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SUSTAINABILITY ASSESSMENT:
TOWARDS A NEW GENERATION OF POLICY ASSESSMENT
PRINCIPLES AND PROCESS

Tom Graham Davies

A Thesis submitted for the Degree of Doctor of Philosophy in Planning, from the University of Auckland, 2010
Abstract

This thesis examines the current state of Strategic Environmental Assessment (SEA) in relation to its explicit aim of Sustainable Development (SD). The argument developed is that with increasing levels of theoretical and practical interest in Strong Sustainability (SS), the current, largely retrospective model of SEA, and its application need to be re-envisioned. The thesis therefore improves this existing model of SEA to ensure greater sensitivity to concerns for stronger sustainability. The new model is referred to as Strategic Sustainability Development (SSD). This model is tested against the current Auckland Regional Growth Strategy (ARGS) to determine whether an SEA model, with explicit Strong Sustainability references can generate a workable process for governments to achieve SD related goals. In particular, the new model is assessed to see whether applying it to the issue of Climate Change would result in substantive environmental gains in Auckland, New Zealand.

The ARGS as it stands in 2008 has taken a small but important step towards Sustainability by recognizing the need for limiting spatial growth. To this end, the Auckland Regional Growth Forum has instigated the creation of Auckland’s Metropolitan Urban Limit and internal growth conurbations. These developments, while positive, will however fail to address the key environmental issues facing Auckland. The ARGS, by adopting a framework that conforms to the standard of only Weak Sustainability, will continue to encourage a social and economic growth discourse that promotes unsustainable consumption, social dysfunction, and environmental problems such as air pollution. This thesis therefore argues that the ARGS should employ a model of SEA based on SS, namely the model developed in this thesis, SSD. Had a model such as SSD been applied to Auckland’s development over the last decade, significant positive environmental outcomes may have been achieved. Recent developments, such as the signing of the Kyoto Protocol, represent a qualitative change in the way environmental issues are now taken seriously by governments and publics alike. Environmentalism has thus reached a tipping point where governments clearly have a mandate to give substantive attention to environmental issues. This thesis provides a clear model that can be applied by governments to achieve sustainable environmental outcomes.
Acknowledgements

Thank you to my supervisor Associate Professor Tom Fookes whose patient wisdom, commitment and extensive knowledge and experience guided me through the research process.

Thank you to Professor Jennifer Dixon for her valuable input.

Thank you also to Professor Maria Partidario for her insights.

Thank you to Michael Gunder whose door is always open.

In addition, during the last eight years that I have been working on this thesis, I have had the pleasure of interviewing a number of respondents, including academics working in the field of SEA, as well as local government officials, who gave up their valuable time. Thank you very much for your contribution to this project.

Also thank you to my wife Sharyn and to my two children Alfie and Olivia, without who there would be little purpose in writing this PhD.

I would also like to thank my parents, Jack and Mary Davies, for their support throughout my time at university.
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A Note on the Spelling System Used

In this thesis, I have used the American system of spelling. This sometimes creates an inconsistency when quoting from authors or citing names of institutions which use the British system. Rather than altering their words, I have opted to place the term (sic) after any words spelt using the British system.
## List of Abbreviations

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ARC</td>
<td>Auckland Regional Council</td>
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<tr>
<td>ARGs</td>
<td>Auckland Regional Growth Strategy</td>
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<tr>
<td>CB(A)</td>
<td>Cost-Benefit Analysis</td>
</tr>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CFC</td>
<td>Chlorofluorocarbon</td>
</tr>
<tr>
<td>DoC</td>
<td>Department of Conservation</td>
</tr>
<tr>
<td>EBS</td>
<td>Environmental Briefing Statement</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>GHG</td>
<td>Green House Gas (emissions)</td>
</tr>
<tr>
<td>GPI</td>
<td>Genuine Progress Indicator</td>
</tr>
<tr>
<td>HSNO</td>
<td>Hazardous Substances and New Organisms Act 1996</td>
</tr>
<tr>
<td>IA</td>
<td>Impact Assessment</td>
</tr>
<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
</tr>
<tr>
<td>LATE</td>
<td>Local Area Trading Enterprise</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Act 2002</td>
</tr>
<tr>
<td>LGAAA</td>
<td>Local Government (Auckland) Amendment Act</td>
</tr>
<tr>
<td>LTCCP</td>
<td>Long Term Council Community Plan</td>
</tr>
<tr>
<td>MMP</td>
<td>Mixed Member Proportional Representation</td>
</tr>
<tr>
<td>MoU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MUL</td>
<td>Metropolitan Urban Limit</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act 1969</td>
</tr>
<tr>
<td>NIMBY</td>
<td>Not In My Backyard</td>
</tr>
<tr>
<td>NIWA</td>
<td>National Institute of Water and Atmospheric Research</td>
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<tr>
<td>PPPs</td>
<td>Policies Plans and Programs</td>
</tr>
<tr>
<td>RGF</td>
<td>Regional Growth Forum</td>
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<tr>
<td>RMA</td>
<td>Resource Management Act 1991</td>
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<tr>
<td>SD</td>
<td>Sustainable Development</td>
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<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
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<tr>
<td>SOE</td>
<td>State Owned Enterprise</td>
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<tr>
<td>SSD</td>
<td>Strategic Sustainability Development</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<tr>
<td>WFF</td>
<td>Working For Families</td>
</tr>
<tr>
<td>WS</td>
<td>Weak Sustainability</td>
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<tr>
<td>WTO</td>
<td>World Trade Organization</td>
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CHAPTER I: INTRODUCTION AND RESEARCH CONTEXT

Introduction

In the last few decades, publics and governments have become increasingly environmentally conscious as many of the impacts of human-made pollution have become observable and have become part of everyday culture. The influence of Nobel prize winner Al Gore’s film *An Inconvenient Truth*, combined with other forms of popular culture which focus on environmental issues, have spurred a further wave of governments, businesses and individuals undertaking actions that are considered to be good for the environment. For example, increasing numbers of airline passengers are now opting to pay higher ticket prices to offset their carbon footprint, reflecting an understanding of the linkage between airline travel and climate change. At the political level, trans-national agreements, such as the Kyoto and Montreal Protocols, signal a coming together of various nations to address common environmental issues facing the planet. In addition, as democratic processes are now firmly embedded in many countries and developing in others, environment-related laws and principles, such as impact assessment, are now commonplace, allowing a greater level of public participation in decisions regarding environmental policy. In addition, disciplines such as environmental science and environmental economics, which underpin impact assessment methodologies, have evolved to an unprecedented level of sophistication in their understanding of the nature of the sustainability issue. The development of these disciplines has improved many societies’ ability to both understand unsustainable practices as well as developing solutions to them.

Given the above developments, governments have been mandated to introduce policies that are aimed at Sustainable Development, and are in the process of developing new tools to achieve such ends. This is particularly the case in New Zealand where, over the last two decades, national and local government interest in sustainability have resulted in significant overhauls of planning
mechanisms and the introduction of new laws, such as the Resource Management Act 1991 and the more recent Local Government Act in 2002. However, despite the development of these mechanisms and growth in global environmental consciousness, the reality is that many countries (including New Zealand) have maintained a poor environmental record. This has occurred in part because many governments lack the necessary tools to alleviate their most pressing environmental issues, particularly in the area of climate change, biodiversity and social dislocation. This thesis addresses these critical needs by substantially improving one model of Strategic Environmental Assessment as it is currently understood and practiced, both in New Zealand and internationally.

Before undertaking this improvement, the thesis critically examines one particular model of sustainability oriented SEA (defined below) and its application both in NZ and internationally. I look in detail at principles in which SEA is based, as well as examine processes stemming from such principles. The primary criticism here is that SEA tends to fall into a more evaluative mode, rather than a truly strategic perspective. I argue that while SEA remains within this mode, it will fail to fully address the demands posed by Sustainable Development. The impact of evaluative SEA results in a failure to question bedrock policies, for example the purposes of economic growth or the potential of taxation policies. In the present, taxation policies often fail to recognize social and environmental externalities, creating systems that effectively reward unsustainable practices i.e. pollution. As Charles Lindblom (1993) observes, when policies or laws are enacted they are often made incrementally with little real departure from the previous policies. From a sustainability perspective, this process amounts to one of continuing unsustainable practices. It is a consequence of this process that foundational policies are infrequently tested against environmental sustainability. In such an environment, policy is produced in a pro-nonsustainability environment and subjected to environmental assessment rather than asking the question of what is needed to do to achieve sustainable development. Consequently, one of the objectives of this thesis is to demonstrate the limitations of present SEA systems which have to date failed to live up to expectations in terms of achieving Sustainable Development, particularly in Strong Sustainability terms.

The failure of SEA to serve as a tool of Strong Sustainability reinforces the importance of revising the present SEA model. This failure reflects a key flaw in present SEA practices, which can be
described as a process which is locked into a largely retrospective perspective. To quote Partidario:

[The] evidence shows that many SEA[s] are following the path of EIA [Environmental Impact Assessment], looking backwards rather than forward. In fact, there’s a number of people that criticize SEA for not being sufficiently provocative exactly because it’s really more revising decisions that have been made and making sure that the impacts are minimal with its development (2003, p. 5).

Wiseman (2000) additionally argues that Policies, Plans and Programs (PPPs) are most often assessed for their impacts on the environment, as opposed to the needs of the environment forming a key input to the creation of new policy.

