissioner during this period has been on environmental management of pests (invasive alien species) that threaten indigenous biodiversity. Three reports have looked specifically at aspects of management of New Zealand's most costly pest, the Australian brush-tailed possum (*Trichosurus vulpecula*) (PCE, 1994b; PCE, 1998g; PCE, 2000d) and a fourth looked at biosecurity failures associated with the illegal introduction of rabbit calicivirus disease (PCE, 1998f). A much broader investigation into the management of

biosecurity risks in general was completed in 2000 (PCE, 2000c).

Possums are a major threat to rata/kamahi and mixed hardwood forests through defoliation, competition pressure, in addition to predation on native birds. Since the 1970s possums have also been identified as vectors for bovine tuberculosis (Tb). These serious problems with possums are unique to New Zealand. (Direct economic losses from possum damages could reach \$US25 million per year (PCE, 2000d)). The PCE investigation of 1994 arose from public concerns over the widespread aerial application of Compound 1080 (sodium monofluoroacetate) for control of possums. The investigation's findings supported the ongoing use of 1080 while warning against the heavy reliance on 1080, or other toxins, in the long term. The best hope for future control was thought to be a breakthrough in biological control or similar technology. A progress report (PCE, 1998g) concluded that most of the recommendations in the 1994 report had been implemented, namely there was much better coordination between the research establishment and control agencies, while agencies had also standardised the monitoring of their control operations.

Conflicting attitudes to biological control of pests were starkly exposed during 1996-1997 in relation to another major pest, the rabbit. A substantial application by regional council, farmer and central government interests to import rabbit calicivirus disease (RCD) as a biological control of rabbits was declined in July 1997 by the Director-General of the Ministry of Agriculture and Forestry (MAF). During the following month, August 1997, dead rabbits were found on several Otago farms and it quickly became apparent that there had been an organised illegal importation and release of the RCD virus that probably occurred before the official 'No' decision had been released.

In the fallout that followed the Commissioner (PCE, 1998f) concluded that given the history and context of rabbit bio-control in New Zealand the

illegal importation of RCD had been “highly predictable”. It seemed clear that when lots of players are involved in making a decision on biosecurity then the context will be a major influence on the outcome. (In this case the ‘context’ included important historical and research initiatives to develop and introduce bio-control measures for rabbit control.) It also led the Commissioner to a broader conclusion that:

*Community acceptance of future bio-control agents necessitates public information and education sources that are trusted and independent of both proponents and agency decision-makers.*

**The Commissioner also considered it was essential to undertake a detailed investigation of the impact of this failure in biosecurity and the factors that generated it, given concerns that it may have signalled a change in public attitudes towards biosecurity laws and diminished trust by the public in decision makers.** The Biosecurity Council reviewed the ‘lessons learned’ from the RCD events. Its public report (Biosecurity Council, 1999) contained a number of conclusions and recommendations. It noted that numerous communications failures had occurred, there had been a lack of clear policy guidelines at the political level, context is indeed important to decision making and better communication and coordination between key agencies was required. One of the most important generic problems that remained was the relative absence of ways to create an environment conducive to informed and open public debate. The Commissioner had expressed similar concerns.

The Biosecurity Council report also concluded that resourcing of the RCD ‘episode’ had been inadequate. The Council recommended that a rethink was needed with more flexibility (in funding) to enable more timely responses to unexpected biosecurity contingencies. This was not the first, nor the last time, that official inflexibility had been cited as an obstacle to the

rapid deployment of resources against incursions of potentially serious and costly pests.

The polarised debates surrounding the RCD debate led the Commissioner to explore the interactions between science and communities in terms of views about a range of possum biocontrol options (on which many millions have been spent), most of which involve genetic engineering. The resulting report (PCE, 2000d) showed that there is wide public recognition of the need to deal effectively with possums and also acceptance that new control methods are needed. Interest in the possibilities of biocontrols was, however, tempered by deep concerns about genetic engineering (GE) on a number of fronts. A fundamental issue was the extent of the unknowns. The more general importance of acknowledging unknowns in science was developed in another paper by the Commissioner (PCE, 2001c). The earlier investigation showed that while there was support for ongoing research there were also enormous information needs relating to biocontrols and genetic science, and an insistence by many people that development of biocontrol technologies must include the full participation of the public, tangata whenua, and groups and sectors with an interest in biocontrol and genetic technologies (PCE, 2000d).

**The Commissioner made recommendations regarding possum research, increased research into the interface between biocontrol technologies and New Zealand society and expanded education and community programmes about possum impacts and risks, as well as the practicalities of possum control.**

A wide-ranging investigation by the Commissioner of the management of the biosecurity system was released in 2000 (PCE, 2000c). Its key message was that biosecurity is as strategically important as national security when it comes to protecting New Zealand’s key economic and environmental assets. Government needs to accord it this level of strategic status. The investigation identified strategic, process and

operational strengths of the biosecurity system that make it a world-leader. Such comparisons, however, can be misleading and may lead to an unjustified complacency. New Zealand's needs are different, the stakes are uniquely high, and the performance standards need to be New Zealand specific.

**The Commissioner's investigation identified strengths and weaknesses of the biosecurity system and then outlined a number of opportunities for its improvement. These were to:**

- **develop numerous 'lines of defence' against unwanted organisms, including off-shore preventative measures**
- **broaden membership of the Biosecurity Council**
- **improve coordination and cooperation between agencies**
- **develop risk management principles**
- **strengthen monitoring**
- **set up surveillance research and intelligence systems, particularly in the Auckland region**
- **establish more partnerships**
- **develop a 'learning by doing' approach to management to improve operational success rates.**

#### **A2.2.8 Biosecurity institutions**

While there have been significant improvements over the past decade, both through new legislation and institutional structures, biosecurity is a risk management system operating without a clear set of measurable outcomes and it is administered by multiple agencies (in central government and local government) each with their own objectives (PCE, 2000c).

The formation of the Biosecurity Council in 1997 as a Ministerial advisory body was a significant step towards better coordination of the agencies involved in managing biosecurity risks. Under the umbrella of the Biosecurity Council a number of consultative forums have been established. These

provide a potentially useful mechanism for various interests to raise their concerns about biosecurity issues and convey them to the Biosecurity Council.

The establishment of the MAF Biosecurity Authority in 1999 was another important milestone. There remain questions over the relative amounts of resources that are directed to biosecurity activities covering indigenous species and native ecosystems compared with the funding directed to protecting land-based industries. Biosecurity funding is overwhelmingly directed to the Ministry of Agriculture (over 90%), while the Department of Conservation, the Ministry of Fisheries and the Ministry of Health share less than 10%.

At the time of writing the development of a Biosecurity Strategy for New Zealand was still in progress. A draft strategy is due for release and comment in June 2002 with a target for Government approval of a final strategy in December 2002. It is not possible to speculate at this time if it will recommend any changes to either biosecurity legislation and policies, or to the institutional arrangements that deliver biosecurity services. The Commissioner's investigation clearly identified improvements that could be made to all of these aspects of the biosecurity system.

#### **A2.2.9 Urban environments**

New Zealand is now a highly urbanised society with over 85% of the population living in urban or suburban environments. (The global average for all countries is 50%.) The successful management of its cities can be seen as a challenge to achieve sustainable urban development, recognising that cities are, in effect, very complex, highly managed ecosystems. **The first PCE investigation of the management of the urban environment (PCE, 1998a) found that:**

*With a few notable exceptions at the city level, the concept of sustainable urban development is largely being ignored in New Zealand, with a lack of leadership and vision.*

Several indicators of resource consumption (housing, energy, transport, goods and services), as well as waste production, are rising faster than rates of population growth. The report points out that effects-based management, as guided by the RMA, does not address the nature and efficiency of resource use (PCE, 1998a). Increased efficiencies will bring substantial cost savings to businesses, the wider community and government. The Environment 2010 Strategy (MFE, 1994) only sporadically covered urban issues which exposed a policy vacuum with respect to urban ecosystems. More recently, the otherwise comprehensive The State of New Zealand's Environment publication (MFE, 1997) does not adequately address urban sustainability issues, a trend that has continued into the environmental indicators programme run by the Ministry for the Environment. Sustainable development of New Zealand's urban environments has been plagued by a lack of vision, a lack of agency coordination, a lack of concern ('urban denial'), little urban research and a history of many (small) starts but few finishes. In March 2002, the Ministry for the Environment published a design guide for urban New Zealand providing a broad overview of urban design processes and principles (MFE, 2002b). The Ministry also commissioned work in 2000/01 on the identification and management of urban amenity values, but the findings from this study have not yet been published.

The RMA has insufficient emphasis on issues relating to the health and well-being of people and communities, although its provisions relating to amenity values and the interactions between development and the environment are essential. A major challenge exists at all levels of government to find new and creative ways to inform and empower communities, to involve them in decision making, and to enable them to make choices in an efficient and effective way. A significant challenge for New Zealand will be decoupling future increases in our quality of life (well-being) from increasing resource consumption and waste production.

Historic and cultural heritage within the urban environment provides a range of benefits including reinforcement of New Zealand's unique identity and provision of economic opportunities. **A PCE investigation into historic and cultural heritage management in New Zealand found that the government system was performing poorly and permanent losses of all types of historic and cultural heritage were continuing** (PCE, 1996b). Recommendations included: establishing a specific ministerial portfolio for historic and cultural heritage; developing a national heritage strategy; and addressing the protection of Maori heritage. A number of changes have since occurred including a review of funding of core statutory heritage functions, the establishment of a Ministry of Culture and Heritage in 1999 and the inclusion in the current RMA amendment bill of proposals to elevate the protection of historic and cultural heritage to being a matter of national importance. However, no progress has been made on the development of a strategy to coordinate and integrate heritage management better across all levels of government.

A more recent investigation by the Commissioner into sustainable development in peri-urban areas (defined as areas that are in some form of transition from strictly rural to urban) identified a related suite of issues (PCE, 2001d). Environmental management and planning of peri-urban areas is complex, but the quality of long-term outcomes from six case studies showed that adequate inputs sometimes led to acceptable outputs. Inadequate inputs and processes led to inadequate outputs. Over-reliance on the RMA (via district plans) as the primary tool was common, but led to problems in managing cumulative effects, which is a critical issue. The tools to define and manage cumulative impacts are weak. Accountability in the system is weak, checks and balances are limited and are not activated very often. Baseline resource information is not particularly good and many communities feel there has been poor leadership from national agencies on how to

manage these areas. Institutional capacity to promote the sustainable development of the peri-urban areas, both intellectual and financial is variable.

The peri-urban investigation raised more questions than answers. It is clear that communities value a 'sense of place', but it is unfortunately not clear which of the various approaches that have been tried around the country will lead to sustainable development of peri-urban areas. Is the current system of environmental management and planning actually capable of promoting the sustainable development of peri-urban areas? The report identified key questions. Are the planning processes effective? Is the planning process adequate? What is the role for communities? Where do we go from here?

**The Commissioner's sole recommendation was that the Minister for the Environment "undertake a substantive review of experience to date in preparing the first-generation plans produced under the RMA." The purpose of the review would be to ensure that lessons are available for the preparation of the next generation of plans which should improve both the implementation of the RMA and the likely environmental outcomes. It is recommended that the review be done in partnership with local government and identify solutions.**

In 2000, the Commissioner issued a discussion paper on urban water systems (PCE, 2000a) and the following year produced a report with findings and recommendations (PCE, 2001a). In New Zealand, as in other countries, the management of water is complex and of major strategic importance. The investigation, discussions with many stakeholders and feedback via submissions clearly showed that advancing water management "is primarily a socio-political challenge rather than an economic or technical one."

Four major areas of challenge were identified. These challenges identified the areas where substantive action is needed, namely, the currently

fragmented framework for the management of urban water systems; stakeholder awareness, concerns and understanding; valuing, pricing and charging for water services; and replacing the existing outdated management approach by one that integrates the management of urban water systems. **The Commissioner recommended that a Ministerial Task Force be established to develop recommendations relating to the above four areas of challenge. The Commissioner also recommended that all territorial authorities and water services providers prepare an overarching water services strategic plan as a framework for the sustainable and integrated management of urban water systems.** While Government has not proceeded with the recommendation for a Task Force, the current local government reforms do address the need for integrated management of water, wastewater and stormwater in an ecosystem context.

Following a review of the Local Government Act 1974, the Local Government Bill was introduced in December 2001. Among the changes proposed is a change to the purpose of local authorities:

*The purpose of local authorities is to enable local decision-making, by, and on behalf of, individuals in their communities, to democratically promote and action, their social, economic, environmental, and cultural wellbeing in the present and for the future (Clause 8).*

Other changes include the introduction of comprehensive long-term community plans with their emphasis on integrated decision making. Such plans are likely to complement regional and district plans under the RMA, and provide for the wider economic and social planning aspects not fully covered in the environmental focus of RMA plans.