The substantial contribution of this thesis is the creation of a second generation SEA model that explicitly includes a strong articulation of Strong Sustainability principles. I argue that should this model be applied to strategic policy development, it would result in initiatives that are closer to delivering outcomes that are substantively closer to true Sustainability. Strong Sustainability is understood here to mean a mode of existence where human societies are able to live within the assimilative and resource productive capacities of the Earth, while maintaining equitable resource distribution.¹ To demonstrate the application of Strong Sustainability, reference is made to the Auckland Regional Growth Strategy 2050 as a case study, where I sketch out what a second generation ARGS might look like when I apply the new Strategic Sustainability Development model.

This chapter begins with a brief overview of the theoretical foundations relating to Sustainable Development and its linkage to Environmental Impact Assessment. This will be followed by a brief introduction, history and definition of SEA. The generic model given here will be used as a basis for future reference throughout the thesis. From there I will introduce the three research questions used in this research and the methodology used. Finally, I will provide a summary of the contribution to knowledge this thesis provides. I introduce the theoretical foundation of this research.

¹ For a more detailed explanation of the Strong and Weak Sustainability perspectives, see Chapter V: Sustainable Development: Principles, Models and Issues.
Theoretical Foundation

The setting of this thesis lies within the relationship between Environmental Impact Assessment (EIA) and Strategic Environmental Assessment, and examines how these methodologies relate to the notion of ‘Sustainability’. Just as EIA is unable to fully address the strategic nature of the solutions to problems associated with Sustainability (Partidario, 2002; Therivel & Partidario, 1996; Therivel, Wilson, Thompson, Heaney, & Protchard, 1992), SEA needs to adapt to the growing body of social, economic and scientific literature in relation to sustainable urban landscapes. For SEA to adapt to these new demands it must embrace a broader concept of public participation extending to the inclusion of not only presently excluded voices but also voices yet to be born who will have to live with the impacts of decisions made on their behalf in the present. Similarly, SEA must engage with dialogues of qualitative changes to our means of production and consumption, dialogues that challenge the economic growth at almost any expense culture or unsustainability.

Historically, the environment has fundamentally been viewed as an externalized object of use-value to be used and consumed. When deconstructed, the ideology underpinning the relationship between humans and nature is one that espouses dominance over a wild and uncivilized nature (Hopwood, Mellor & O’Brien, 2005). In this respect, similar to ideologies of gender and race inequality, nature has been constructed as ‘other’, hence it is an object to be controlled and subjected to the whims of humans and the sophistication of our sciences and economic systems. It is this ideology that underpins the neoclassical approach to Sustainability (the Promethean Perspective) on which Weak Sustainability is based. As Dryzek (1997) observes, the Promethean perspective is one that argues that technology, based on human knowledge and science will trounce any obstacles, including environmental or natural ones (Simon, 1981; Lomborg, 2001; Taylor 2002). The Promethean perspective is rooted in the enlightenment, which forms the basis of the development of modern science and the penetration of capitalism. Francis Bacon, whose

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2 The Promethean perspective draws its name from the story of Prometheus - a Greek myth explaining their origin. In this myth, Prometheus the Titan was given the task of creating people by Zeus. Prometheus gave Epimetheus the task of assigning qualities such as strength, cunning, or flight to all of the creatures of the world. Sadly, by the time he came to man he had run out of gifts to bestow. As Prometheus cared very deeply for man, he decided to give man the ability to walk upright as Gods did, as well as the gift of fire. Prometheus was reputed to have cared for man more than the Olympians, who had banished his family to Tartarus. Following the war between the Olympian Gods and the Titans, Zeus decreed that man should present a portion of their sacrifices to him and Prometheus tricked Zeus into accepting a lesser share. In anger, Zeus took the power of fire away from man. Against Zeus’s wish, Prometheus lit a torch from the sun and returned the power of fire to man. The Prometheus myth is a story of cunning and of ingenuity and an appropriate metaphor for a perspective that believes at its core that the problem of Sustainability can be overcome by man’s greatest asset – cunning and imagination.
writings formed a key pillar of modern science, was forthright in his Promethean imperialism when he wrote that “the world is made for man, not man for the world” (cited in Dumanoski & Pieri, 2003, p. 1).

This Promethean perspective, while globally dominant, is but one perspective. In contrast to the Prometheans, it is clear that environmentalism is an enduring political and social force, as the existence of environmentally based social movements and their expression at the political level by parties in Europe, the USA and New Zealand attests. These political entities represent a genuine desire by publics and governments to see policies aimed at the achievement of Sustainable Development and human wellbeing. The development of Impact Assessment methodologies are the operationalization of these political / cultural values.

The linkages between SD and Impact Assessment remain in their infancy, though, and as a consequence I argue that SEA is at present only poorly linked to Sustainable Development as it remains trapped in a predominately mitigatory approach to achieving its intended outcomes. At present, SEA is employed mainly as a way of minimizing negative environmental impacts of proposed actions. As it currently stands, SEA should be viewed as a critical, yet insufficient mechanism for achieving Sustainable Development. What is needed therefore is a model that focuses the structural causes of unsustainable development, that is, ideologies of consumption and market incentivization of external costs (pollution), as well as, structural inequalities.

Plan Development and Impact Assessment

Overseas experience has demonstrated the benefit of IA to the plan development process. When adhered to consistently over time, such processes can show improved environmental outcomes (Glasson & Gosling, 2001; Partidario, 1999; Partidario & Clark, 2000; Partidario & Moura, 2000; Sadler, 1996, 2001; Sheate et al., 2001; Therivel & Partidario, 1996; Therivel, Wilson, Thompson, Heaney, & Protchard, 1992; Wood & Djeddour, 1992; Wood & Jones, 2002). One example is where the Hong Kong Environmental Protection Department employed SEA to create the Port and Airport Development Strategy in 1989. In this SEA, environmentally sensitive areas of the airport were conserved, 350,000 people were relieved from aircraft noise by relocating the airport and a
framework was created to follow up issues through project EIA (2005). The SEA of the Cape Town Olympic bid in 2004 also considered the long-term environmental impacts of a large-scale proposal. The SEA successfully identified and mitigated a range of impacts, relating to economic, biophysical and social processes (Department of Environmental Affairs and Tourism, 2000).

Successful IAs such as these demonstrate that internationally and in Europe particularly, strategic-level planning processes in the form of impact assessment have become an accepted part of local and central government decision-making (Glasson & Gosling, 2001; Sheate et al., 2001). In the European Union, IA has existed in legislation since the mid-1980s, when in 1985 the EU created project-level environmental legislation that in turn led to the implementation of higher-level strategic IA (European Commission, 1985, 1999; European Commission DG Energy and Transport, 1999; United Nations Economic Commission for Europe, 1991, 2001, 2003). While successful in themselves, these processes to date mainly occur only at the regional level and below, and do not assess policies or legislation at the central government level.

The European development of strategic level IA was built on the USA National Environmental Policy Act 1969 (NEPA) which referred to plans, programs, policies and projects (Wood, 1995). When first created, EIA methodologies were heralded as a potential solution to the problem of the pollution generated by post-war economic development, particularly during the 1960s and 70s (Petts, 1999a; Wood, 1995). By subjecting projects to a process aimed at mitigating the associated impacts of a proposed development, it was thought that EIA would be able to successfully alleviate most environmental problems. As EIA became commonplace, it was discovered that many impacts could not be mitigated or were too problematical in terms of scale or cumulative effects and complexity, for this model to successfully achieve workable solutions

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3 Section three of the New Zealand Resource Management Act 1991 defines the meaning of an effect as:

(a) Any positive or adverse effect; an
(b) Any temporary or permanent effect; and
(c) Any past, present, or future effect; and
(d) Any cumulative effect which arises over time or in combination with other effects regardless of the scale, intensity, duration, or frequency of the effect, and also includes:
(e) Any potential effect of high probability; and
(f) Any potential effect of low probability which has a high potential impact
The exposure of the limitations of EIA led to the creation of a new, higher-level strategic planning methodology or Strategic Environmental Assessment (Partidario, 1996, 1999). Amongst other objectives, this model is designed to create strategies aimed at achieving Sustainable Development, by managing the complex interactions between social structures such as NGOs, governments and corporations and economies and environment, in a democratic and transparent way. While planning practitioners demonstrate little knowledge of SEA in New Zealand (Davies & Fookes, 2002), current environmental planning models used in New Zealand (The Resource Management Act 1991) incorporate many of the elements of SEA (Dixon & Fookes, 1995; Dovers, 2002; Fookes, 2002; Grinlinton, 2000).

Defining Strategic Environmental Assessment

There is a diversity of definitions of SEA. For example, SEA is defined by Therivel (1997) as “an appraisal of the environmental impacts of a policy which is used in decision-making” (p. 28). Where the SEA definition takes Policy, Plans and Programs (or PPP) as a whole, a more comprehensive explanation is given by Partidario and Clark (2000), who define SEA as:

a systematic, on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision-making, the environmental quality, and consequences, of alternative visions and development intentions incorporated in policy, planning, or program initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations (p. 7).

Figure 1 outlines a number of common features for SEA. The below model implies a linear progression moving from step (i) to step (x). In reality the process is far more cyclic, with each stage potentially moving through a number of iterations and revisiting earlier stages.
Figure 1: A Generic Process of Strategic Environmental Assessment

(i) Screening

(ii) Scoping

(iii) Define indicators

(iv) Identify stakeholders

(v) Identification, Prediction and Evaluation of Effects

(vi) Integration of environmental, social & economic effects

(vii) Mitigation

(viii) Monitoring

(ix) Independent Review

(x) Influence on Decisions

Source: (adapted from Asia Development Bank, 2003, pp. 98 - 99)
Table 1 provides generic steps for conducting SEA.

### Table 1: Generic Steps for Conducting a Strategic Environmental Assessment

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Screening.</strong> A screening exercise is undertaken to answer the following threshold question: Should an SEA be conducted for the subject proposal (i.e., a particular policy, plan or program)?</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Scoping.</strong> A scoping exercise is conducted to ensure that all high priority issues relevant to the decision being made are addressed in the SEA. There is wide agreement that both direct and indirect (or “secondary”) effects of a proposal should be examined and that cumulative impacts should be included in an SEA.</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Indicators.</strong> Sometimes the description and evaluation of effects is given in terms of “Sustainability indicators” (i.e., measures used to gauge whether the proposal will contribute to sustainable development).</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Stakeholders.</strong> All “stakeholders” – i.e., parties potentially affected by (or otherwise interested in) the proposal – should be given an opportunity to participate in the scoping exercise. While consultation with stakeholders takes place at various points in proposal development, it is particularly important during scoping.</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Identification, Prediction and Evaluation of Effects.</strong> SEA is concerned with the both direct and indirect impacts. The impacts of policies, programs, and plans on the environmental components are normally indirect. That is, the policy, programs, or plans are designed to bring about changes in social and economic behavior. These in an SEA can employ some of the same methods and procedures used in project-level EIA.</td>
</tr>
<tr>
<td>6.</td>
<td><strong>Integration.</strong> Integration of environmental, social and economic effects must be part of the impact prediction and evaluation process. This joint consideration of environmental social and economic effects is essential because some proposals will yield direct economic (or social) impacts that will then lead to indirect (or “higher order”) environmental effects. While most countries emphasize environmental effects in SEAs, some are beginning to experiment with appraisals that integrate environmental, social and economic effects in a balanced way.</td>
</tr>
<tr>
<td>7.</td>
<td><strong>Mitigation.</strong> An SEA should include measures that eliminate, reduce or offset adverse environmental effects. The term “mitigation” refers to the “elimination, reduction or control of the adverse effects of the policy, plan or program, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.”</td>
</tr>
<tr>
<td>8.</td>
<td><strong>Monitoring.</strong> An SEA should include a plan for monitoring environmental effects so that mitigation measures can be implemented if unforeseen effects occur. In addition an SEA should include a plan for ensuring that agreed upon mitigation measures are actually carried out.</td>
</tr>
<tr>
<td>9.</td>
<td><strong>Independent Review.</strong> An independent review of an SEA provides a check on the quality of the assessment. Results from the review should be considered in preparing the final SEA and in making final decisions. Researchers have developed criteria for reviewing and evaluating SEAs, and examples are given in Table 1.</td>
</tr>
<tr>
<td>10.</td>
<td><strong>Influence on Decisions.</strong> The SEA (including results of the independent review) should be made available to decision makers at a time when those results can inform debate on the proposal and alternatives to the proposal.</td>
</tr>
</tbody>
</table>

*Source: (Asia Development Bank, 2003, pp. 98 - 99)*

It is possible to identify a number of secondary characteristics. SEA -

- Is carried out mostly by governmental agencies
I turn now to the research questions and approach taken in carrying out this research.

**Research Questions**

From the insights gained from an examination of the Auckland Regional Growth Strategy 2050, as well as an analysis of the latest literature on Sustainability and primary data collection, this thesis provides an elaboration of the principles and processes which underpin a new generation of policy assessment methodologies. This new policy creation model (SSD) will integrate the theory and practice of environmental Strong Sustainability and SEA. To this end, this research poses three questions:

(1) Given the high level of academic,\textsuperscript{4} governmental\textsuperscript{5} and public interest in Strong Sustainability, what is the feasibility of a model based on this perspective?

Feasibility of the SSD model is assessed through the creation of a hypothetical second generation Auckland Regional Growth Strategy. Hence, the second research question:

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\textsuperscript{4} See Beder (2000) and Clapp (2005).

\textsuperscript{5} See Dovers and River, (2002) and Dryzek (2005).
(2) How might the objectives of ARGs change had a formally adopted SEA methodology been applied to support the Growth Forum’s decision-making process?

The third question is posed largely in response to the claim made by Sadler (2008) that SEA has a largely biophysical predisposition, to the detriment of the social aspects of SD. The social aspects of SD are linked to the notion of civil society. I argue that civil society has been undermined by the two related processes of neo-liberalism and globalization. These processes to date have led to increasing wealth and cultural capital disparities, which in turn have undermined the ability of governments and institutions’ capacity to formulate policies needed to address issues surrounding Sustainable Development. Hence the third research question:

(3) How should social impacts be integrated with SEA?

The positioning or emphasis of these questions within the research is as follows. Question one is the key research focus and assesses the feasibility of Strong Sustainability primarily in Chapters V and VI and VII. In Chapter V, the SS model is described and evaluated, with the conclusion that for true SD to be achieved, this model is the one most likely to achieve it in full. In Chapter VI, the model is applied hypothetically and gives effect to the principles of the model. In Chapter VII, the model is extended to the types of policies deriving from the SSD model developed in Chapter VI.

The second research question is primarily addressed in Chapter VII which gives detail to alternatives developed by the SSD model in Chapter VI. This chapter shows how SEA can throw light on areas that ARGs pays little attention too, particularly in the area of social inequality. This focus leads on to the third and final research question of integrating social aspects within SEA. This question in many ways is the key question on the research in the sense that SEA remains at its core is a rational / technical process, only providing a framework for political and economic decisions to be made. The conclusion is that solving social and environmental challenges are technically feasible from an SEA perspective, yet remain primarily a political issue and involve cultural change. While the issue of cultural change goes beyond this research, the issue of social problems associated with non-sustainable development and its ideological context examined in chapters IV and V. The question then becomes is SEA simply a decision-making framework or a

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6 Broadly an institution is understood to mean a rule-based entity governing human relationships and behavior. In terms of local authority institutions, it is assumed that they aim to improve the wellbeing of the society in which they are embedded. This is often interpreted in economic terms, to mean improving general levels of wealth.
conduit for cultural change? The answer is both. This research concludes that SEA must adopt a political stance and refrain from the implicit scientific rationality model which underpins much of its processes.

**Methodological Context**

This section provides the reader with the methodological context of the empirical stage of the research as it relates to the use of interviews to construct a case study during the empirical phase of the research.

As stated below in the following methodology description section, the empirical phase of this research involved a structured interview of members of Auckland’s planning community. These interviews yielded qualitative data which was later analysed using a thematic analysis approach (Becker 1996; Denzin and Lincoln 2000). As the title suggests thematic analysis “focuses on identifiable themes and patterns of living and / or behaviour” (Aronson, 1994, p. 1). The approach may be broadly characterised as ethnographic as the research in many ways seeks to ascertain the culture of organizations, in this case Auckland councils.

The term ethnography is a qualitative research method most often used in the social sciences, particularly in anthropology and in sociology (Richardson, 2000). It is employed to gather empirical data on aspects of human societies or cultures. Data collection is done most often through participant observation, interviews and surveys. Through the use of qualitative research, ethnography aims to describe the nature of those who are studied or a particular area of interest.

Qualitative research seeks to understand a given research problem or topic from the perspectives of the local population it involves (in this case planners). Qualitative research is especially effective in obtaining culturally specific information about the values, opinions, behaviors, and social contexts of particular populations. In this case, I was interested in tabulating the experiences of those in the planning community and their perceptions of the Auckland Regional Growth Strategy and SEA.
The use of a case study is warranted and its use has many precedents within the social science arena. Social science has historically often rejected the use of case studies as the primary methodology used in research (Jugdep, 2005). In this view, orthodox interpretations of methodology are seen as a process deriving causal inference or explanation (Abell, 2009). Similarly, as Ross, (2003) observes, “hypotheses that are generated inductively from one data set can only be tested with a different data set.” (p. 12). Others feel that the intense exposure to study of the case biases the findings of the researcher (Soy, 1997). Yet researchers continue to use the case study research method with success in carefully planned and crafted studies of real-life situations, issues, and problems. Reports on case studies from many disciplines are widely available in the literature (Patton 1980; Hamel, Dufour et al. 1993; Stake 1995; Yin 1984).

In Aristotle’s *Nichomachean Ethics* (1898), he describes three types of knowledge: (1) *episteme*, which corresponds broadly to a type of universal scientific theory; (2) *techne* practical knowledge of the type possessed by tradesmen or medical practitioners or knowledge possessed by those who produce objects, for example, craft-people or artists; and (3) *phronesis*, the type of pragmatic, context-dependent knowledge of how to act. Aristotle believed that epistemic knowledge was essential for generating predictive knowledge. However, this is only of value when focussing on unchanging phenomenon. Therefore using epistemic knowledge to analyze fluid or changing cultures *vis a vis* the values of individuals and institutions, is of less value.

Phronetic knowledge has arguably been in the main ignored in western culture with its enthralment of universalized, abstract, means-end rationality. The application of phronetic knowledge is however, is the special niche occupied by the social sciences. The key component of phronetic knowledge is that it requires *experience*, and the person possessing this knows how to judge and act concerning the concrete, the practical, as well as the ethical (Schram and Caterino 2006).