#### **A2.2.10 Urban institutions**

With a few notable exceptions (see section 4.1.7 for examples of positive actions by various councils), the institutions responsible for

promoting and implementing sustainable development of urban environments in New Zealand (regional councils, unitary authorities and territorial authorities) have little to show for their efforts over the past decade (PCE, 1998a). This is despite the clear guides for action laid out in Local Agenda 21<sup>8</sup> and the initiatives of many overseas cities to manage their urban areas more sustainably. In 1994, the Ministry for the Environment produced an Agenda 21 implementation guide for local authorities (MFE, 1994b) and formed a trial partnership with the then Local Government Association and five local authorities (Waitakere, Wellington, Nelson, Tasman and Waimakariri). Since then, there has been little national leadership, promotion or coordination of local Agenda 21 initiatives and no national strategy for the implementation of Agenda 21.

There is no national urban agency that can provide information on urban sustainability issues and thereby assist local government with management of the urban environment. The abolition of the New Zealand Planning Council in 1991 removed one agency that could have carried the responsibility for the broader social, cultural and economic aspects of environmental policy, including concerns relating to the urban environment (Memon, 1993).

## A2.3 Consumption and production

### A2.3.1 Energy

Energy plays a pivotal role in modern societies. Recognising New Zealand's poor performance relative to other OECD (Organisation for Economic Cooperation and Development) countries in terms of energy efficiency, renewable energy policy and implementation of new technology, the Commissioner undertook a review of progress of energy efficiency and renewable energy initiatives (PCE, 2000b). Coming at the end of a decade noted for a considerable number of Government and agency reports on energy efficiency and renewable energy issues, the report

concluded that the most important issue was the need for strong Government leadership to fully address energy efficiency, renewable energy and demand management issues in the energy and transport sectors. This will need to occur in partnership with all sectors, particularly industry, business and local government.

In 1996, the OECD's environmental performance of New Zealand contained a number of recommendations on the energy sector and energy efficiency initiatives. In 1997, the International Energy Agency (IEA) also reviewed New Zealand's energy policies (IEA, 1997). Both of these reviews had identified a clear role for Government with the IEA stating that "energy efficiency is a top priority in moving to a sustainable energy system." The Commissioner energy report concluded that in response to international agency recommendations and an analysis of Environment 2010 actions, little progress had been made in a large number of areas concerning energy efficiency and renewable energy. All agencies had paid insufficient attention to renewable energy issues and energy efficiency issues associated with the transport sector. Lack of action, despite the extensive analyses that had been done (14 major reports) suggest that deep ideological debates have impeded and ultimately constrained Government investment and willingness to sign off on policy initiatives.

When the Energy Efficiency and Conservation Authority (EECA) was established in 1992 officials had recommended that it be established as a separate entity by legislation. This did not occur. **Despite its satisfactory performance to date, the Commissioner recommended that Government establish a Government-supported energy efficiency and renewable energy agency as a separate entity with policy and operational roles, based on legislation.** The structure prior to the Energy Efficiency and Conservation Act 2000, put EECA outside the official Government policy loop. This meant that Government could not be confident it was receiving the full range of options

and possible responses regarding energy efficiency and renewable energy policy advice. That situation has now changed.

**The Commissioner also called for a new national energy efficiency and renewable energy strategy by Government to replace the 1994-1997 energy efficiency strategy that was produced, but not renewed.** The Energy Efficiency and Conservation Act 2000, the product of a private member's Bill to Parliament in 1998, was enacted three months after the PCE's energy report. The purpose of the Act is to promote energy efficiency, energy conservation and the use of renewable sources of energy. It also establishes 'sustainability principles' to achieve the purpose of the Act. These principles require those who exercise responsibilities, powers or functions to take into account the health and safety of people and communities, their social, economic, and cultural well-being, the need to maintain and enhance the quality of the environment, the reasonably foreseeable needs of future generations and the principles of the Treaty of Waitangi.

The Government released a draft National Energy Efficiency and Conservation Strategy (NEECS) in early 2001 as one of the requirements of the Energy Efficiency and Conservation Act 2000. The strategy was finalised and released by the Minister of Energy in September 2001. One urgent priority for the strategy to address will be transport energy efficiency issues. Transport energy use grew 3.5%, on average, from 1999-1999 and domestic transport accounts for 42% of New Zealand's total energy use.<sup>9</sup> Progress is needed urgently on providing more balanced transport solutions, addressing the environmental effects of transport patterns on energy use and sustainable land use, and better efficiencies of transport fuel. These and other energy efficiency targets are key parts of New Zealand's response to climate change.

The Commissioner's energy report (PCE, 2000b) also examined the energy reforms and the role and structure of the market. It concluded that explicit consideration of both economic and

environmental (resource) efficiency is needed in the development of energy policy. The development of such policy needs to acknowledge that market mechanisms cannot deliver all objectives, and that environmental efficiency criteria need to directly shape policy development. The energy reform process emphasised supply side matters. There is also a need to build energy efficiency and demand side management into the existing market.

The amendment in 2001 to the Electricity Act 1992 requires the PCE to undertake a regular environmental performance audit of the Electricity Governance Organisation against the environmental criteria in the Government Policy Statement of December 2000. This policy statement was issued following consideration of the recommendations of the Ministerial Inquiry into the Electricity Industry. The Government Policy Statement includes the following policy objective:

*The Government's overall objective is to ensure that electricity is delivered in an efficient, fair, reliable and environmentally sustainable manner to all classes of consumer.*

*The policy statement also defines the guiding principles for the electricity industry as being:*

*The Government's overall objective is to ensure that electricity is delivered in an efficient, fair, reliable and environmentally sustainable manner to all classes of consumer. Industry arrangements should promote the satisfaction of consumers' electricity requirements in a manner which is least-cost to the economy as a whole and is **consistent with sustainable development** (emphasis added).*

Consistent with its overall objective, the Government policy statement then lists a number of specific outcomes that the Government is seeking. These include:

- energy and other resources are used efficiently, and in particular, hydro spill is minimised
- greenhouse gas emissions are minimised.

The first step of the audit that the Commissioner is required to undertake is a draft audit framework, setting out the scope, objectives, criteria and measures to be used. This will be released by the Commissioner for public comment in late 2002.

### A2.3.2 Energy agencies

In 1992, the year Government established EECA (Energy Efficiency and Conservation Authority), the Officials Committee on Energy Policy (OCEP) was also established. This Committee has the objective of overseeing and integrating advice to the Minister of Energy and the Cabinet Committee on Industry and the Environment. EECA was not represented on OCEP, but its technical advice was occasionally sought on energy efficiency issues. EECA has subsequently had some input into other policy processes where there was a recognised need for expertise in energy efficiency and renewable energy. A major focus for EECA in the late 1990s was to address and respond to an audit of its effectiveness and on-going governance review.

The Commissioner's report on energy efficiency (PCE, 2000b) raised concerns about EECA being a semi-autonomous body within the Ministry of Economic Development (previously the Ministry of Commerce), and recommended that EECA should have a more direct involvement in the development of energy policy. In May 2000, when the Energy Efficiency and Conservation Act 2000 was enacted, EECA was established as a Crown entity whose performance is monitored by the Ministry for the Environment (MFE). MFE provides policy advice to the Minister of Energy on energy efficiency, conservation and the use of renewable sources of energy.

### A2.3.3 Waste

While societies generate many different sorts of waste, ranging from domestic to industrial outputs, a particularly important sub-set are 'hazardous waste' products. 'Hazardous wastes' generally present some degree of physical, chemical or biological hazard to people and the

environment. The management of hazardous wastes was the subject of a number of public reports throughout the 1990s. The 1996 OECD review of New Zealand's environmental management (OECD, 1996) comprehensively criticised New Zealand's poor performance in waste management with respect to inconsistent policies between local authorities, lack of incentives, piecemeal approach, inadequate legislation, limited information, and lack of treatment and disposal facilities. The State of the Environment report (MFE, 1997) concluded that the scale of the hazardous waste problem was poorly understood, badly underestimated and prone to flawed management. Government had not addressed even the fundamental issue of having a legal definition of "hazardous waste".<sup>10</sup>

In 1998, the Commissioner established a process to monitor progress on the implementation of a three-year hazardous waste programme set up by the Minister for the Environment in September 1997 to improve the management of hazardous waste (PCE, 1998c). The Commissioner assessed progress in November 1999 (PCE, 1999a) and again in April 2001 (PCE, 2001b).

The first assessment found that delays had occurred and outcomes were not achieved within the expected three-year timeframe. The programme was extended to 2005, its scope broadened and it received additional funding. The Commissioner's second assessment in 2001 showed that reasonable progress had been made including the development of a draft definition of 'hazardous waste', the establishment of a database (the 'New Zealand Waste List') and the linking of the programme with other initiatives, such as waste acceptance criteria for landfills and a proposed waste minimisation strategy. Despite this progress, the broader goals of the Hazardous Waste Management Programme had not been achieved after three years. Evidence of improved systems or outcomes is unlikely now until 2005 or beyond. Fortunately, the Ministry for the Environment has clearly identified key milestones for the

programme and these will be useful for measuring the programme's progress and outcomes.

Another waste issue investigated by the Commissioner was mine tailings.<sup>11</sup> An investigation into the effects of tailings dams identified problems associated with liability for monitoring, maintenance and residual clean-up of sites used for the long-term storage of mine tailings from existing and proposed gold mining operations (PCE, 1997b). Amendments to the RMA to clarify responsibilities for the long-term management of environmental effects from such activities and other contaminated sites are currently under consideration by Government.

In his report on urban water systems (covered above in section A.2.2.9) the Commissioner pointed out the strong links between urban water systems, wastewater and waste management. He stressed the need for territorial authorities and water services providers to develop a water services strategic plan to recognise and address a range of cross-media issues such as the management of trade waste and the final disposal of end products from wastewater treatment (PCE, 2001a).

#### A2.3.4 Waste management

Local government has the primary responsibility for managing waste, including hazardous waste, either as a regulator (regional councils) or as a provider of services (territorial authorities or their contractors). This has been done for many years without any overall strategy or consistency of policies between local authorities. Nor have there been adequate incentives to reduce the amount of wastes that are generated. The Ministry for the Environment's responsibilities regarding waste include advising on national policy issues and consulting on and developing national guidelines or standards on waste management.

Consultation on waste management proposals has become more intense over the last few years, with the Ministry for the Environment releasing a number of technical and general discussion documents on hazardous waste, landfill

acceptance criteria, waste minimisation and the management of waste oil. Part of the Ministry's process for developing hazardous waste management systems is to first trial the proposed New Zealand Waste List and draft definition of hazardous waste in selected local authorities (PCE, 2001b).

The new New Zealand Waste Strategy that was launched in March 2002 offers an opportunity to put into practice a series of actions that are essential to stop, and then reverse, the inexorable accumulation of waste that degrades ecosystems and despoils landscapes. The strategy covers actions that are intended to be taken, namely, developing a sound legislative basis for waste minimisation and management, developing efficient pricing policies, implementing high environmental standards, obtaining adequate and accessible information and making more efficient use of materials. The strategy covers solid, liquid and gaseous wastes and addresses waste issues from generation to disposal. The intent is to move from 'end of pipe' approaches to zero waste targets. The connection to sustainability is explicit in the strategy as it states:

*Reducing New Zealand's waste is a cornerstone of government's commitment to sustainable development. Local government is crucial in putting this into effect, and all New Zealanders must take responsibility for reducing waste and managing it better.*

The strategy discusses and promotes 'green purchasing', which is buying those products and services that minimise their environmental effects throughout production, use and disposal. It points out that since government (central and local) consumption comprises more than a fifth of GDP, "Government green purchasing is vital."

#### A2.3.5 Tourism

*Take nothing but photos, leave nothing but footprints.*

The perception that tourism and tourists make only light demands on the environment while

contributing significantly to the economy is misplaced. By the mid-1990s the Commissioner had received numerous concerns regarding the environmental effects of tourism on public conservation lands. This led to a wide-ranging investigation, extending well beyond conservation lands, that became an overview of one of New Zealand's most important industries (PCE, 1997c).

Feedback from a discussion document (released December 1996), interviews and other research showed that there is general acceptance that tourism provides the opportunity for generating revenue and employment at the local, regional and national level. Despite the economic benefits, however, there is a wide range of environmental effects associated with the tourism sector, some of which have the long-term potential to seriously damage both the environment and the industry. The three main adverse environmental effects associated with tourism were:

- loss of quality of some relatively unspoilt parts of New Zealand's natural environment
- loss of amenity values from incremental development (in both rural and urban places), which can also affect communities and lifestyles, especially in places where the proportion of visitors to residents is high
- pressure on infrastructure (particularly sewerage and roads) which is often seasonal, resulting in significant costs to local communities.