This view is supported by Flyvbjerg (2006) who examines the role of case studies in human learning. Flyvbjerg argues that case studies generate the type of knowledge that is indeed context dependent. Yet it is this context dependency that is necessary for researchers and others in varying professions to move from what Flyvbjerg, referring to quantitative approach, calls rule-based, novice – level systems. That is, there exists a gap in adult learning processes between the novice-level, rule bound application of analytical rationality to the performance of virtuoso-level
activities, in this case, social research. Citing Dreyfus and Athanasiou (1986), Flyvbjerg argues that, as we move towards expert use of knowledge, we become dependent on the use on context-specific knowledge. In his words -

Common to all experts, however, is that they operate on the basis of intimate knowledge of several thousand concrete cases in their areas of expertise. Context-dependent knowledge and experience are at the very heart of expert activity (2006, p. 222).

The application of expert-level knowledge also lie at the centre of case study research as a method of research. It is the internalization of this intimate knowledge that allows the researcher to advance from beginner level to expert and is used as a basis for this research, explained in more detail in the following methodology section.

Methodology

To answer the above questions, the example of Climate Change will be used because it connects with land use and social and economic systems in a cause and effect loop. The methodology used in this research includes reviewing Impact Assessment processes in order to develop a new model of SEA that will build on experience and bring into the “mix” contemporary thinking on Sustainability. This model (SSD) will then be in part tested against the idea of a second generation Auckland Regional Growth Strategy.

The methodology employed uses a qualitative, case-study approach and involves the following four main steps:

(1) The thesis begins with a review of relevant Sustainable Development and SEA literature and identifies the main SD models, as well as summarizing the shortcomings of the theory and application of SEA. The author notes a range of SEA and para-SEA models, recognizing the existence of a degree of confusion over exactly what constitutes SEA. A similar exercise is carried out by reviewing broader Sustainability related literature that distills the central issues and arguments facing governments, business, urban planners and individuals in New Zealand and internationally. The literature review is used as basis to create a series of questions addressed in step two.
(2) Step two forms the empirical basis of the research. Representing all councils in Auckland, twenty-two members of Auckland’s planning community were given by the author a semi-structured interview (see Appendix 1 Interview Schedule, p. 403). The main focus of the interviews was to identify the awareness of SEA within the planning community and identify any other emergent themes within planning in Auckland, particularly in relation to the ARGS. The mode of analysis employed qualitative questions, which were analyzed thematically. Respondents were selected on the basis of availability following requests for interviews to council chief executives who nominated council representatives. One emergent theme was a widespread ignorance of the term SEA. In addition, broadly reflecting SEA internationally, there appears to be among respondents a growing realization of the implications of the low priority given to social issues and the implications for Sustainable Development in New Zealand, which question three of the research addresses.

(3) Step three involved more focused qualitative interviews of seven senior members of the planning community. These interviews expanded emergent themes from the interviews undertaken in step two. These interviews focused on gathering data pertaining to Auckland’s planning environment and the formation of the Auckland Regional Growth Strategy. This step provided the empirical basis of the critique of the ARGS, used in Chapter II. This step focused on themes relating to Sustainable Development in Auckland, institutional integration, the role of infrastructure planning, sub-urban sprawl, social issues such as housing, the impact of free market reforms and institutional capacity.

(4) Step four involved applying the insights gained from the literature and survey data to develop a theoretical new SEA model titled Strategic Sustainability Development and its application to the ARGS.

Limitations of Methodology Used

This section outlines the primary limitations of the methodology employed in this research. It focuses mainly on the use of triangulation within the research process.
Triangulation may be defined as an "attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint (Cohen & Manion, 1986, p. 254). Thus, in the social sciences, triangulation is the use of multiple methodologies or perspectives focused on the same point, for example, the mixture of quantitative or a survey-based approach or the use of qualitative or interview data. This allows a broader perspective and is an approach to the investigation of a research topic which enhances the confidence in the ensuing findings. Hussein (2009) identifies to four forms of triangulation, which are: (1) methodological triangulation, (2) investigator triangulation, (3) theoretical triangulation, and (4) analysis triangulation and (5) data triangulation (p.3).

(1) **Methodological triangulation** refers to the use of multiple types of methodologies used to examine the same phenomenon. (2) **Investigator triangulation** refers to the use of multiple researchers in the same study at various stages of the research for example at the interview or write-up stage, usually for the purpose of conformation. (3) **Theoretical triangulation** refers to the use of multiple theoretical perspectives which help researchers by bringing to bear different lenses on the same phenomena. (4) **Analysis triangulation** refers to the use of two or more types of data analysis used on the same data set. For example the use of qualitative and quantitative data. (5) Finally, **data triangulation** refers to the use of multiple data sets on the same phenomenon.

The limitations of this research are that the thesis lacks any of the above forms of triangulation needed to essay the empirical validity of the conclusions and the model used. That is to say that once the model was constructed, Once the model was constructed, and the selected parts of an alternative RGS prepared, time did not permit a further round of interviews. In addition it would have increased the length of the thesis, taking it beyond the maximum word limit.

**Contribution to Knowledge**

This thesis makes an original and substantial contribution to knowledge by developing a new model of SEA that applies the notion of Strong Sustainability to Auckland’s development.
By creating the more substantively orientated model of SSD, this thesis is expected to go beyond previous applications of SEA, which have to date failed to fully address the more vexing questions raised by Sustainable Development e.g. the limits (if any) of resource availability (and therefore growth), the implications of social inequality, population growth, climate change and biodiversity.

The contribution made by this thesis is that it places the latter issues at its centre by modifying current SEA approaches by (1) the addition of SS, (2) the use of a re-structured SEA at the beginning of the strategic policy and plan development process, and (3) providing a model designed to address the drivers of social deprivation. These modifications are central to developing SEA principles that will infuse the SS model into the strategic planning process at the beginning, rather than the current practice of developing a policy trajectory and then assessing its impacts post hoc.

It is hoped that the development and application of the SSD model will provide governments with a framework that allows substantive actions to be taken that realistically address the increasingly challenging environmental problems facing them.

**Thesis Structure**

The thesis is organized in the following way.

Chapter I provides an introduction to this thesis, giving an overview of its purpose, research methodology, and its contribution to knowledge.

Chapter II introduces the context and case study of this thesis – the Auckland Region and its Growth Strategy 2050. The ARGS as it stands is a policy document aimed only loosely at achieving SD. I argue that this strategy espouses the principles embedded within the Weak Sustainability paradigm, and therefore fails to address the core environmental issues facing Auckland. The ARGS is therefore limited in its ability to deliver truly sustainable outcomes. The ARGS is further hampered in its ability to achieve Sustainability by poor linkages to weak national-level environmental policy. These policies are in turn themselves poorly linked to weak
international environmental agreements, in the context of an imbalanced and poorly structured international trading system that values human instrumentalism over other (environmental) needs. At a theoretical level, the ARGS is driven by the principles of Smart Growth or New Urbanism. These perspectives are subjected to critique in this chapter.

Chapter III examines the principles and processes of Strategic Environmental Assessment. This Chapter also introduces the reader to plan development and impact assessment (IA) and briefly summarizes the benefits of creating planning instruments such as SEA and EIA. This chapter then traces the development of impact assessment and exposes the limitations of project-level impact assessment. These limitations form the context of why a new (strategic) methodology of impact assessment was needed – in the form of SEA. From the literature review, it has become apparent that there is a common core of principles but a diversity of processes and applications, as well as what Sadler (2005) refers to as para-SEA models, which are similar processes which overlap with SEA. This Chapter also lays the foundation for the development of a new SEA model aimed at addressing the issues identified, one that places Sustainable Development at its core and applied in Chapter VI.

Chapter IV places the research and case study in its socio-political and economic context, by tracing the historical development of neo-liberal reform in New Zealand, beginning with the 1984 elections, through to 2002. The 1984 – 2002 timeframe is chosen as the 1984 election marks the beginning of New Zealand’s restructuring and 2002 marks the enactment of the Local Government (Auckland) Amendment Act. This Act is significant in terms of the development of the Auckland Regional Growth Strategy as it marks the integration of the ARGS into pre-established planning structures (the RMA). The Chapter also establishes a link between the decline in social capital and civil society to the limited ability or response by successive New Zealand governments to address Sustainability.

In Chapter V, I examine the various models of Sustainability. Within the concept of Sustainability, a range of definitions and models may be found. In this Chapter, attention is focused on the recent distinction being drawn between Weak Sustainability and Strong Sustainability. Weak Sustainability should be viewed as a first tentative step towards achieving true Sustainability. Because of the sensitive nature of environmental planning and much of the world’s commitment to unsustainable consumption habits, the more radical nature or implications of SS are unpalatable.
to the broader community and governments alike. As a result of the dovetailing of resistance to
SD initiatives and SEA’s democratic nature, I argue that SEA defaults to a position of limited or
Weak Sustainability. Weak Sustainability (WS) may be defined as constant capital over time.
Weak Sustainability argues that human-made and natural capital are interchangeable and as
human capital is, according to the model, effectively infinite, so too must natural capital. In
contrast, Strong Sustainability argues the opposite, that human and natural capital can never be
fully interchangeable. The issue of climate change is a good exemplar of this substitutability
debate in the sense that many (including mainstream) perspectives on how to solve climate
change effectively rest on the substitutability argument. Chapter V will show that solutions based
on Weak Sustainability may only be regarded as a stepping stone to true sustainability. From this,
I conclude that SEA must adopt a framework that explicitly incorporates the notion of SS, one that
asks fundamental questions relating to the nature of governance and its relationship to the
environment. When questions pertaining to humanity’s relationship with the environment are
posed, I argue that this further leads to a greater focus on issues relating to social sustainability
and the factors that lead to poverty.

In Chapter VI, I provide the core contribution of this research in which I create a new generation
SEA, or what I refer to as Strategic Sustainable Development. This model seeks to move beyond
Weak Sustainability by bringing a stronger model to the center of the planning process. It is hoped
that this model will move SEA beyond evaluation, towards positive environmental planning.

In Chapter VII, I apply SSD and create part of a hypothetical second generation Auckland
Regional Growth Strategy. This Chapter tests the proposition of this thesis, “that by developing
strategic policy using an SEA model based on SS, namely SSD, a more SD focused series of
policy outcomes will be produced.”

Chapter VIII concludes by summing up my responses to the central research proposition of this
research. The expectation is that this research can underpin the development of a new generation
of policy assessment methodologies. The result is the policy assessment model developed in
Chapter VI, which integrates the theory and practice of environmental Sustainability and Strategic
Environmental Assessment.
In the following Chapter, the reader is introduced to the case study of this research, the Auckland Regional Growth Strategy 2050.
CHAPTER II: CASE STUDY – THE AUCKLAND REGION

Introduction

The Auckland region has grown to a population of over 1.2 million people, and if present trends continue, will almost double over the next 35 years. The housing, transport, energy, infrastructural and other ecosystemic impacts of this projected growth pose a significant problem for planners in the context of Sustainable Development.

Over the last two decades, the predominant sub-urban structure in Auckland has derived from the introduction of planning practices based largely on unfettered market forces. This has resulted in growing expanses of low-density urban sprawl, unprecedented congestion, higher average vehicle distances being traveled and the associated pollution and health impacts.

In 1995, in response to these pressures, the Auckland Regional Council proposed in their Regional Policy Statement a new approach whereby selective population intensification should occur along transport corridors and in population and employment nodes, as well as creating a permanent Metropolitan Urban Limit (MUL). The MUL is a border which delineates the outer edge of metropolitan Auckland, and is used as a boundary by regional planning documents to define the allowable extent of urban zoning (Regional Growth Forum, 1999b).

This plan was to be managed by a Regional Growth Forum (RGF), a collaboration of District and Regional Council representatives (mayors and councilors) who undertook a strategic planning

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7 Statistics New Zealand presents three growth scenarios: low, mid and high ranges. This thesis assumes the mid range growth projection. More recent population figures suggest that the high projection scenario may be the most accurate with the population currently being projected to reach two million by 2040 – ten years earlier than previously expected (see Hucker, 2005), using New Zealand Statistics census 2001 data.

8 The Regional Growth Forum consists of elected representatives from: The Auckland Regional Council, Rodney District Council, North Shore City Council, Waitakere City Council, Auckland City Council, Franklin District Council and Papakura District Council.
process, resulting in the creation of a long-term sustainable growth and development strategy – the Auckland Regional Growth Strategy 2050. The RGF was created because of the recognition that Auckland’s issues could not be dealt with well or at all at the individual council level, and therefore a regional approach was required. The RGF recognized that the complex nature of the Auckland region, with its already over-stretched infrastructure, required a strategic, long-term and more integrated approach to accomplish the goals of Sustainable Development. The ARGS attempts to achieve this goal, and it is within this context that this thesis resides.

This Chapter introduces the reader to the region of Auckland and examines the key issues facing planning in the region. This is followed by an introduction and critique of the case study employed by this research, the Auckland Regional Growth Strategy.

Introducing Auckland

Auckland is New Zealand’s largest region in terms of population and is situated in the top half of the North Island of New Zealand. The region is home to 1.2 million people, representing 30 percent of New Zealand’s population (Statistics New Zealand, 2006c). Auckland has four main ethnic groups, European, Pacific Island, Maori and Asian people.

The Auckland Region has three levels of government comprising of a Regional Council (the Auckland Regional Council), three District Councils including: Rodney, Papakura and Franklin districts, and four City Councils including: North Shore, Auckland, Waitakere and Manukau (Figure 2). There is also a third tier of government of local community boards, which have responsibilities delegated from District Council in the areas of transport, community services, recreation, finance and city development (Auckland City Council, 2006a). These authorities constitute an integrated representation structure under the Resource Management Act 1991, reflecting the subsidiarity

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9 Pacific Island is a generic term representing people from many countries such as Tonga, Fiji, Tokelau, Niue, Samoa, Vanuatu, New Caledonia, Solomon Islands, Kiribati, Nauru, French Polynesia, The Cook Islands and Palau.

10 The term Asian is also somewhat generic and represents a broad range of people from countries such as China, Japan, Korea, Vietnam, Laos, Burma, Cambodia, Malaysia, the Philippines and Indonesia.
This level of representational as well as environmental integration has arguably been undermined by the dominance of free-market based ideology over the last two decades, leading to significant congestion and a predominance of low-density housing (sprawl).

Auckland’s congestion and pollution problems have become increasingly pressing and local authorities face the predicament of providing market-inefficient transportation solutions in an environment that demands economic efficiency. In the context of the free market, there is little incentive to act in the strategic manner required to affect large-scale public transport (Mees & Dodson, 2001). It has been recognized that this historical pattern of development has created a situation requiring a far larger or regional solution with implications for large-scale spatial development. These include the formation of the MUL, the development of growth nodes, transport corridors and high-density housing.

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Drivers for Auckland’s Growth

The underlying driver fueling Auckland’s growth is a commitment by local and central government alike to wealth creation through economic growth. To this end, four key drivers of this process may be identified; these are:

1. Natural population growth
2. Immigration
3. Auckland’s housing boom
4. Economic development (local, national and international)

These are discussed individually below.

1. Population Growth in Auckland

Population growth in Auckland has been a key issue driving Auckland’s growth since at least the 1950s onwards. In 1977, the then Auckland Regional Authority (ARA) identified population growth as a key issue, underpinning urban sprawl and increasing commuter miles. In an attempt to deal with these issues, the ARA created the Auckland Region Joint Study Group, a project consisting of members of the ARA and the Ministry of Works and Development. The group was created to study the main issues affecting the Auckland region. It concluded that problems related to rapid urban population growth since the 1950s and low housing density had overstretched Auckland’s infrastructure. The Group stated that, “most [infrastructure] do not have the capacity to meet demand, particularly in peak periods” (1977, p. 109). In the context of the oil shocks, the Group further concluded that, in order to avoid a significant rise in the cost of energy, it “urgently recommends higher investment… in passenger transport services” (1977, p. 20). The group further recommended a number of growth alternatives, including better use of existing zoning and infrastructure, or higher urban density. These recommendations were never fully implemented and

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13 The Auckland Regional Authority was a precursor to the Auckland Regional Council.
Auckland’s urban limits were regularly extended to accommodate growth, a policy that continued until the late 1990s.

In 1991, with the introduction of the Resource Management Act, the ARA was restructured into the Auckland Regional Council (ARC), which was faced with the same problem of solving the impacts of population growth throughout the region. The ARC openly supported a growth discourse and recognized population as a driver for economic development (1990). In the consultation phase of the lead-up to the creation of the ARGS, the RGF identified a range of benefits stemming from population growth, particularly greater commercial opportunities and employment. The commitment to the growth discourse was articulated in a discussion paper evaluating the rationale for growth in the Auckland region. The paper discusses various options for addressing growth, concluding that population growth, while problematic, produces an overall positive benefit. These benefits include a larger labor force and skills base, and greater diversity and employment opportunities as well as a larger market for economic development (Regional Growth Forum, 1998b). The apparent benefits of population growth have remained at the core of planning in Auckland ever since. Indeed the data supports this key driver. Statistics New Zealand Data (Figure 3) shows that Population in Auckland over the last 15 years has increased 943,000 in 1991 to 1,200,000 in 2006, an increase of 257,000 people or 27 percent.

Figure 3: Auckland’s Population Growth 1991 - 2006

Source: (Statistics New Zealand, 2006g)

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14 Foucault refers to discourse as “ways of referring to or constructing knowledge about a particular topic of practice” (cited in Varman & Vikas, 2005, p. 5). Foucault also argues that discourses and representations are separate from power or political actions but are suffused with these concerns.
As recognized by the Strategy, this growth is projected to continue. By 2021, even low estimates suggest that the population will be over 1.5 million (Figure 4). When projected to 2045, Auckland’s population will rise to over two million people. Consequently, Auckland faces the issue of finding space for another million people and accommodating their impacts on an already overburdened infrastructure and environmental sink capacity.

Figure 4: Regional Population Projection 2001 - 2021

The bulk of growth in Auckland will come from ethnic groupings and immigration. When populations are projected to 2016 by ethnicity, large increases in Asian, Pacific Island and Maori groups occurs (Table 2).