The investigation identified serious shortcomings in information for the tourism sector and its associated environmental effects. This is a major constraint on the assessment and management of those effects and a major risk for the sector. Overall, the investigation concluded that the government system for the management of tourism is fragmented. There is poor communication and coordination between different agencies, especially between those agencies that promote tourism and those that manage the environmental effects associated with it. Government agencies have very little ability to influence the direction of the tourism industry, and thus its effects on the environment.

The investigation found widespread agreement that tourism should be managed sustainably and marketed on the basis that New Zealand is a high quality, tourist destination. Tourism's reliance on the quality of the natural environment, and of visitors' experiences, is also generally recognised. Inadequate discussion about what sustainable tourism means for New Zealand and its tourism sector, coupled with the lack of sectoral coordination, made it difficult for tourism to achieve its potential in the absence of an agreed strategy for sustainable tourism in New Zealand.

**The Commissioner therefore concluded with a principal recommendation that the Minister of Tourism facilitate and resource the development of a strategy for sustainable tourism for New Zealand.** The Government subsequently initiated the development of a New Zealand Tourism Strategy in 2000 which was adopted and implemented in 2001.

In February 2002, the Government released a Tourism Research and Development Strategy 2002, prepared by the Tourism Research Council New Zealand. This strategy advances recommendations from the New Zealand Tourism Strategy 2010. It recognises that planning and decision making in the tourism sector requires relevant, timely and quality information which has been absent in the past.

### **A2.3.6 Tourism - agencies and management**

The tourism sector is extremely diverse.<sup>12</sup> Many parts of the industry are highly competitive and marginally profitable, which has implications for the effective management of environmental effects associated with tourism. At the same time there are a large number of government agencies with widely varying interests and roles in the management of tourism effects, while not having a primary role in tourism management. The mix of private sector operations and public agency interests makes for a complex institutional picture.

The Department of Conservation (DOC) has the responsibility for managing the environmental

effects associated with tourism on public conservation lands. The Commissioner concluded (PCE, 1997c) that it is appropriate for the department to retain responsibility for visitor services, including concession management, as part of its overall management responsibilities. The Commissioner found that DOC is distinctive among government agencies in its purposeful integration of conservation objectives with visitor use, through its widely consulted Visitor Services Strategy and the regionally specific provisions in its conservation management strategies. Passing responsibilities for tourism and visitor management to a separate agency would only further complicate the assessment and management of environmental effects on conservation lands.

Over the rest of New Zealand local authorities have responsibilities for managing tourism effects through their regulatory, resource management, infrastructure and service roles. While local authorities welcome tourism for its economic potential, their performance in the management and monitoring of tourism effects has varied widely. Obviously, available resources influence this. To reduce conflicts of interest between promoting tourism, policy regulation and provision of services and infrastructures, territorial local authorities have often set up regional tourism organisations (RTOs). These regional tourism organisations have a crucial role in managing tourism, which should include a strategic approach to tourism development at local and regional levels, as well as marketing.

At the level of central government a number of infrastructural changes have occurred since the release of the Commissioner's report on tourism impacts on the environment in mid-1997. The first change was the establishment of the Office of Tourism and Sport in July 1998 within the Ministry of Economic Development. In 2000, the Tourism Research Council was established in partnership with industry. Its role is to provide credible, authoritative and integrated tourism research, information and forecasting.

## SUSTAINABLE TOURISM IN KAIKOURA

With over a million visitors a year and only 3,500 ratepayers, the Kaikoura District Council is firmly focused on the long-term sustainability of its whale-watching, tourism-based economy. Kaikoura hopes to become New Zealand's first certified community for Green Globe 21, a global environmental tourism standard, by the end of 2002. The benchmarking process is looking at the town's energy use, water consumption and greenhouse gas emissions. Curb-side rubbish pickup was replaced by curb-side recycling two years ago and Kaikoura aims to become a zero waste community. It's a 'small steps' approach to becoming sustainable that is heading in the right direction.

*(New Zealand Environment, 22 February 2002)*

The New Zealand Tourism Strategy 2010

recommended further structural changes.

Consequently, the Office of Tourism and Sport was replaced by a Ministry of Tourism with a larger policy team as well as a separate research team and an establishment date of January 2002. The new Ministry continues to be located within the Ministry of Economic Development. The New Zealand Tourism Board became Tourism New Zealand in 2001 but continues as a government-funded agency, with the key role of promoting New Zealand as a tourist destination overseas. The Ministry of Tourism will monitor and evaluate Tourism New Zealand's effectiveness in consulting with and involving key tourism sector groups. Central government is also putting some money into assisting the response of local government to the tourism strategy.

This suite of changes - strengthening the capacity of the Government policy agency, establishing a research agency linked to the tourism industry, improving the linkages between the Government and private sectors - should address earlier concerns expressed by the Commissioner. These concerns were that the policy functions were under-resourced and dominated by the (previous) NZ Tourism Board with its narrow statutory focus on marketing New Zealand tourism. So while there is widespread agreement that tourism in New

Zealand should be managed sustainably the previous structures hindered the achievement of this goal. The new structures provide an opportunity to better understand and research what 'sustainable tourism' means for New Zealand and how to achieve it.

#### A2.4 Involvement of tangata whenua

The Crown has a number of obligations under the Treaty of Waitangi of 1840, which formalises a partnership between two parties - the Crown and Maori. The Treaty is part of New Zealand law to the extent that it is incorporated into statute. Those environmental statutes that refer to the Treaty do so in various ways, some binding the Crown more strongly than others. For example, the Conservation Act 1987 provides for a stronger obligation to the Treaty principles than does the RMA.<sup>13</sup> Matters in Sections 6 and 7 of the RMA also have particular relevance to tangata whenua, namely:

- the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga<sup>14</sup> (section 6(e))
- kaitiakitanga (section 7(a))
- recognition and protection of the heritage values of sites, buildings, places or areas (section 7(e)).

Local authorities are not part of the Crown and, therefore, local authorities are not generally considered to be the Treaty partner in place of the Crown in the local context (PCE, 1994a). The Local Government review aims to clarify the relationship between local government and the Treaty of Waitangi. The Local Government Act 1974 presently makes no reference to the Treaty of Waitangi or its principles. Hence the duties and obligations of local authorities under the Treaty and its principles derive only from statutes such as section 8 of the RMA.

In 1992, when the RMA was 'new' legislation, the Commissioner put forward a series of proposed guidelines to assist local government and iwi

(tribal groups) and hapu (family or district groups, communities) to develop procedures for consultation (PCE, 1992). Over subsequent years a variety of citizens expressed their concerns to the Commissioner where the key issue was the effectiveness of communication between tangata whenua and local government. A subsequent investigation (PCE, 1998d) revisited these concerns and looked at factors that affect tangata whenua participation in environmental planning and resource management in New Zealand.

The investigation concluded that the current legislation provides a strong basis for tangata whenua participation in policy development and management for the natural environment. The RMA gives recognition to consultation, traditional values and relationships, the principles of the Treaty and the ongoing duties of kaitiakitanga. It found greater and more widespread awareness amongst some councillors, council staff and developers of the practical benefits of more effective involvement of tangata whenua. Iwi and hapu also had greater awareness of the opportunities and processes for their involvement and for the practical expression of kaitiakitanga in sustainable resource management.

Despite these useful gains, there were still no national policy frameworks or standards to ensure efficient, consistent, and reliable systems for tangata whenua participation in environmental management or the appropriate accommodation of the values and concerns of tangata whenua as required under the RMA. **Therefore the Commissioner recommended that the Minister for the Environment prepare a national policy statement under the RMA to address issues of tangata whenua involvement in environmental management. It also made other recommendations to provide monitoring of various efforts to improve tangata whenua participation in environmental management, recommended training programmes for local authorities and elected councillors and encouraged local authorities to invest in**

**appropriate initiatives to further improve tangata whenua participation in environmental management.** The Ministry for the Environment is investigating the Commissioner's recommendation to develop a national policy statement under the RMA (PCE, 2001g).

#### **A2.4.1 Tangata whenua links to environmental management**

As described in section A2.4, tangata whenua have a special relationship with the Crown that is exemplified in numerous pieces of legislation relating to the environment. This section briefly summarises, from the Commissioner reports cited in this report, the experiences of tangata whenua with the institutions and processes responsible for environmental management.

The RMA is important legislation in the way it recognises a range of tangata whenua concerns (Section 94 of the Act). As with other aspects of the actual delivery of the RMA, local authorities have considerable discretion as to how they recognise and provide for Maori in their plans. As a result, implementation has been variable. Consequently, there has been little overall consistency with regard to consultation arrangements between government agencies and tangata whenua. At the same time there have been examples of positive proactive initiatives. Successful implementation practices include the appointment by local authorities of Maori liaison officers or Maori advisory groups to assist with interpretation and implementation of the relevant sections of the RMA and support by local authorities for iwi management plans.

Unfortunately, despite the fact that tangata whenua are seeking more direct participation and strategic involvement in environmental management from the outset, iwi have often lacked the financial resources to participate effectively in plan-making and resource consent processes under the RMA. The 'Planning Under a Co-operative Mandate' research indicated that many plan-makers in district councils did not

understand the provisions of the RMA with respect to Maori issues, which impeded progress (Ericksen et al, 2001).

Section 33 of the RMA enables local authorities to transfer any of their functions, powers or duties under the RMA to any public authority (including any iwi authority). No local authority has yet made a transfer of power to iwi under this section (PCE, 2001g).

A significant barrier to implementing the RMA is that central government has not clarified the obligations of local government under the Treaty in the principal Act that directs local government activity, the Local Government Act 1974. This has resulted in uncertainty and non-compliance with obligations under the RMA (Ericksen et al, 2001; PCE, 1998d).

Tangata whenua concerns over inadequate participation extend beyond issues around the RMA. For example, there has been insufficient opportunity for tangata whenua to participate in policy and decision making in the tourism sector. Improved understanding and communication would help in achieving better environmental outcomes, more satisfactory integration of Maori values and priorities, and fulfilment of the requirements of legislation regarding the principles of the Treaty of Waitangi. Maori must have the primary role in determining appropriate ways to achieve this.

### **A2.5 Measuring progress towards sustainability**

#### **A2.5.1 Measuring ecosystem integrity**

Good decision making for environmental management requires that agencies obtain and maintain relevant information on the state of the environment. This is particularly true for the RMA, which can be described as 'information intensive', as it requires resource data about the environment in a way that previous legislative requirements did not. Section 35 of the RMA requires local authorities to carry out a range of monitoring and

information gathering activities including state of the environment, suitability and effectiveness of policy statements and plans, delegation and/or transfer of functions or powers and resource consents. At a general level, promoting 'sustainable management' requires knowledge of resources (what's there) and the changes in the resource base and the supporting ecosystems (PCE, 1998b).

Central government has undertaken a number of initiatives aimed at assisting local authorities to undertake these various functions under the RMA. The Ministry for the Environment has been working since 1995 on an environmental performance indicators programme to help with state of environment reporting. Environmental performance indicators are being developed for air, marine, climate change, ozone, land, waste, freshwater, transport, amenity, pests weeds and diseases, energy, biodiversity, contaminated sites and Maori. Some are completed and in use, but progress has been slow.

Various PCE investigations have reported difficulties with monitoring and information systems. For example, applicants for resource consents under the RMA do not always appreciate the likely effects of their activity or the information that is required with their application (PCE, 1995a; PCE, 1998b). An investigation into the adequacy of how three territorial authorities evaluated assessment of environmental effects (AEE) showed there was a need for improvement (PCE, 1995a). The Commissioner concluded that there appear to be some fundamental barriers to improving monitoring and information systems including the costs of obtaining information and the availability of fundamental scientific information (PCE, 1998b).

One consequence of central government restructuring has been a loss of national data sets for processing information about people and their environments in urban areas. Consequently, data sets tend to be incomplete, inconsistent and short run which means that information on the urban

environment is fragmented and partial (PCE, 1998a). There is no national urban agency that can undertake research and provide information on urban sustainability issues to local government. There is no output class for urban research in the Public Good Science Fund and no urban research funding strategy.

It follows that few local authorities have taken an integrated approach to reporting on the state of the urban environment, although they have produced a range of state of the environment reports. These reports tend to exclude social and economic dimensions and therefore faithfully reflect the RMA emphasis on natural resource management. There is no requirement or external incentive for local government to consider the broader dimensions of reporting against sustainable development criteria. Despite these shortcomings the six largest cities in New Zealand have recently released the results of a 2-year study looking at the quality of life and the impacts of growth and urbanisation on their citizens (Auckland City Council et al, 2001). The results of monitoring social, economic and environmental conditions revealed wide disparities for indices such as income, accommodation costs, educational outcomes and differences in health. Over half the citizens were generally comfortable with the community in which they live. All the councils have structures and processes in place to work with tangata whenua. Although there were many issues around shortcomings in data availability, the exercise has been seen as a positive exercise and it may be updated in around two years time.