Table 2: Projected Population Change in the Auckland Region 2001 - 2016

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>2001 population</th>
<th>2016 population</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maori</td>
<td>144,000</td>
<td>183,000</td>
<td>39,000</td>
<td>27</td>
</tr>
<tr>
<td>European</td>
<td>821,000</td>
<td>860,000</td>
<td>39,000</td>
<td>5</td>
</tr>
<tr>
<td>Asian</td>
<td>175,000</td>
<td>397,000</td>
<td>222,000</td>
<td>127</td>
</tr>
<tr>
<td>Pacific Island</td>
<td>176,000</td>
<td>256,000</td>
<td>80,000</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: (Statistics New Zealand, 2005a)

Note: numbers do not match the true population estimates exactly as many respondents identify as more than one ethnicity.

http://www.stats.govt.nz
In percentage of population terms (Table 3), the Maori population will experience little change, while the percentage of Asian people in Auckland will grow from 14 to 23 percent and Pacific Island people will grow to 15 percent of the population, while Europeans will decrease by nine percent of the total.

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>2001 Percentage of population</th>
<th>2016 Percentage of population</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maori</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>European</td>
<td>67</td>
<td>58</td>
<td>-9</td>
</tr>
<tr>
<td>Asian</td>
<td>14</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td>Pacific Island</td>
<td>14</td>
<td>15</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: (Statistics New Zealand website, 2005b)
Note: Figures have been rounded

A large proportion of this growth is projected to occur in Auckland City, North Shore and Waitakere. In percentage terms, Rodney, Franklin and Papakura Districts will grow the most. These three areas are projected to grow on average 145 percent between the present and 2050 (Table 4).

<table>
<thead>
<tr>
<th>Authority</th>
<th>Future population in growth areas</th>
<th>Future population within existing urban areas</th>
<th>Total capacity 1996 – 2050</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Shore CC</td>
<td>27,000</td>
<td>54,000</td>
<td>292,000</td>
<td>69</td>
</tr>
<tr>
<td>Waitakere CC</td>
<td>18,000</td>
<td>51,000</td>
<td>303,000</td>
<td>94</td>
</tr>
<tr>
<td>Auckland CC</td>
<td>0</td>
<td>182,000</td>
<td>583,000</td>
<td>68</td>
</tr>
<tr>
<td>Manukau CC</td>
<td>47,000</td>
<td>36,000</td>
<td>432,000</td>
<td>70</td>
</tr>
<tr>
<td>Rodney DC</td>
<td>35,000</td>
<td>35,000</td>
<td>177,000</td>
<td>168</td>
</tr>
<tr>
<td>Franklin DC</td>
<td>2,000</td>
<td>29,000</td>
<td>75,000</td>
<td>134</td>
</tr>
<tr>
<td>Papakura DC</td>
<td>35,000</td>
<td>5,000</td>
<td>94,000</td>
<td>135</td>
</tr>
<tr>
<td>Auckland Region</td>
<td>165,000</td>
<td>391,000</td>
<td>1,956,000</td>
<td>85</td>
</tr>
</tbody>
</table>

Source: (adapted from Regional Growth Forum, 1999b, p. 30)

The implications of this growth suggest a major impact on an already overburdened infrastructure as well as a soaring demand for new housing, most likely in the form of high-density apartments. For example, a recent report suggested that by 2016, Auckland would require over 100,000 new
apartments (DTZ New Zealand, 2005), and as such the current downturn represents only a short term trend.

2. Immigration

While most of this growth is natural population increase, immigration, particularly from Asian countries has also played a role. Between 1971 and 2000, New Zealand has consistently experienced a net loss of residents to overseas destinations.

![Figure 5: New Zealand's Immigration 1971 - 2000](source)

This trend was reversed between 2001 and 2005 when Auckland experienced an upsurge in positive net immigration of 62,642 people (Statistics New Zealand, 2005). Table 5 shows that in 2005, while the biggest exchange was with Australia, the largest groups to permanently live in New Zealand were from the United Kingdom, Fiji, India, Japan, China and Samoa respectively. Approximately 70 percent of theses immigrants settled in the Auckland region (Regional Growth Forum, 1999b).

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16 Statistics New Zealand warns that the data should be treated with caution, as there are significantly more unstated cases for arrivals than for departures (2005).
From these tables, the conclusion drawn is that the bulk of Auckland’s population growth is from natural increase of Maori, Pacific Island and Asian people.

When internal migration between regions of New Zealand is examined, the data shows that between 1996 and 2001, Auckland had a negative net migration of -2,244 people (Statistics New Zealand, 2006e).

Table 5: Permanent and Long-Term Migration by Country in 2005

<table>
<thead>
<tr>
<th>Country of last / next permanent residence</th>
<th>Arrivals</th>
<th>Departures</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>13,389</td>
<td>34,766</td>
<td>21,377</td>
</tr>
<tr>
<td>UK</td>
<td>22,013</td>
<td>12,430</td>
<td>9,583</td>
</tr>
<tr>
<td>China</td>
<td>4,102</td>
<td>2,986</td>
<td>1,116</td>
</tr>
<tr>
<td>USA</td>
<td>3,674</td>
<td>2,800</td>
<td>874</td>
</tr>
<tr>
<td>Japan</td>
<td>3,471</td>
<td>1,826</td>
<td>1,645</td>
</tr>
<tr>
<td>South Korea</td>
<td>1,769</td>
<td>2,492</td>
<td>-723</td>
</tr>
<tr>
<td>India</td>
<td>2,569</td>
<td>622</td>
<td>1,947</td>
</tr>
<tr>
<td>Canada</td>
<td>1,521</td>
<td>1,485</td>
<td>36</td>
</tr>
<tr>
<td>Germany</td>
<td>2,080</td>
<td>653</td>
<td>1,427</td>
</tr>
<tr>
<td>Ireland</td>
<td>1,378</td>
<td>943</td>
<td>435</td>
</tr>
<tr>
<td>Samoa</td>
<td>1,720</td>
<td>535</td>
<td>1,185</td>
</tr>
<tr>
<td>South Africa</td>
<td>1,492</td>
<td>331</td>
<td>1,161</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1,109</td>
<td>446</td>
<td>663</td>
</tr>
<tr>
<td>France</td>
<td>687</td>
<td>508</td>
<td>179</td>
</tr>
<tr>
<td>Other(1)</td>
<td>15,181</td>
<td>8,760</td>
<td>6,421</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>78,963</strong></td>
<td><strong>71,992</strong></td>
<td><strong>6,971</strong></td>
</tr>
</tbody>
</table>

Source: (Statistics New Zealand, 2005c)

Table 6: Internal Migration by Region 1996 - 2001

<table>
<thead>
<tr>
<th>Region</th>
<th>In-migration</th>
<th>Out-migration</th>
<th>Net migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland</td>
<td>65,724</td>
<td>67,968</td>
<td>-2,244</td>
</tr>
</tbody>
</table>

Source: (Statistics New Zealand, 2006e)

Table five is of interest as it relates to the imposition of higher urban densities, as well as the housing boom of the 1990s and early 2000s. One can speculate that these factors are driving Aucklanders to other areas, seeking cheaper places to live. This undermines the argument of the
success of the imposition of the Metropolitan Urban Limit. In this case however, more research is needed to substantiate this claim.

3. Auckland’s Housing Boom

Partly as a result of population demand, the third driver of growth in Auckland has been the housing market. In 2002, New Zealand experienced a large net migration which peaked in 2003 at 40,000. These flows have had a significant impact on housing demand and prices (Whitehead, 2004). This population growth, when combined with the international property boom, spurred demand for houses which significantly affected prices. In developed countries, between 2000 and 2005, the total value of residential property increased by over 30 trillion (USA) dollars – an increase of 230 percent (The Economist, 2005). Beginning in the late 1990s, in line with this trend, Auckland experienced a housing boom of its own. These factors, when combined with policies of urban containment, also pushed up housing prices, a trend noted by research literature (Nelson, Pendall, Dawkins, & Knaap, 2002; Stayley & Gilroy, 2001). On average, house prices in Auckland have increased by 8 percent annually over the past ten years, significantly above the national average (Auckland Regional Council, 2005b).

Increased housing demand, when combined with urban growth containment has also had an impact on home ownership rates (Regional Growth Forum, 1999c). Data from Statistics New Zealand shows that where housing prices are highest, home ownership rates show an inverse relationship. Figure 6 shows that between 1991 and 2001, the rate of home ownership declined in New Zealand from 74 to 67 percent.
Recognizing the impact of this trend, particularly on low socio-economic groups, the Labour national government recently introduced legislation in 2007 aimed at providing financial inducements to first home buyers. In addition, local governments in the Auckland Region have undertaken a low cost housing strategy. It remains to be seen how effective these strategies are.

4. Economic Development

The fourth driver fueling the Auckland’s growth is economic development. In 2001, Auckland’s local authorities met together and created a memorandum of cooperation for regional economic development. The memorandum was aimed at encouraging a greater level of council cooperation for economic endeavors that were thought to benefit the region as a whole. The Auckland Regional Economic Development Strategy (AREDS) was developed for this purpose.

AREDS recognized that Auckland’s performance, when compared to similar ‘competitor cities’, did not compare favorably, noting that per capita real GDP fell during the 1990s, although it did recover to 1990 levels by the end of 2000 (Syme, 2001). Proponents of AREDS also argued that economic performance is linked to social development. It notes that in social terms, Auckland also
performs badly. When compared to other OECD nations, indicators in the areas of health, income distribution and social wellbeing do not paint a positive picture (for a more detailed discussion of New Zealand’s social performance see Chapter IV).