One of the Sustainable Management Fund's topic areas is Creating Sustainable Communities and Businesses. This includes encouraging sustainable development, addressing urban environmental challenges, tackling climate change and air quality issues and improving the environmental performance of business. What is now needed is urban sustainability indicators and targets to measure and report on trends in sustainable urban development.

Aside from the information requirements for implementing the RMA, there are many other reasons why agencies, organisations and communities need accurate and current information about local environments and national trends. In 1997, the first attempt to provide a comprehensive national overview of the state of the New Zealand environment was published (MFE, 1997). Its strongest conclusion was that a considerable upgrading of environmental information is required if the state of the country's environment is to be accurately described and trends detected. For determining environmental trends over time it is necessary to have comparable sets of information which, unfortunately, is rarely the case for New Zealand despite the existence of a great deal of valuable information spread between a wide range of publications and disparate databases.

Information gaps exist for both terrestrial and marine environments with negative consequences for policy formation, management of resources, mitigation and monitoring. They also create a serious economic and environmental risk. In the marine case, for example, there are information shortfalls with respect to basic species information, understanding the function and structure of various marine ecosystems and the extent to which pollution and sediment run-off damages estuaries and shallow coastal waters. For both land and sea environments there has been a significant decline in taxonomic expertise for the identification and classification of species. This has serious implications both for describing the full extent of New Zealand's indigenous biological diversity and for biosecurity purposes (MFE, 1997; PCE, 2000c). Declining capacity in the discipline of taxonomy is linked to fewer training and employment opportunities and an aging workforce in this area.

These shortfalls in capacity in one area of science related to environmental needs are not unique. For example, current investment in marine ecosystem research is inadequate given that the

Government is New Zealand's guardian of the marine commons (PCE, 1999b). There has been a marked decrease in research on the various impacts on marine ecosystems over the period 1992-1999. Linked to this is Government's decision to devolve research and management functions to the fishing industry, which is a high-risk strategy for a number of unique and very vulnerable ecosystems.

### A2.5.2 Measuring Consumption and Production

There has not been a coordinated and reliable collection of national waste statistics in New Zealand, but this situation may change with the release of the government's Waste Strategy in March 2002. New Zealand also lacks data on hazardous wastes linking quantities and types generated with means of disposal and effects on the quality of the environment (including long-term risks). According to the most recent Ministry for the Environment's information on waste (MFE and LGNZ, 2002) every year in New Zealand:

- 3.4 million tonnes of waste ends up in landfills
- 500 billion litres of sewage are fed into 250 wastewater treatment plants, generating up to one million tonnes of sludge
- 13,000 tonnes of medical waste is incinerated
- about 93% of the materials we use are thrown away during production
- about 80% of what we produce is thrown away after one use
- the quantity of waste per person dumped every year in Auckland has increased by almost 75% since 1983.

These statistics are indicative of the behaviour of linear systems in action. Such systems operate on the 'take, make, waste' model. These are in contrast to cyclical systems that are designed from the beginning to minimise waste and maximise the value of resources through their re-use and recycling.

Information on New Zealand's energy intensity and consumption is reported in the annual Energy Data File, published by the Ministry of Economic Development. EECA is responsible for monitoring existing energy sources and their use. It also investigates potential sources and applications, together with the economic, social and environmental impacts, in both short and longer terms.

In 1996, New Zealand was around 87% self-sufficient in its primary energy needs. This fell to 72% in 2000. In 1996, the transport sector used 39% of total consumer energy, which increased to 41% in 2000. Between 1996 and 2000 the industrial sector component of total consumer energy decreased from 35% to 32.5% while the residential sector increased from 12% to 13% (Ministry of Economic Development, 2001a). Since 1998, energy intensity has largely remained steady (EECA, 2001b).<sup>15</sup>

Good information about the environmental effects associated with tourism has been seriously limited in the past. This has been a major constraint on the assessment and management of those effects as well as being a major risk for the tourism sector. The availability of basic statistics and other relevant information relating to tourism is variable. In particular, there is a significant lack of data about domestic tourism. Data gathering, research and monitoring programmes are generally not well targeted or integrated with day-to-day and long-term environmental management within the relevant government agencies or the tourism industry. The various structural changes of the last year, including the creation of the Tourism Research Council New Zealand, should go a long way to remedying these shortcomings.

## A2.6 Evaluating the stocktake

There have been changes in the way our biodiversity and natural resources are managed over the past decade, but have these changes really been moving us towards sustainable development? What conclusions can we draw from this summary

of investigations carried out by the Commissioner and other critiques of New Zealand's performance with respect to environmental management? This section draws together the various strands that emerged from the stocktake.

There was an optimistic start to the post-Rio decade. It appeared that New Zealand had, with the passage of the Resource Management Act (RMA), not only rationalised a welter of overlapping and cumbersome resource management statutes, but also established an efficient, economically rational regime for managing natural resources in a way that recognised the importance of the 'environmental bottom line'. The RMA also explicitly recognised the importance of the many relationships between the culture and traditions of tangata whenua and the land. The question was whether the reorganised local government was adequately structured and had the capacity to deliver the integrated environmental management that the RMA promised. A joint study by the Commissioner and the Auditor-General (PCE & Auditor-General, 1999) concluded that all of the local government structures (regional and territorial authorities/unitary authorities) were capable of doing so.

A decade on, a number of investigations by the Commissioner have indicated that the legislation and local government have not lived up to those initial expectations of establishing a new, more enduring relationship between us, the users, and the land and waters of New Zealand. Inadequate guidance and training from central government on setting environmental outcomes and evaluation, the perpetuation of old mindsets and behaviour, and the lack of an integrated approach to environmental management were some of the key impediments behind the poor performance of a number of local government authorities. Nor were local authorities helped by the slow development of environmental indicators, crucially limited amounts of nationally-consistent information on the environment and a lack of research into urban sustainability issues.

The RMA has been of mixed benefit to tangata whenua. A number of councils can point to positive proactive initiatives. There is more awareness of the practical benefits of more effective involvement of tangata whenua and the RMA gives recognition to consultation and the ongoing duties of kaitiakitanga. At the same time, many iwi have lacked the capacity to participate effectively in RMA processes. The failure of central government to clarify the obligations of local government under the Treaty of Waitangi in the Local Government Act 1974 has led to uncertainty and non-compliance with RMA obligations in many instances.

This is not to blame the RMA itself for these lists of shortcomings. The Commissioner concluded in 1998 that the extensive criticisms had largely been about process, not the substance of the Act (PCE, 1998e). The Commissioner's central concern throughout this period has been that the larger goal of advancing the country towards sustainable development was being forgotten in disputes over detail within the RMA. To that end it is important to recall that the RMA was deliberately not an Act about the totality of sustainable development. It has a more limited focus on trying to get the environmental management part of sustainable development right. However, some people have mistaken this (important) part for the whole. Despite a wide range of different government and private sector initiatives, which individually are contributing to the overall objective of sustainable development, a larger coherence has yet to emerge.

This stocktake of PCE investigations into topics as diverse as managing the marine environment, tourism impacts on the environment, the adequacy of our biosecurity systems, possum management and the management of urban water systems has demonstrated a common underlying problem. Many problems have arisen, or been exacerbated by poor integration, inadequate cooperation between sectors and agencies, and by a lack of structural and management incentives to

work towards a more collective public good. This has been characterised in New Zealand and overseas as 'the silo mentality'. In the case of management of the marine environment, where adopting a 'whole systems' approach is vital, a fragmented management system was found to be further hampered by a grave lack of trust and lack of communication between stakeholders.

In part, the silo approach was a logical outcome of the managerial tendency to defend one's 'patch', especially in the years following massive restructurings in the New Zealand public sector. It is also a structural consequence of the tendency in many OECD countries, including New Zealand, to address increasing complexity by setting up more specialised agencies (OECD, 2002). The focus in the public sector reforms of the 1980s with their emphasis on outputs, transparency and individual accountabilities of chief executives encouraged inward-looking departmental achievements. In contrast, sustainable development is a 'cross-cutting issue' that requires the 'collective responsibility of Government' to be honoured in practice, not just in the rhetoric, if it is to achieve tangible results.

Another point emerging from the stocktake relates to the sequencing of when strategies and legislation were developed that affect sustainable development. Figure 4.2 gives a timeline of when various strategies and programmes that have a bearing on Agenda 21 initiatives were initiated and implemented. In Figure 4.3 the environmental management strategies are grouped and the timeline for the passage of major environmental legislation is added.

The pattern that emerges indicates that while the major environmental Act (the RMA) was in place by 1991 a number of substantial and important initiatives to develop strategies relating to sustainable development have been initiated only in the last few years. Quite possibly if a number of strategies had been developed earlier a 'broad picture' analysis may have identified various inter-sectoral problems and exposed the shortcomings

of the silo approach. Instead, policy initiatives were more likely to be driven by reactive responses to relatively smaller issues, rather than by broader policy needs.

Another conclusion from Figure 4.2 is that there are now a substantial number of government initiatives and programmes in place or under development that have a bearing on various aspects of sustainable development. These extend across the three relevant areas - social, economic and environment. Since many ambitious initiatives have been in place for only a short time it is too soon to evaluate their effectiveness. What is now important to examine is how these various initiatives are linked and whether, taken collectively, they have the capacity to deliver for New Zealand a development path that is ecologically sustainable.

With its focus on previous PCE investigations and other reviews of environmental management at the macro-level, the stocktake has not commented on the numerous initiatives taken at the local government level in response to Agenda 21. Over the past decade, numerous local and regional councils have, initiated programmes with sustainable development objectives. Some of these are described in chapter 4.

Any commitments to sustainable development require the right sort of information against which progress can be measured. Both the stocktake and other analyses such as 'The State of New Zealand's Environment 1997' (MFE, 1997), have exposed critical shortcomings in this respect, both in public and private sectors, such as tourism. Information collected by regional councils, as required by the RMA, has not been to a nationally consistent set of standards. The Commissioner has identified fundamental barriers affecting monitoring and information systems including the availability of basic scientific information. Many national environmental data bases have not been updated, others have been lost during restructuring. Consequently, it is difficult to objectively judge progress in a number of areas

bearing on environmental management.

Linked to inadequate information is the equally crucial need to have appropriate research initiatives underway to support sustainable development programmes. The Commissioner has commented on the research shortcomings with respect to a better understanding of urban systems. Without an expansion of the current research expenditure, linked to better information, New Zealand will continue to be hampered in getting the vital feedback and signals necessary to adjust and adapt environmental management to future needs.

Finally, an integral part of the adaptive management process is articulating and debating the issues and options with the public and sectoral interests. Overseas as well as New Zealand experience has shown that there is now an expectation of meaningful and informed dialogue between government agencies and their various client groups on a growing range of issues. These can range from the local, such as resource consent hearings, to the national, such as the use of genetic modification. Some PCE investigations have shown that consultation mechanisms and practices have improved over the decade, while in other instances we need a wider range of mechanisms and opportunities to effectively engage in meaningful and constructive debate on sustainable development issues.

- <sup>1</sup> The Environment Act 1986 empowers the PCE to, among other matters, “investigate any matter in respect of which, in the Commissioner’s opinion, the environment may be or has been adversely affected” (Section 16(c)(i)).
- <sup>2</sup> Implementing Agenda 21, Report of the Secretary-General, 2001. Prepared by the Commission on Sustainable Development acting as the preparatory committee for the World Summit on Sustainable Development, Second Preparatory Session.
- <sup>3</sup> Although the Hauraki Marine Park Act 2000 has provisions deemed to be a national policy statement.
- <sup>4</sup> A unitary authority is a territorial authority that also has the functions of a regional council. There are four unitary authorities in New Zealand - Gisborne District Council, Marlborough District Council, Nelson City Council and Tasman District Council.
- <sup>5</sup> Section 80 of the RMA - combined plans.
- <sup>6</sup> The website is: [www.qualityplanning.org.nz](http://www.qualityplanning.org.nz).
- <sup>7</sup> See [http://www.fish.govt.nz/sustainability/management\\_strategy](http://www.fish.govt.nz/sustainability/management_strategy).
- <sup>8</sup> Local Agenda 21 is a community strategy which can include a long-term vision statement, a prioritised action plan, implementing mechanisms, and monitoring and reporting through the use of indicators (Hughes, 2000).
- <sup>9</sup> Energy-Wise News, October 2001.
- <sup>10</sup> In the absence of a definition of ‘waste’ in the Local Government Act 1974, a recent High Court judgement concluded that wastewater, i.e. both sewage and stormwater, is waste for the purposes of Part XXXI of the Local Government Act. As a result, territorial authorities are now required to include solid waste and wastewater in their application of that part of the Act, including the adoption of a waste management plan, as required by s 539. (Manakau City Council v Attorney-General. Unreported, High Court, Auckland Registry M 1054-IM99, 8 February 2000, Laurensen J, p19.)
- <sup>11</sup> Tailings are waste materials from mining operations and are generally made up of a mixture of ground-up rock, water, heavy metals and chemicals used to extract precious metals.
- <sup>12</sup> The definition of the ‘tourism sector’ used in the PCE’s 1997 report (PCE, 1997c) was “that economic sector which provides the goods and services that tourists use, together with those public agencies that have responsibility for or are involved in the management of tourism.”
- <sup>13</sup> The Conservation Act 1987, Section 4. Act to give effect to Treaty of Waitangi - This Act shall be so interpreted and administered as to give effect to the principles of the Treaty of Waitangi.  
The Resource Management Act 1991, Section 8. Treaty of Waitangi - In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- <sup>14</sup> Wahi tapu - special and sacred places, taonga - valued resources, assets, prized possessions both material and non-material, kaitiakitanga - the responsibilities, passed down from the ancestors, for tangata whenua to take care of places, natural resources and other taonga in their geographical territory.
- <sup>15</sup> The energy required to produce a unit of gross domestic product. When the ‘energy intensity’ measure goes down, it indicates that things are being done, or produced, with less energy input. Hence a reduction of the energy intensity is a positive indicator that energy is being used more efficiently.