AREDS also gives an examination of the dynamics of Auckland’s economy. It notes the two key business areas in Auckland are manufacturing and business financial services. The report notes that the former has shrunk relative to the latter sector, which expended rapidly during the 1990s, and is still largely based on the export of commodities. Auckland is New Zealand’s key export gateway, yet its economy is less orientated toward exporting than the rest of New Zealand, which suggests that it has benefited less from the recent export boom. This may be a positive given the recent economic downturn.

A further economic driver was New Zealand’s defence of the America’s Cup in 2000, and 2003, which gave Auckland massive international attention, particularly on Auckland’s waterfront, which has been significantly redeveloped. In 2003, Ports of Auckland announced the sale of Westhaven and Hobson West Marinas. As part of its Auckland Waterfront 2040 strategy (Auckland City Council, 2006b), in 2004, Auckland City purchased the marinas from Ports of Auckland and converted Auckland’s Viaduct Basin into a mixed usage area incorporating luxury apartments and marinas and space for cultural events and socializing.

A further economic driver for the AREDS and the Growth Strategy is the recognition that pressure on Auckland’s infrastructure has restricted economic growth. With growing population and vehicle ownership, the economic cost of congestion is estimated to be over a billion (NZ) dollars per year (Whitehead, 2005). This is linked by AREDS to the ARGS as a key driver for future development. Because of these pressures, the ARGS identifies a range of critical areas of physical and social infrastructure that have come under pressure recently; these are (Table 7):
Table 7: Growth Pressures on Social and Physical Infrastructure

| Ongoing transport difficulties and the problem of traffic congestion |
| Pressures on schools and open space |
| Overloading the electricity supply systems in 1998 |
| Upgrading sewerage systems which require major investment |
| Overloading the stormwater infrastructure and recognition of the detrimental effects of urban stormwater quality |
| Water shortage problems in 1994 |

Source: (Regional Growth Forum, 1999b, p. 16)

These drivers culminated in the creation of a regional grouping aimed at remedying these issues, the Auckland Regional Growth Forum.

The Auckland Regional Growth Forum

The Regional Growth Forum was established in 1996 and undertook an extensive collaborative exercise to develop a unified vision for all local authorities in the Auckland region. As Auckland’s population is set to double, the primary task of the RGF was to develop alternatives to, and accommodating for, growth, and to manage its effects. From all of the alternatives raised, the compact city model was considered the most beneficial and was given effect. As a consequence, the main activity of the RGF and the councils it represented was to assess the scope for expansion mainly within the existing MUL boundaries.

Due to the reforms of the 1980s and 1990s (as outlined in Chapter IV), a key issue for Auckland was the lack of a single agency overseeing the development of infrastructure or policy-making in the way that the Auckland Regional Authority had formerly done (Dupuis & Dixon, 2002). Cognizant of this lack, in 1995, a strategic working group consisting of all of the mayors from the City and District Councils, chaired by the ARC was created, which later in 1996, formed the Regional Growth Forum consisting of the Auckland Regional Council, and seven district and city councils. The purpose of the newly created Regional Growth Forum was to address issues that were unable to be solved at the district level, such as meeting Auckland’s population growth, transport, sewerage and economic development needs. The principal objective of the RGF is:
To implement a strategy for the Auckland Region which ensures growth is accommodated in a way that enables people and communities to provide for their social, economic and cultural wellbeing, whilst protecting environmental quality (Regional Council Order Paper 21 cited in Regional Growth Forum, 1998b, p. 17).

This option became known as the Compact City model, and was based on the projection of adding a further 600,000 people to the Auckland region. It was thought that residential densities at this level would support viable passenger transport systems and reduce Green House Gas (GHG) emissions (Regional Growth Forum, 1998d). The compact city model has been applied in the form of the Auckland Regional Growth Strategy 2050.

The Auckland Regional Growth Strategy: Applying Limits to Growth

While the experience of Auckland has largely been the expansion of low-density housing areas (sprawl), successive councils have grappled with the problem of growth, extending back at least to the 1950s. Policies to limit the expansion of urban areas formed part of the first Regional Planning Scheme in 1951 in the form of the Outline Development Plan for Auckland (Harris, 2005). This line of demarcation formed the boundary between urban and rural areas. The purpose of this limit was to increase the efficiency of existing infrastructure by limiting new urban growth. Recognizing population pressures, the line catered for 25 years of growth and projected 600,000 more people in the Auckland region by 2000 (Regional Growth Forum, 1998b).

In 1967, the Auckland Regional Authority created its Regional Master Plan, which also included the objective of making transport infrastructure more effective by using urban intensification. Limiting sprawl was also promoted by the Town and Country Planning Act 1977, which aimed to protect agricultural soils from the impacts of urbanization (Cullen, 2005).

In 1988, this objective was given prominence in the Auckland Regional Planning Scheme (Auckland Regional Authority, 1988). This version signaled a change in emphasis from using the MUL to improve infrastructural efficiency, to extending it to include the more environmentally orientated objectives of the RMA (Regional Growth Forum, 1998a). This could be seen in the 1994 Auckland Regional Policy Statement, which gave greater prominence to environmental
management. Most recently, containment and the consolidation of regional growth by the MUL is the key element of the present Regional Policy Statement (Regional Growth Forum, 1998a).

At the heart of the ARGSS is the establishment of the Metropolitan Urban Limit (Figure 7), which stretches north as far north as Orewa and south to Papakura. The MUL is a technique used in the Regional Policy Statement to delineate the boundaries between urban rural parts of the region.

![Figure 7: Auckland Metropolitan Urban Limit](Source: (Auckland Regional Council, 2003, p. 40))

The purpose of the MUL is to restrict future growth to existing urban environments or 'growth nodes', and along transport networks shown in Figure 8. The purpose of the growth nodes is similar to New Urbanist (NU) approaches (Hall & Porterfield, 2001), which require housing forms to be denser, well connected to public transport and other amenities, and for housing to be within walking distance of mixed usage town centers (Magee, 2007).
The RGF through a series of workshops and public consultation created a range of Desired Regional Outcomes (DROs) envisaged by the Strategy, these are:

- safe, healthy communities
• diversity of employment and business opportunities
• housing choice
• high amenity of urban environments
• the protection and the maintenance of the character of the region’s natural environment
• sustainable use and protection of the region’s natural and physical resources (including infrastructure) and
• efficient access to activities and appropriate social infrastructure for all (RGF, 1999, p. 19)

These DROs were prioritized by early discussions of the Growth Forum (Table 8).

Table 8: Prioritizing Desired Regional Outcomes (DROs)

<table>
<thead>
<tr>
<th>Critical Outcomes</th>
<th>Very Important Outcomes</th>
<th>Important Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and transport efficiency</td>
<td>Business opportunity</td>
<td>Cultural identity</td>
</tr>
<tr>
<td>Water quality</td>
<td>Urban amenity</td>
<td>Rural amenity</td>
</tr>
<tr>
<td>Coastal quality</td>
<td>Safe, healthy communities</td>
<td>Cultural heritage</td>
</tr>
<tr>
<td>Air quality</td>
<td>Housing choice / affordability</td>
<td>Habitat</td>
</tr>
<tr>
<td>Sustainable use of resources (land / infrastructure / energy)</td>
<td>Employment choice</td>
<td></td>
</tr>
<tr>
<td>Open space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social and physical infrastructure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Table 3 from Regional Growth Forum, 1999b, p. 21)

Implementing the Auckland Regional Growth Strategy

Prior to the RMA, the creation of the MUL was largely the domain of governing bodies at the local level (Regional Growth Forum, 1999a). Under the RMA, with its higher standard of consultation, the determination of the MUL became more contestable. The development of the first Regional Policy Statement (RPS) and the landmark case between the ARC and North Shore City Council set a legal precedent for managing growth under the Act (Memon, Davies & Fookes, 2007) by clarifying the respective roles of local governments. In 1995, North Shore City Council expressed
opposition to the RPS by appealing to the then Planning Tribunal, arguing that the ARC had overstepped its mandate by creating the MUL. At the heart of the challenge, North Shore argued that the MUL had been improperly created, as it had been applied at the Regional Policy Statement level. As the title suggests, Regional Policy Statements give the overall policy direction to regions, within which lower order planning instruments (District Plans and Strategies) must comply. It was argued by the North Shore that the creation of the MUL was too prescriptive for a policy-level document. The Planning Tribunal found in favor of the ARC by concluding that the ARC was within its rights to include provisions to limit growth in its RPS as they are documents that occupied a legal grey area which includes policy application.

The North Shore City Council later tested this conclusion in 1996 with the Okura case. The Okura case was important as it created precedent for establishing the criteria for which an MUL may be created. The Environment Court decision was appealed to the high court establishing that the ARC could use an MUL for integrated management (Regional Growth Forum, 1999a), thus cementing it permanently in place.

Following the creation of the ARGs, the RGF formalized their intentions towards the strategy by agreeing to a region wide mechanism to implement the Strategy. In 1999, RGF members agreed to a memorandum of understanding (MoU) between parties involved with management of the ARGs. The MoU is an agreement for the territorial authorities to align planning documents and take a regional approach to the management of growth in the Auckland region, and covers the intentions and responsibilities, as well as building improved inter-council relationships. Parties also agreed to form stronger relationships with other strategic actors such as infrastructure providers (utility companies), agencies responsible for New Zealand’s highway system (Transfund and Transit New Zealand), central government agencies, such as, education and health, as well as other private sector organizations. Most importantly, the memorandum is an agreement between Regional and District Councils to implement the strategy.