## Appendix 3

### Summary of Interviews

In the early stages of this project a number of people from a wide range of backgrounds and parts of the country were interviewed to obtain their views on sustainable development and its significance for New Zealand. The people who were asked to contribute their views were selected on the following basis. They were either individuals or representatives of groups who had been involved in sustainable development initiatives, or who held views about aspects of sustainable development (including positive and negative views) that we wished to explore. Attachment 1 is a copy of the letter and list of issues for discussion that were sent to the people subsequently interviewed. During this early part of the project over 65 people were interviewed including the following:

- academics
- students
- industry chief executives
- iwi representatives
- representatives from community groups
- journalists
- political commentators
- scientists
- economists
- environmental NGO representatives
- energy analysts
- planners
- local government politicians and managers
- environmental educators.

The following is a summary of the recorded comments. They have been summarised under particular themes, and the number of times similar comments were received is denoted by [xn].

The Commissioner would like to thank all those people who freely gave their time to be interviewed. None of those contacted declined to participate.

Themes	Comments from people interviewed
<b>Sustainable development concepts</b>	<ul style="list-style-type: none"> <li>• Any form of activity which ensures the resources endures. [x1]</li> <li>• Sustainable economic development - if a country is economically well-off, it has the luxury of being socially and environmentally sustainable. [x5]</li> <li>• The Bruntland definition. [x7]</li> <li>• All things to all people. [x2]</li> <li>• NGO's include intergenerational dimensions, intrinsic value of species. [x1]</li> <li>• Sustainable development is about quality of life. [x5]</li> <li>• The maximum number of people getting the maximum number of their needs met within the shortest distance. [x1]</li> <li>• Nested egg model. [x2]</li> <li>• Sustainability is forever. [x1]</li> <li>• For farmers, it means passing land and businesses onto future generation. [x1]</li> <li>• It is an arrangement of human society such that health is protected and can continue indefinitely - ensuring environmental sources of human health are maintained. [x1]</li> <li>• Sustainable development is tilted towards the environment. [x2]</li> <li>• It is sustainable use (not preservation) of the environment. [x5]</li> <li>• Sustainability is about giving as well as taking, recognising holistic relationships and incorporating cultural values. [x1]</li> <li>• It attempts to bring together conflicting dimensions. [x2]</li> <li>• Sustainable development is a reflection of the extent to which the needs of the system are met - if the full range of needs are not met the system may not be sustainable. [x1]</li> <li>• It is a dialectic best understood through opposites. [x1]</li> <li>• Sustainable development is a direction/process of shifting pattern of material flows from unsustainable to more sustainable. [x1]</li> <li>• Sustainable development may be a process but sustainability is a destination. [x1]</li> <li>• Sustainable development is about morals and ethics. [x3]</li> <li>• The core is survival on this planet. [x1]</li> <li>• 'Common sense'. [x3]</li> <li>• Building today in a way that does not compromise tomorrow. [x1]</li> <li>• Ecological aspects must be recognised as providing the ultimate constraints for the social and economic aspects. This includes sustaining the underlying bio-physical systems; recognising intrinsic values of ecosystems; an inter-temporal component; respecting the rights of future life; ethical elements; avoiding exclusive anthropocentric bias. [x1]</li> </ul>
<b>Alternative concepts</b>	<ul style="list-style-type: none"> <li>• 'Efficient development' = considers full costs of development. [x1]</li> </ul>
<b>Catalysing, consciousness raising events</b>	<ul style="list-style-type: none"> <li>• Institutional reform of 1980s. [x1]</li> <li>• RMA. [x3]</li> <li>• Waste minimisation movement. [x2]</li> <li>• Power shortages. [x2]</li> <li>• GE debate. [x1]</li> </ul>

Themes	Comments from people interviewed
<b>Thinking issues - Values/beliefs etc</b>	<p><b>Current situation</b></p> <ul style="list-style-type: none"> <li>• Understanding is growing but still fairly poor. [x4]</li> <li>• The current generation of teenagers is 'me' focused - not environmentally aware. [x1]</li> <li>• Progress with education is poor - initiatives fragmented. [x1]</li> <li>• Many people live sustainable lives but do not call it that. [x1]</li> <li>• NZ'ers don't understand the scarcity of resources. [x1]</li> <li>• NZ'ers have a low awareness of environmental issues = clean and green. [x4]</li> <li>• People are increasingly cynical about sustainable development while feeling helpless because they know there is a crisis. [x1]</li> <li>• NGOs do not understand sustainability. [x1]</li> </ul> <p><b>Barriers</b></p> <ul style="list-style-type: none"> <li>• Thinking <ul style="list-style-type: none"> <li>- disconnected, silo (the 5P's), linear/missing big picture. [x9]</li> <li>- government thinking is short-term, focused efficiency least cost outcomes. [x3]</li> <li>- economic thinking/attitudes towards resource use. [x4]</li> </ul> </li> <li>• Consumption culture = happiness. [x2]</li> <li>• Difficult to get people to make ecosystem - human connections/understand environmental effects of behaviours. [x2]</li> <li>• Difficult/ambiguous concept to understand/poor, varied and contradictory definitions. [x7]</li> <li>• Hard issues - equity, distribution of resources. [x1]</li> <li>• Tight focus on financial values v broad range of community values. [x1]</li> <li>• Lack of sustainable development awareness/understanding. [x3]</li> </ul> <p><b>The way forward</b></p> <ul style="list-style-type: none"> <li>• We will need an external stimulus/crisis to make us aware. [x5]</li> <li>• Education is critical - knowledge leads to respect. [x3]</li> <li>• Education needs a Curitiba type model - a central advisory group with funds from various sources coordinating and delivering services. [x1]</li> <li>• We need to take personal responsibility for actions. [x5]</li> <li>• We need an attitudinal/value/mindset/paradigm shift. [x9]</li> <li>• We need a common understanding of the meaning of sustainable development. [x2]</li> <li>• Tangata whenua contribution - diversity broadens focus. [x1]</li> <li>• Indigenous thinking/values are often more holistic. [x1]</li> <li>• Change attitudes and culture of Wellington and local government bureaucrats. [x2]</li> </ul>
<b>Implementation issues</b>	<p><b>Current situation</b></p> <ul style="list-style-type: none"> <li>• Pressure to adopt sustainable development is low in NZ. Small population and good supply of natural resources. Society is generally comfortable with status quo. [x4]</li> <li>• NZ is not as advanced as other OECD countries. [x1]</li> <li>• Little implementation is happening in NZ. [x5]</li> <li>• Economics overrides other considerations. [x2]</li> <li>• 15 years of economic reform has not provided benefits and we've lost a lot. [x1]</li> </ul>

Themes	Comments from people interviewed
<b>Implementation issues</b> <i>continued</i>	<ul style="list-style-type: none"> <li>• It's the mode/pattern of consumption that's a problem. [x1]</li> <li>• The economy is unsustainable because of its reliance on oil. [x1]</li> <li>• NZ focuses on land distribution rather than appropriate land use. [x1]</li> <li>• The health component of sustainable development is not well developed but offers way of integrated thinking. [x1]</li> <li>• Climate change - NZ is a big receiver of impacts but not big contributor. [x1]</li> <li>• Integration between and within economic, social and environmental sectors has not been achieved. [x1]</li> <li>• DoC's contribution is ecosystem management. [x1]</li> </ul> <p><b>Barriers to progress</b></p> <ul style="list-style-type: none"> <li>• Key failure in leadership = lack of central government champion/leadership/ central government doesn't 'get' sustainable development [x12] <ul style="list-style-type: none"> <li>- no strategy, game plan, priorities, implementation instruments [x5]</li> <li>- lack of processes/opportunities for discussion that build consensus towards a vision/strategy/we need debate [x7]</li> <li>- central government worried about working with local government on sustainable development issues [x2]</li> <li>- central government is disconnected from communities - doesn't understand values [x1]</li> <li>- fractured nature of government decision making [x1]</li> <li>- government procurement policies (Education and Housing NZ) preclude emphasis on sustainability. [x1]</li> </ul> </li> <li>• NZ is starting from a higher existing threshold - the easy stuff has been done. [x2]</li> <li>• Lack of research/technical capacity/knowledge - ecosystem understanding, environmental bottom lines. [x7]</li> <li>• Science/research groups work in a reductionist way. [x1]</li> <li>• Failure to use science. [x1]</li> <li>• Got enough research - need to take action. [x1]</li> <li>• Media focuses on conflict, negativity, sensationalism rather than informing public. [x1]</li> <li>• Lack of coordination/integration/cooperation. [x5]</li> <li>• Hard to measure progress - lack of indicators. [x4]</li> <li>• There are perceptions about GM that it offers opportunities for sustainability. [x1]</li> <li>• Local government financial constraints - limits opportunities to take major initiatives. [x3]</li> <li>• NZ is poor at reviewing policies and assessing outcomes - does not learn from experience (electricity reform). [x1]</li> <li>• Arguments about property rights. [x3]</li> <li>• People don't know how to operationalise sustainable development. [x1]</li> <li>• Globalisation/international conventions and agreement with lower standards. [x2]</li> <li>• Sustainable development has been mortgaged by the Greens, it's a 7% concept, it's been greenjacked. [x4]</li> <li>• Democracy - means a focus on short-term timeframes/policy changes. [x5]</li> <li>• Vested interests - transport industry, business. [x2]</li> <li>• There is a reliance on one tool - the RMA. [x2]</li> </ul>

Themes	Comments from people interviewed
<b>Implementation issues</b> <i>continued</i>	<ul style="list-style-type: none"> <li>• Building industry is fragmented. [x1]</li> <li>• State sector and local govt reform are barriers. [x1]</li> </ul> <p><b>The way forward</b></p> <ul style="list-style-type: none"> <li>• Leadership (especially national) is critical [x16] <ul style="list-style-type: none"> <li>- We need a government with vision and courage [x2]</li> <li>- We need a clear set of common objectives/goals/targets/national level multi party consensus/ ethical statement to guide us towards sustainable development [x7]</li> <li>- Government departments should be required to produce an sustainable development annual report [x1]</li> <li>- Auditor-General should be responsible for environment as well. [x1]</li> </ul> </li> <li>• We need to promote greater integration vertically and horizontally - coordination, cooperation, collaboration. [x6]</li> <li>• Key consideration is to 'make sustainability easy'. [x7]</li> <li>• We need to sell/market it - 'make them think it's their idea'. [x4]</li> <li>• To work: it must be fun, people must feel good about it; business should be able to make money from it; we should learn from the experience. [x1]</li> <li>• Sustainable Pacific - NZ and Pacific linked. [x3]</li> <li>• We need to foster national identity/ethos/common purpose. [x2]</li> <li>• Critical issue - water, the only globally competitive advantage NZ has is fresh water. [x2]</li> <li>• Critical issue - dairying. [x1]</li> <li>• Critical issue - GE. [x2]</li> <li>• Critical issue - sustainability of cities. [x2]</li> <li>• Critical issue - the coast. [x2]</li> <li>• It's easier to put into operation successful initiatives at a local level. [x5]</li> <li>• Sustainable development has to be implemented at different levels. [x2]</li> <li>• Incremental change is likely to be more successful than major system shifts. [x5]</li> <li>• Economic growth includes <ul style="list-style-type: none"> <li>- Increasing value of products without increasing energy use [x1]</li> <li>- Limits to growth [x2]</li> <li>- The importance of showing short-term benefits of sustainable development - economic benefits can be used as a driver [x1]</li> <li>- Getting the right infrastructure [x1]</li> <li>- Needing to shift from mining to managing resources [x2]</li> <li>- Needing strong economic and knowledge base. [x1]</li> </ul> </li> <li>• Social dimensions include <ul style="list-style-type: none"> <li>- Making the links between environment and health [x2]</li> <li>- Getting the community involved/build strong trust based relationships [x2]</li> <li>- Using local knowledge [x3]</li> <li>- Addressing poverty/social dimension. [x2]</li> </ul> </li> <li>• We need a national policy for the built environment. [x1]</li> <li>• We need measurement tools. [x2]</li> <li>• Capacity building <ul style="list-style-type: none"> <li>- for community organisations [x2]</li> </ul> </li> </ul>

Themes	Comments from people interviewed
<b>Implementation issues</b> <i>continued</i>	<ul style="list-style-type: none"> <li>- Invest in the knowledge economy/R&amp;D for sustainable development [x4]</li> <li>- Sustained sustainable development education programme [x5]</li> <li>- Education in environmental ethics [x1]</li> <li>- Chief scientist to organise research [x1]</li> <li>- Train people to deal with chaos, resilience, complex systems, linkages, time and scale [x1]</li> <li>- BRANZ could be a home for an increased focus on research into sustainable architecture and design [x1]</li> <li>- Invest in social/human capital [x2]</li> <li>- Iwi need proper funding base [x1]</li> <li>- Research into environmental carrying capacity. [x1]</li> </ul>
<b>Structural issues</b>	<p><b>Current situation</b></p> <ul style="list-style-type: none"> <li>• Huge advances have been made over the last 10 -15 years - MfE, RMA, PCE etc. [x1]</li> <li>• No new structures are needed - we need to work harder. [x1]</li> <li>• Reform of research institutions affected our capacity to get information for environmental management purposes. [x2]</li> <li>• Central government works in silos. [x7]</li> </ul> <p><b>Barriers</b></p> <ul style="list-style-type: none"> <li>• There are weak supporters - MfE and EECA - and strong opponents - Treasury and MED - in central government. [x1]</li> <li>• MfE has been marginalised and does not have the professional capacity to provide leadership on the RMA. [x1]</li> <li>• Government structures. [x1]</li> </ul> <p><b>The way forward</b></p> <ul style="list-style-type: none"> <li>• An audit of MfE against Environment Act is required. [x1]</li> <li>• 'Sustainable development council' is needed to provide coordination, policy advice and monitor, review and adjust directions for sustainable development. [x2]</li> <li>• Minister/Ministry for sustainable development is required. [x3]</li> <li>• Partial re-centralisation of regulatory system - EPA type organisation. [x1]</li> <li>• Provide coordination at Cabinet level. [x1]</li> <li>• More power is needed for local government/the LGA reform. [x3]</li> <li>• Iwi need decision-making powers not just advisory (sic for environmental issues). [x1]</li> </ul>
<b>RMA</b>	<ul style="list-style-type: none"> <li>• The RMA helped to turn sustainability into mainstream fight/change mindsets. [x6]</li> <li>• It is one way of achieving sustainable development but not enough. [x2]</li> <li>• Processes are too adversarial/litigious/expensive. [x4]</li> <li>• There is a need for greater certainty. [x2]</li> <li>• There are implementation problems. [x4]</li> <li>• It is a functional paradigm not a place paradigm. [x3]</li> <li>• Regional councils have failed. [x1]</li> <li>• It misses the big picture. [x2]</li> <li>• It fails to deal with cumulative effects. [x2]</li> <li>• RMA has side-lined social considerations. [x1]</li> </ul>

Themes	Comments from people interviewed
<b>Business</b>	<ul style="list-style-type: none"> <li>• Sustainable development is now a core issue for debate by business = progress. [x2]</li> <li>• Manufacturers are more interested in eliminating waste than SST. Waste production = lower production costs = selling point for sustainability. [x1]</li> <li>• Sustainable development will raise questions of constraints on growth. [x1]</li> <li>• Business is not necessarily motivated by money and efficiency. [x1]</li> <li>• Business needs to develop a new culture. [x1]</li> <li>• The majority of business leaders are aware of environmental issues. [x1]</li> <li>• Business Council for Sustainable Development. [x1]</li> <li>• Business for Social Responsibility. [x1]</li> </ul>
<b>Tools</b>	<ul style="list-style-type: none"> <li>• Public awareness campaigns = short-term behavioural changes. [x1]</li> <li>• Economic instruments = price signals key component for change, costing externalities, taxes bads rather than goods, eco-taxes. [x13]</li> <li>• Mix of economic and other instruments is required = right instrument for the job a key issue. [x2]</li> <li>• TQM is a useful tool. [x4]</li> <li>• TBL reporting. [x7]</li> <li>• Industry codes of practice. [x1]</li> <li>• Producer responsibility legislation. [x1]</li> <li>• Green design/sustainable architecture. [x2]</li> <li>• Quality independent information on environmental effects for consumers. [x1]</li> <li>• Indicators of progress. [x3]</li> <li>• Demand management - water. [x1]</li> <li>• Environmental accounting. [x1]</li> <li>• An environmental atlas. [x1]</li> <li>• Global reporting Initiative. [x1]</li> <li>• AA1000 - AccountAbility. [x1]</li> </ul>
<b>Case studies</b>	<ul style="list-style-type: none"> <li>• Fletcher Challenge project with an Otago School [x2]</li> <li>• Canadian model - Commissioner for Sustainable Development [x1]</li> <li>• Project 98, Farm Pride, the green tick [x2]</li> <li>• Statistics NZ indicators development programme [x1]</li> <li>• Recoverable Materials Foundation, Christchurch [x1]</li> <li>• Landcare TBL report [x1]</li> <li>• Redesigning Resources, Christchurch [x3]</li> <li>• Sustainable Cities, Christchurch [x1]</li> <li>• Canterbury Dialogues [x1]</li> <li>• Agenda 21 Forum, Christchurch = biodiversity related publications [x2]</li> <li>• Christchurch City Council waterways and wetlands programme [x1]</li> <li>• The Natural Step [x3]</li> <li>• Orion Energy - energy efficiency and electricity reform [x1]</li> <li>• Canterbury 2050 [x1]</li> <li>• MacPac [x1]</li> <li>• Ngai Tahu Mountains to Sea concept [x1]</li> </ul>

Themes	Comments from people interviewed
<b>Case studies</b> <i>continued</i>	<ul style="list-style-type: none"> <li>• CNG industry [x1]</li> <li>• Housing NZ - sustainable housing [x1]</li> <li>• Earthsong housing development [x1]</li> <li>• Auckland City Council Liveable Communities Strategy and Smart City [x1]</li> <li>• Genuine Progress Indicator (GPI) [x1]</li> <li>• Institute of Architects and Housing NZ sustainable design work [x1]</li> <li>• Canterbury University building - sustainable design [x1]</li> <li>• BREAM - European voluntary rating system for sustainability/energy efficiency [x1]</li> <li>• Waitakere City - leadership [x3]</li> <li>• Eco-hospital at Waitakere [x1]</li> <li>• Accountants for Sustainability [x1]</li> <li>• Today's Manukau - sustainable development community plan [x1]</li> <li>• Government and communities potential for partnership project - participatory democracy [x1]</li> <li>• Herman Miller - USA furniture company [x1]</li> </ul>
<b>The questions that need to be asked</b>	<ul style="list-style-type: none"> <li>• What lifestyle do we want to maintain and can we afford it? [x1]</li> <li>• Can we have sustainable development/integration and still have clear accountability? [x1]</li> <li>• Where do trust and ethics fit in? [x1]</li> <li>• What do we need to do to survive indefinitely? [x1]</li> </ul>
<b>Overseas examples</b>	<ul style="list-style-type: none"> <li>• Australia has done better than NZ. [x3]</li> <li>• Dutch approach [x1]</li> <li>• Denmark [x1]</li> <li>• Sweden - aiming to be fossil fuel free [x1]</li> <li>• Hanover/Kronsberg/Freiburg, Germany [x1]</li> <li>• Canada [x3]</li> <li>• Portland [x1]</li> <li>• Melbourne [x1]</li> </ul>

Attachment 1  
PCE 40-03

date

name

address

Dear

**REVIEW OF SUSTAINABLE DEVELOPMENT IN NEW ZEALAND**

I would appreciate your participation in my review of New Zealand's progress in implementing the principles and objectives of Agenda 21 since the United Nations Conference on Sustainable Development in Rio de Janeiro in 1992.

The purpose of the review is to provide an independent analysis of New Zealand's environmental management performance within the context of Agenda 21, and to explore opportunities to implement the concept of sustainable development in New Zealand. The review is independent of the Government's report to the World Summit on Sustainable Development. It is not intended to duplicate the Government's report or the work being done on developing the New Zealand Sustainable Development Strategy, although it is likely that some topics will feature in all three documents.

I would like to invite you to participate in the project team's canvassing of views on issues associated with sustainable development. The project team has identified you as one of a number of key individuals across a range of backgrounds whose ideas and opinions on the future of sustainable development in New Zealand would be a valuable contribution to this project. I hope you will be willing, and have the time, to participate.

I expect to complete the review and table it in Parliament some time between March and May 2002. It will rely primarily on evidence-based information gathered over the last 10 years from investigations and reports carried out by the Parliamentary Commissioner for the Environment (PCE), as well as other independent sources of information, such as OECD Environmental Performance reports. As I have mentioned, in addition to a retrospective assessment of New Zealand's environmental management performance, the review will also take a forward look at directions in which the PCE considers New Zealand should be heading with respect to the integration of environmental considerations into social and economic policies and decision-making. In short, what is needed to fully develop and implement the concept and principles of sustainable development?

Please find attached a list of issues that the project team would like to discuss with you. It is not an exclusive list, but a guide to the range of matters we would like to explore.

The project team consists of Bruce Taylor, Philippa Richardson, Wren Green and Lorna Douglas, one of whom will follow up this letter with a call to arrange a convenient time to meet if you are willing and able to participate. It is envisaged that an hour or so would be the time required. In the meantime, if you would like further information about this project please do not hesitate to contact either of the following:

Bruce Taylor (tel: (04) 495 8363; email: bruce@pce.govt.nz)

Philippa Richardson (tel: (04) 495 8352; email: philippa@pce.govt.nz).

Thank you in advance for your assistance.

Yours sincerely

Dr J Morgan Williams  
Parliamentary Commissioner for the Environment

## Review of Sustainable Development in New Zealand

### Issues for discussion

The following indicates the range of issues on sustainable development<sup>1</sup> that the Parliamentary Commissioner for the Environment would like to explore during his project team's discussions with selected people. The questions below are a guide only. You may prefer either a broad discussion across a number of sectors or interests, or a focused discussion in relation to your specific areas of interest. Issues outside this range can also be covered, as you consider appropriate.

1. How would you describe your concept of sustainable development? What are the major impediments to New Zealand communities, businesses and regions of pursuing your concept of sustainable development?
2. In your opinion how meaningful is the concept of sustainable development to most New Zealanders? To what extent, if at all, do you believe it is thought about?
3. What contribution has the concept of sustainable development made, or could have made, to our lives in New Zealand over the last decade?
4. To what extent do you consider the concept of sustainable development to be more or less developed in New Zealand compared, for example, to other OECD countries?
5. Is there an alternative concept to sustainable development, which would be more meaningful and effective, or do we just need to work harder at communicating and gaining acceptance of the principles of sustainable development?
6. What do you consider to be key points of tension between social, economic and environmental goals pursued in a sustainable development framework?
7. What system<sup>2</sup> changes, if any, do you consider are necessary to achieve effective and enduring sustainable development outcomes?

<sup>1</sup> For the purpose of this review, sustainable development is defined as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). At the same time it is acknowledged that there are a wide range of views on, and interpretations of, sustainable development.

<sup>2</sup> 'system' includes legislation, policies, strategies, institutions, processes and programmes.

## Glossary

### adaptive management

a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs

### bio-capacity

the total biologically productive land available to a specified population

### bio-prospecting

the search of biodiversity for valuable genetic and/or biochemical resources, e.g. pharmaceuticals

### biodiversity

the variety of all biological life (plants, animals, insects, fish, birds, invertebrates and micro-organisms), the genes they contain and the ecosystems and habitats in which they live

### biosecurity

the exclusion, eradication and effective management of pests and unwanted organisms into New Zealand

### biosphere

the part of the Earth (up to a height of 10,000m and down to the depths of the ocean and several hundred metres below the surface of the land) and the atmosphere surrounding it, which is able to support life

### biotic

relating to life

### ecosystem

a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit

### ecosystem well-being

a condition in which the ecosystem maintains its diversity and quality - and its potential to adapt to change and provide a wide range of choices and opportunities for the future

### energy intensity

energy required to produce a unit of gross domestic product

### entropy

in thermal processes, a quality which measures the extent to which the energy of a system is available for conversion to work

### externalities

the adverse effects on the environment arising from production and consumption, the costs of which are not fully accounted for in the price and market system.

### Gross Domestic Product (GDP)

a measure of the total flow of goods and services produced by the economy over a specified time period, normally a year or a quarter. It is obtained by valuing outputs of goods and services at market prices, and then aggregating. Only goods used for final consumption or investment goods or changes in stocks are included.

### Gross National Product (GNP)

GDP plus the income accruing to domestic residents arising from investment abroad less income earned in the domestic market accruing to foreigners abroad.

### hapu

family or district groups, communities

### human wellbeing

a condition in which all members of society are able to determine and meet their needs and have a large range of choices to meet their potential

### iwi

tribal groups

### kaha

strength

### kaitiakitanga

the responsibilities, passed down from the ancestors, for tangata whenua to take care of places, natural resources and other taonga in their geographical territory

### manaakitanga

hospitality

<b>mataitai</b>	a fisheries reserve in an area of special significance to tangata whenua (see Fisheries (Kaimoana Customary Fishing) Regulations 1998)	3. thinking in (explicit) models, i.e. model-building and distinguishing between reality and models
<b>PM<sub>10</sub></b>	fine dust particles less than 10 micrometres in diameter, which can be inhaled into deeper parts of the lungs	4. practical steering of systems: the right action at the right time in the right place.
<b>Real Gross National Disposable Income</b>	the net income of NZ residents from both domestic and overseas sources after taking into account income redistribution by way of international transfers, or Gross National Income plus net international transfers	<b>taiapure</b> a fisheries reserve in an area of special significance to tangata whenua (see Fisheries Act 1996)
<b>runanga</b>	Committee of senior decision-makers of an iwi or hapu	<b>tailings</b> waste materials from mining operations which are generally made up of a mixture of ground-up rock, water, heavy metals and chemicals used to extract precious metals
<b>system of national accounts (SNA)</b>	a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules	<b>tangata whenua</b> People of the land. The Maori iwi or hapu that has mana whenua over a particular area
<b>systems thinking</b>	Systems thinking refers to a way of thinking about, and a language for describing and understanding the forces and interrelationships that shape the behavior of systems. This discipline helps us to see how to change systems more effectively, and how to act more in tune with the larger processes of the natural and economic world. Systemic thinking has four main dimensions: 1. thinking in feedback loops and interrelated structures: This dimension of systemic thinking goes beyond one-way cause - effect relations. 2. dynamic thinking: recognizing patterns over time (oscillations, delays), not just events.	<b>taonga</b> valued resources, assets, prized possessions both material and non-material
		<b>Tiriti o Waitangi</b> Treaty of Waitangi
		<b>tupuna</b> ancestor
		<b>wahi tapu</b> special and sacred places
		<b>whakapapa</b> genealogy, ancestry, identity with place, hapu and iwi

## Acronyms

AEE	Assessment of environmental effects	IIED	International Institute for Environment and Development
ASFF	Australian Stocks and Flows	ISEW	Index of sustainable economic welfare
	Framework	LGNZ	Local Government New Zealand
BSR	Business for Social Responsibility	MAF	Ministry of Agriculture and Forestry
CBEC	Community Business and Environment Centre	MEA	Multi-lateral environmental agreement
CSD	UN Commission for Sustainable Development	MED	Ministry for Economic Development
CSIRO	Commonwealth Scientific and Industrial Research Organisation	MfE	Ministry for the Environment
DOC	Department of Conservation	MOH	Ministry of Health
EECA	Energy Efficiency and Conservation Authority	MOT	Ministry of Transport
EEZ	Exclusive economic zone	MSP	Ministry of Social Policy
ESD	Ecologically sustainable development	NEECS	National Energy Efficiency and Conservation Strategy
ESI	Environmental sustainability index	NEPP	National Environmental Policy Plan (Dutch)
EU	European Union	NGO	Non-government organisation
EWI	Ecological well-being index	NSESD	National Strategy for Ecologically Sustainable Development (Australian)
FRST	Foundation of Research, Science & Technology	NSSD	National strategy for sustainable development
GE	Genetic engineering	NZBCSD	New Zealand Business Council for Sustainable Development
GDP	Gross domestic product	NZCBE	New Zealand Centre for Business Ethics
GHG	Gross greenhouse gas	NZCPS	New Zealand Coastal Policy Statement
GNP	Gross national product	NZSDS	New Zealand Sustainable Development Strategy
GPI	Genuine progress indicator	OCEP	Officials Committee on Energy Policy
HDI	Human development index	OECD	Organisation of Economic Cooperation and Development
HSNO	Hazardous Substances and New Organisms Act 1996	PCE	Parliamentary Commissioner for the Environment
HWI	Human well-being index	PHC	Public Health Commission
ICLEI	International Council for Local Environmental Initiatives		
IEA	International Energy Agency		

QMS	Quota management system
RCD	Rabbit calicivirus disease
RCGM	Royal Commission on Genetic Modification
RMA	Resource Management Act 1991
RMLR	Resource Management Law Reform
RPS	Regional policy statement
RTO	Regional tourism operator
SNA	Systems of national accounts
SNZ	Statistics New Zealand
SSC	State Services Commission
TBL	Triple bottom line
TSG	Tourism Strategy Group
UNCED	United Nations Conference on Environment and Development
WCED	World Commission on Environment and Development
WI	Well-being index
WSI	Well-being/stress index
WSSD	World Summit on Sustainable Development

## References

- A.T. Kearney Inc. and Foreign Policy. 2002. Globalisation's last hurrah? *Foreign Policy*, 128 (Jan/Feb 2002), 38-51.
- Armstrong, B. 2001. The Resource Management Act 1991: has it delivered on its objectives? *Resource Management Journal*, IX (3), 8-11.
- AtKisson, A. 1999. *Believing Cassandra - an optimist looks at a pessimist's world*. Vermont: Chelsea Green Publishing.
- Auckland City Council, et al. 2001. *Quality of life in New Zealand's six largest cities*. Auckland: Auckland City Council.
- Beder, S. 1997. *Global spin : the corporate assault on environmentalism*. Melbourne: Scribe.
- Belich, J. 2001. *Paradise reforged: a history of the New Zealanders from the 1880's to the year 2000*. Auckland: Penguin.
- Biosecurity Council. 1999. *The release of RCD Rabbit Calicivirus Disease in New Zealand: lessons for the future. A review carried out by the Biosecurity Council*. Wellington: Biosecurity Council.
- Brosnahan, J. 1999. *Public sector reform requires leadership*. Government of the future: getting from here to there, paper to OECD Symposium, 14-15 September 1999, Paris.
- Casswell, S. 2001. Community capacity building and social policy - what can be achieved? *Social Policy Journal of New Zealand*, 17 (December 2001), 22-35.
- Collins, R., Williston, T. and Longhurst, B. 2002. *Management strategies to mitigate faecal contamination inferred from analysis of data from the Waikato region*. Report prepared for the Ministry of Agriculture and Forestry. Hamilton: National Institute of Water and Atmospheric Research Ltd.
- Commission on Sustainable Development. 2002. *Second Local Agenda 21 survey. Background paper No. 15*. Second Preparatory Session for the World Summit on Sustainable Development. DESA/DSD/PC2/BP15. <http://www.johannesburgsummit.org/html/documents/backgrounddocs/icleisurvey2.pdf>. (downloaded March 2002).
- Commissioner for the Environment and Sustainable Development. 1999. *Moving up the learning curve: the second generation of sustainable development strategies*. Ottawa, Canada: Commissioner for the Environment and Sustainable Development.
- Controller and Auditor General and the Parliamentary Commissioner for the Environment. 1990. *Marine fisheries management*. Wellington: The Audit Office and the Office of the Parliamentary Commissioner for the Environment.
- Corbet, D. and Roberts, I. 2001. *Leadership for sustainable development: actions that local authorities are taking to mainstream sustainable development*. United Kingdom: Greengage Consulting.
- Corvalan, C., Kjellström, T. and Smith, K. 1999. Health, environment and sustainable development : identifying links and indicators to promote action. *Epidemiology*, 10 (5), 656-660.
- Costanza, R. 1994. Three general policies to achieve sustainability. In: A. Jansson, M. Hammer and R. Costanza, eds. *Investing in natural capital*. Washington: Island Press.
- Darley, J. 2000. Making the environment news on the Today programme. In: J. Smith ed. *The daily globe: environmental change, the public and the media*. London: Earthscan.
- Davis, A. 2001. CIWMB - keynote presentation. *External Stakeholder Forum*, <http://www.naturalstrategies.com/publications/ad-ciwmb-keynote.doc>. (downloaded January 2002).
- De Jongh, P. and Captain, S. 1999. *Our common journey: a pioneering approach to cooperative environmental management*. London and New York: Zed Books.
- Department of Conservation (DoC). 2002. *The New Zealand biodiversity strategy: summary of achievements during 2001*. Wellington: DoC.
- Department of the Prime Minister and Cabinet. 2002. *Climate change: the Government's preferred policy package: a discussion document*. Wellington: DPMC.
- Dobson, A. 2000. *Green political thought. 3rd ed*. London: Routledge.

- Dovers, S. 2001. Informing institutions and policies. In: J. Venning and J. Higgins eds. *Towards sustainability : emerging systems for informing sustainable development*. Sydney: University of New South Wales Press.
- Earth Council. 2001. *Guidelines for NCSD Rio+10 Assessment*. Earth Council, NCSD Program. <http://www.earthsummit2002.org/es/nssd/default.htm>, (downloaded January 2002).
- Energy Efficiency and Conservation Authority (EECA). 2001. *National energy efficiency and conservation strategy*. Wellington: EECA.
- Enviroics International. 1997. *The environmental monitor: global public opinion on the environment: 1997 international report*. Toronto: Enviroics International.
- Erickson, N. et al. 2001. *Resource management, plan quality and governance*. University of Waikato, Hamilton: International Global Change Institute.
- Ewen, S. 2001. *Captains of consciousness: advertising and the social roots of the consumer culture*. New York: Basic Books.
- Fisher, G.W. 2000. Air quality in New Zealand: a 20 year review. *Clean Air*, 34 (3), 40-41.
- Fisher, G.W., et al. 2002. *Health effects due to motor vehicle air pollution in New Zealand*. Wellington: Ministry of Transport.
- Frieder, J. 1997. *Approaching sustainability: integrated environmental management and New Zealand's Resource Management Act*. Wellington: The Ian Axford New Zealand Fellowship in Public Policy.
- Goldberg, E. 2001. *Stocktake of local government/private sector/NGO activities in support of environmentally sustainable business initiatives*. A report compiled for the Ministry for the Environment. Wellington: MFE.
- Gunderson, L. and Holling, C.S. 2002. *Panarchy: understanding transformations in human and natural systems*. Washington: Island Press.
- Harrison, N. 2001. All consuming desire. *Alternatives journal*, 27 (3), 24-26.
- Hawken, P., Lovins, A. and Lovins, L.H. 1999. *Natural capitalism: creating the next industrial revolution*. Boston: Little, Brown and Company.
- Hodge, R.A., Hardi, P. and Bell, D.V.J. 1999. Seeing change through the lens of sustainability. Background paper for the workshop, *Beyond Delusion: Science and Policy Dialogue on Designing Effective Indicators of Sustainable Development*. The International Institute for Sustainable Development, Costa Rica, 6-9 May 1999.
- Holt, S. and Beasley, R. 2001. *The burden of asthma in New Zealand*. Wellington: Asthma and Respiratory Foundation of New Zealand Inc.
- Huckle, J. 1993. Environmental education and sustainability: a view from critical theory. In: J. Fein, ed. *Environmental education: a pathway to sustainability*. Victoria: Deakin University.
- Huckle, J. 1996. Realizing sustainability in changing times. In: J. Huckle and S. Sterling, eds. *Education for sustainability*. London: Earthscan.
- Hughes, P. 2000. *Local Agenda 21 in the United Kingdom: a review of progress and issues for New Zealand*. Wellington: Parliamentary Commissioner for the Environment.
- Hughey, K., et al. 2001. *Perceptions of the state of New Zealand's environment*. Canterbury: Agribusiness and Economics Research Unit, Lincoln University.
- Hurka, T. 1992. Sustainable development: what do we owe future generations? In: *University of British Columbia Centre for Applied Ethics, Environmental ethics: sustainability, competition and forestry*. Working paper, <http://www.ethics.ubc.ca/papers/susdev.html#huka> (downloaded January 2002).
- International Energy Agency (IEA). 1997. *New Zealand 1997 review*. Paris: International Energy Agency.
- International Institute for Environment and Development (IIED). 2001a. *The future is now. Vol. 1*. London: IIED.
- International Institute for Environment and Development (IIED). 2001b. *The future is now. Vol. 2*. London: IIED.
- Keeney, R.L. 1992. *Value-focused thinking: a path to creative decision-making*. Cambridge, Massachusetts: Harvard University Press.
- Kibert, C.J., ed. 1999. *Reshaping the built environment: ecology, ethics, and economics*. Washington: Island Press.

- Knight, S. 2000. Agenda 21 in New Zealand: not dead, just resting. *Australian Journal of Environmental Management*, 7 (4), 213-222.
- Laird, John. 2000. Only way out of the debt hole is to stop digging. *NZ Herald*, 19.3.02
- Langhelle, O. 1999. Sustainable development: exploring the ethics of "Our common future". *International political science review*, 20 (2), 129-149.
- Lerner, S. 1998. *Eco-pioneers: practical visionaries solving today's environmental problems*. Cambridge, Massachusetts and London: MIT Press.
- Lowe, I. 1998. Reporting on the state of our environment. In: R. Eckersley, ed. *Measuring progress: is life getting better?* Collingwood: CSIRO.
- Ludwig, D., Hilborn, R. and Waters, C. 1993. Uncertainty, resource exploitation, and conservation: lessons from history. *Science*, 260 (April 1993), 17-36.
- Manukau City Council. 2001. *Tomorrow's Manukau: a vision for Manukau into the future 2001-2010*. Manukau: Manukau City Council.
- Massey University. 2001. *New Zealanders and the environment*. Palmerston North: Department of Marketing, Massey University.
- McLeod, R., et al. 2001. *Tax review 2001: final report*. Wellington: Treasury.
- Meadows, D.H., Meadows, D.L. and Randers, J. 1992. *Beyond the limits*. London: Earthscan.
- Memon, P.A. 1993. *Keeping New Zealand green: recent environmental reforms*. Dunedin: University of Otago Press.
- Ministry of Agriculture and Forestry (MAF). 2002a. The effects of changes in land use on irrigation demand. *RM update* (9 April 2002).
- Ministry of Agriculture and Forestry (MAF). 2002b. *Overview of the New Zealand forest industry*. <http://www.maf.govt.nz/forestry/publications/forestry-sector-issues/fsioverview.htm>. (Downloaded May 2002).
- Ministry for the Environment (MFE). 1994a. *Environment 2010 strategy: a statement of the Government's strategy on the environment*. Wellington: MFE.
- Ministry for the Environment (MFE). 1994b. *Taking up the challenge of Agenda 21: a guide for local government*. Wellington: MFE.
- Ministry for the Environment (MFE). 1997. *The state of New Zealand's environment, 1997*. Wellington: MFE.
- Ministry for the Environment (MFE). 1998. *Learning to care for our environment*. Wellington: MFE.
- Ministry for the Environment (MFE). 2000. *Biodiversity and private land: final report of the Ministerial Advisory Committee*. Wellington: MFE.
- Ministry for the Environment (MFE). 2001a. *Climate change impacts on New Zealand*. Wellington: MFE.
- Ministry for the Environment (MFE). 2001b. *Resource Management Act: annual survey of local authorities 1999/2000*. Wellington: MFE.
- Ministry for the Environment (MFE). 2001c. *Valuing New Zealand's clean green image*. Wellington: MFE.
- Ministry for the Environment (MFE). 2002a. *National communication 2001, New Zealand's third national communication under the Framework Convention on Climate Change*. Wellington: MFE.
- Ministry for the Environment (MFE). 2002b. *People + places + spaces: a design guide for urban New Zealand*. Wellington: MFE.
- Ministry for the Environment (MFE). 2002c. *Ambient air quality guidelines 2002 update*. Wellington: MFE.
- Ministry for the Environment (MFE) and Local Government New Zealand (LGNZ). 2002. *The New Zealand waste strategy at a glance: towards zero waste and a sustainable New Zealand*. Wellington: MFE.
- Ministry of Economic Development (MED). 2001a. *Energy data file*. Wellington: MED.
- Ministry of Economic Development (MED). 2001b. *Striking the balance: government response to the Ministerial Panel on Business Compliance Costs*. Wellington: MED.
- Ministry of Social Policy (MSP). 2001. *The social report: te purongo oranga tangata 2001*. Wellington: MSP.
- Mitchel, B. 1997. *Resource and environmental management*. United Kingdom: Longman.
- New Zealand Government. 2002. *Growing an innovative New Zealand*. Wellington: New Zealand Government.

- Non Government Organisations (NGOs)  
International Summit. 1992. *Treaty on environmental education for sustainable societies and global responsibility* <http://www.igc.org/habitat/treaties/at-05.htm> (downloaded 10 October 2001).
- Organisation for Economic Co-operation and Development (OECD). 1995. *Environmental learning for the 21st century*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 1996. *Environmental performance review: New Zealand*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001a. *OECD environmental outlook*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001b. *Policies to enhance sustainable development: meeting of the OECD council at ministerial level*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001c. *Sustainable development: critical issues*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001d. *OECD environmental strategy for the first decade of the 21st century: adopted by OECD environment ministers 16 May 2001*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001e. *Environmentally related taxes in OECD countries: issues and strategies*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2001f. *Business' views on red tape: administrative and regulatory burdens on small and medium- sized enterprises*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). 2002. *Governance for sustainable development: five OECD case studies*. Paris: OECD.
- Pacific Rim Institute of Sustainable Management (PRISM) and Knight, S. 2000. *Sustainable development in New Zealand: here today, where tomorrow? A discussion paper*. Wellington: Parliamentary Commissioner for the Environment.
- Parliamentary Commissioner for the Environment (PCE). 1992. *Proposed guidelines for local authority consultation with tangata whenua*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1994a. *Environmental information and the adequacy of treaty settlement processes*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1994b. *Possum management in New Zealand*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1995. *Assessment of environmental effects AEE: administration by three territorial authorities*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1996a. *Environmental management of petroleum and mineral mining activities beyond the 12-mile limit*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1996b. *Historic and cultural heritage management in New Zealand*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1997a. *Future directions: strategic focus for the Parliamentary Commissioner for the Environment 1997-2001*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1997b. *Long-term management of the environmental effects of tailings dams*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1997c. *Management of the environmental effects associated with the tourism sector*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998a. *The cities and their people: New Zealand's urban environment*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998b. *Information needs of the RMA: a review of the information used for discharge permit applications*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998c. *Hazardous waste management*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998d. *Kaitiakitanga and local government: tangata whenua participation in environmental management*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998e. *Towards sustainable development: the role of the Resource Management Act 1991*. Wellington: PCE.

- Parliamentary Commissioner for the Environment (PCE). 1998f. *The Rabbit Calicivirus Disease RCD saga: a biosecurity/bio-control fiasco*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1998g. *Possum management in New Zealand, critical issues in 1998, PCE progress report No 1*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1999a. *Hazardous waste management: progress report on the Ministry for the Environment's hazardous waste Programme*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 1999b. *Setting course for a sustainable future: the management of New Zealand's marine environment*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2000a. *Ageing pipes and murky waters: urban water system issues for the 21st Century*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2000b. *Getting more from less: a review of progress on energy efficiency and renewable energy initiatives in New Zealand*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2000c. *New Zealand under siege: a review of the management of biosecurity risks to the environment*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2000d. *Caught in the headlights: New Zealanders' reflections on possums, control options and genetic engineering*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001a. *Beyond ageing pipes: urban water systems for the 21st century*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001b. *Hazardous waste management: second progress report on the Ministry for the Environment's hazardous waste management programme*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001c. *Key lessons from the history of science and technology: knowns and unknowns, breakthroughs and cautions*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001d. *Managing change in paradise: sustainable development of peri-urban areas*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001e. *Submission and witness brief to the Royal Commission on Genetic Modification*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001f. *Sustainable development and New Zealand's environmental management performance: an interim summary based on the findings of the Parliamentary Commissioner for the Environment's reports between 1992 and 2001*. Unpublished report. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001g. *Two year outcome evaluation of kaitiakitanga and local government. Unpublished report*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE). 2001h. *Weaving resilience into our working lands: future roles for native plants on private land*. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE) and Controller and Auditor General. 1999. *Local government environmental management: a study of models and outcomes*. Wellington: PCE and Controller and Auditor-General.
- Patterson, M. 2002. *Headline indicators for tracking progress to sustainability in New Zealand*. Technical paper No. 71 Sustainability, prepared for the Environmental Reporting Programme of the Ministry for the Environment. Wellington: MFE.
- Peet, J. 2000. Being fully human and creating a better future: sustainable development from an integrated systems perspective. Paper presented to the *Baltic 21 Workshop on Sustainable Development*, Sigtuna Foundation, Sigtuna, Sweden.
- Peet, J. and Bossel, H. 2000. An ethics-based systems approach to indicators of sustainable development. *International Journal of Sustainable Development*, 3 (3).
- Peet, J. 2001. If indicators are the answer, what was the question? Paper to the *Sustainable Auckland Congress*, 18-21 September 2001.

- Perkins, H. and Thorns, D. 2001. A decade on: reflections on the Resource Management Act 1991 and the practise of urban planning in New Zealand. *Environment and Planning B: Planning and Design*, 28 (2001), 639-654.
- Prescott-Allen, R. 2001. *The wellbeing of nations: a country-by-country index of quality of life and the environment*. Washington: Island Press.
- Rae, A. and A. Strutt. 2001. Livestock production and the environment: some impactsof growth and trade liberalization. *New Zealand Economic Papers*, 35 (December 2001).
- Raskin, P. et al. 2002. *Great transition: the promise and lure of the times ahead*. Boston: Stockholm Institute.
- Reid, M. 2001. *The 2001 elections - a crisis for local democracy or statistical blip?* An opinion piece. <http://www.lgnz.co.nz/news/pr1007931826.html> (downloaded March 2002).
- Royal Commission on Environmental Pollution. 1998. *Setting environmental standards*, 21st report.
- Royal Commission on Genetic Modification (RCGM). 2001. *Report of the Royal Commission on Genetic Modification*. Wellington: RCGM.
- Skelton, P. and Memon, A. 2002. Adopting sustainability as an overarching environmental policy: a review of section 5 of the RMA. *Resource Management Journal*, X (1), March 2002.
- Smith, C. 1998 . Responsible journalism, environmental advocacy and the great apple scare of 1989. *Journal of environmental education*, 29 (4), 31-37.
- Speck, S. and Ekins, P. 2000. *Recent trends in the application of economic instruments in EU member states plus Norway and Switzerland and an overview of economic instruments in Central and Eastern Europe: update of database of environmental taxes and charges*. Report from the Forum for the Future to the Director-General, Environment, European Commission. Brussels: EC.
- State Services Commission (SSC). 2001. *Report of the advisory group on the review of the centre*. Wellington: SSC.
- Statistics New Zealand (SNZ). 2000a. *Looking past the 20th century*. Wellington: SNZ.
- Statistics New Zealand (SNZ). 2000b. *New Zealand official yearbook 2000*. Wellington: SNZ.
- Statistics New Zealand (SNZ). 2001. *Modern biotechnology activity in New Zealand*. Wellington: SNZ.
- Sterling, S. 1996. Education in change. In: J. Huckle and S. Sterling eds. *Education for sustainability*. London: Earthscan.
- Sterling, S. 2001. *Sustainable education: re-visioning learning and change*. Totnes: Green Books.
- Stevenson, C.D. and Narsey, H. 1999. *Survey of benzene and other toxic organic compounds in air: summary report*. Wellington: Ministry of Health.
- Sumits, A and Morrison, J. 2001. *Creating a framework for sustainability in California: lessons learned from the New Zealand experience*. California: Pacific Institute for Studies in Development, Environment and Security.
- Trzyna, T. and Osborn, J., eds. 1995. *A sustainable world: defining and measuring sustainable development*. Gland, Switzerland: IUCN.
- United Nations Commission on Environment and Development (UNCED). 1992. *Agenda 21*. Paris: United Nations.
- UNESCO-UNEP. 1976 . The Belgrade charter. *Connect*, 1 (1), 1-9.
- UNESCO-UNEP. 1978. The Tbilisi declaration. *Connect*, 3 (1), 1-9.
- United Nations Economic and Social Council (UNESC). 2002. *Implementing Agenda 21: Report of the Secretary-General*. <http://www.johannesburgsummit.org/html/documents/no170793sgreport.pdf>.
- Voisey, H. and Church, C. 2000. Media coverage of sustainable development and Local Agenda 21. In: J. Smith, ed. *The daily globe: environmental change, the public and the media*. London: Earthscan.
- World Commission on Environment and Development (WCED). 1987. *Our common future*. Oxford: Oxford University Press.
- Worldwatch Institute. 2002. *State of the world 2002*. New York and London: Norton .
- Young, D. 2001. *Values as law: the history and efficacy of the Resource Management Act*. Wellington: Institute of Policy Studies, Victoria University.