The MoU also sought to align policy tools to complement the ARGs; these are shown in the below Table 9.
Table 9: Aligning Policy Tools with the ARGS

| The Regional Land Transport Strategy (RLTS) | Iwi Management Plans |
| The Passenger Transport Action Plan (PTAP) | Structure / Area / Corridor Plans |
| The Regional Stormwater Strategy | Funding Policy Statements |
| Auckland Regional Economic Development Strategy (AREDS) | Strategic Plans |
| Regional Open Space Strategy | Long Term Financial Strategies |
| Regional Recreation Strategy | Annual Plans |
| Regional Policy Statement, District and Regional Plans | Asset Management Plans |

Source (Regional Growth Forum, 1999b, p. 58; Auckland Regional Council, 2002)

Growth is managed through four sector agreements, which serve the combined metropolitan community. These agreements allow for a more localized application of the Strategy allowing a degree of flexibility and local innovation. These four main sectors are designated to contain future growth, these are: North – Rodney District; Central – Auckland City; West – Waitakere and the North West part of Rodney and South consisting of Manukau, Papakura and the Franklin Districts (Figure 9).
In the Northern sector growth will be focused in four areas: Orewa, the North Shore and Albany, as well as around the North Shore urban areas and smaller rural towns such as Warkworth and Wellsford. The Northern Sector will have three sub-regional centers at Takapuna, Albany and Orewa (Regional Growth Forum, 1999b).

In the Western sector, almost all growth will be contained along two development corridors – the Western Transit Corridor and the proposed Henderson to Westgate Corridor. In this sector, there will be three sub-regional centers at New Lynn, Henderson and Westgate.

Being at the innermost part of the city, the Central sector is the most developed. There are no Greenfield sites left in this area and any growth will be a result of urban intensification of brownfield sites such as the Mount Wellington Quarry redevelopment (Auckland City Council,
In this area, growth will be focused in two main areas: Auckland City and along the major transit corridors in order to maximize public transport and other transport options. Intensification will occur mainly along transit routes linking Mount Albert, Avondale, Newmarket as well as along the proposed Auckland Manukau Eastern Transport Initiative.

In the Southern sector, most of the growth will be focused in the southern rapid transit corridor and the Southern Motorway. This sector will have two sub-regional centers at Manukau City and in Papakura. There will also be smaller town center development in areas such as Pakuranga, East Tamaki, Botany Downs and Mangere. Table 10 shows that in geographical terms, while all areas will be affected, the population growth will be largest in percentage terms in the Northern and Western sectors of the Region.

### Table 10: Growth by Sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>Future population in growth areas</th>
<th>Future population within existing urban areas</th>
<th>Total capacity 1996–2050</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern sector</td>
<td>43,000</td>
<td>85,000</td>
<td>443,000</td>
<td>90%</td>
</tr>
<tr>
<td>Western sector</td>
<td>37,000</td>
<td>54,000</td>
<td>329,000</td>
<td>103%</td>
</tr>
<tr>
<td>Central sector</td>
<td>0</td>
<td>182,000</td>
<td>583,000</td>
<td>68%</td>
</tr>
<tr>
<td>Southern sector</td>
<td>85,000</td>
<td>70,000</td>
<td>601,000</td>
<td>85%</td>
</tr>
<tr>
<td>Auckland Region</td>
<td>165,000</td>
<td>391,000</td>
<td>1956,000</td>
<td>85%</td>
</tr>
</tbody>
</table>

Source: (Regional Growth Forum, 1999b, p. 30)

As each sector have varying constraints and capacities for managing its urban growth, a key aspect of the MoU is local area agreements. Local area agreements are plans that involve only one territorial authority and consist of the following components (Table 11).
Table 11: Local Area Agreements

- The form and location of growth opportunities, and the planned capacity for residential, recreational, business and commercial expansion;
- How the sector, or local area agreement, meets the vision, outcomes and principles of the ARGS;
- How communities were involved in the development of the agreement;
- The relative alignment of the locations and capacities of housing and employment/business areas with market demands;
- The physical (transportation, water, etc.) and social (schools, community facilities, etc.) infrastructural requirements;
- Indicative timing and sequencing of significant elements;
- The distribution of costs and benefits that are expected from the sector or local area agreement;
- How key components will be funded;
- The risks and contingencies of implementing the sector or local area agreement;
- The statutory planning changes that will be required, e.g. zoning changes, or changes to the MUL;
- The roles and expectations of different parties, e.g. Forum members, Central Government agencies, current land owners, the private sector;
- How the relative success of the sector and local area agreement will be monitored and the process for its review

Source: (Regional Growth Forum, 1999b, p. 9)

In response to land use pressures, the ARGS was resisted by councils as the MUL was considered too limiting and the sector agreements proved to be too weak to councils. In response, in 2004, central government forced local councils to adopt a more regional perspective by enacting the Local Government (Auckland) Amendment Act (LGAAA). The Act conferred on the ARGS the status of a regional policy statement. Part 1 of the Act states that its purpose is:

(b) to require Auckland local authorities to change the policy statement and plans prepared under the Resource Management Act 1991 to integrate the land transport and land use provisions and make those provisions consistent with the Auckland Regional Growth Strategy.

The Act was also aimed at improving the integration of the Auckland Regional Land Transport system as well as the management of funding assets for the Auckland Region. The LGAAA also required councils to integrate land transport provisions and to make those provisions consistent with the ARGs.
The LGAAA also created two ARC controlled organizations, the Auckland Regional Transport Authority (ARTA) and the Auckland Regional Holdings (ARH). ARTA is responsible for the management and implementation of the Regional Land Transport Strategy. The LGAAA dissolved Infrastructure Auckland and transferred its assets to the ARH, which dispenses stormwater and transport grants. Both the ARTA and the ARH are accountable to the ARC.

**Monitoring the Auckland Regional Growth Strategy**

The Regional Growth Forum has set the review process to occur on a five yearly interval and monitoring and performance will take place annually. The ARGs will be monitored for its efficacy, according to the following criteria:

1. Physical growth of dwelling units and commercial units
2. The location of future employment
3. The amount of mixed-use development

Table 12 shows the performance indicators given in the ARGs which are categorized into the three following areas: social, transport and environmental. Social indicators are related to key social infrastructure provision. Transport is monitored primarily in terms of accessibility, and environmental outcomes measured mainly in terms of “avoiding, mitigating and enhancing the natural environment of the Auckland region” (1999b, p. 74).
From my own evaluation, which includes a literature review, interviews of planners and other planning related professionals, I provide a critique of the Auckland Regional Growth Strategy.

A Critique of the Auckland Regional Growth Strategy

The following section provides a critique of the ARGs to date. It addresses four main areas:

1. Market failure and institutional fragmentation
2. Undermining democratic process
3. The use of New Urbanism as a theoretical basis of the ARGs
4. Poor articulation of Sustainable development

These points are elaborated in the following sections and is commented on by respondents from primary research.

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Table 12: Indictors for Measuring the ARGs

<table>
<thead>
<tr>
<th>Social</th>
<th>Transport</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing affordability, quality and diversity</td>
<td>Transport characteristics of intensified areas and length of journey to work.</td>
<td>Ecosystem health and water quality in both urban and rural areas.</td>
</tr>
<tr>
<td>Personal health and safety.</td>
<td>The level of access to opportunities including work, home, business and leisure.</td>
<td>Open space requirements for environmental protection purposes.</td>
</tr>
<tr>
<td>The provision of social infrastructure such as public open space, open space for recreation needs, community, educational and health facilities.</td>
<td>The level of transport choice for all sectors of the community.</td>
<td>Coastal protection, use and development.</td>
</tr>
<tr>
<td>Urban amenity in changing residential, employment and mixed-use areas.</td>
<td></td>
<td>Air quality.</td>
</tr>
<tr>
<td>Community acceptance of the strategy.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Regional Growth Forum, 1999b, p. 74)
Market Failure

As will be noted in Chapter IV, New Zealand has adopted a free-market approach to planning, which over the last two decades has led to the introduction of reforms and policies which I argue have led to a range of market failures in certain areas of social, economic and environmental planning in Auckland. Market failure may be defined as occurring when markets fail to succeed in achieving efficiency, or they externalize costs into the non-market realm, that is the environment or the market’s social context (society). Market failure also occurs when markets fail to distinguish between socially or environmentally positive or negative behavior, counting all such costs on the positive side of the ledger, usually in GDP terms.

If a market provides too much of one good and not enough of another, the market is either under or over allocating resources. When markets fail, they are thus either productively or allocatively inefficient (Friedman, 1990), for example, the provision of street lighting. In most cases, street lighting is a service which cannot (in most cases) be bought and consumed. In other words, markets cannot form around their provision. This failure necessitates the creation of public goods and services, such as public transport, education or health. Many of Auckland’s issues stem from such failures.

The second form of market failure is the creation of environmental or social externalities. An externality is a positive or negative “consequence of an economic activity that is experienced by unrelated third parties”,18 which in the case of pollution, often goes un-recognized by the market (Pearce, 2002), and thus may have only an indirect economic impact. Auckland’s economy to a significant degree rests on such environmental externalities going un-costed.

The third form of market failure is when markets do recognize economic activity, but it is recognized in such a way that that the cost is measured positively (by traditional economic accounting). For example, the cost of Climate Change can be measured in terms of its impact on human safety and wellbeing, but these costs are not directly linked to vehicle use by the market.

Externalization thus undervalues or obscures the costs and impacts of vehicle usage as well as the positive impact of public goods, such as mass transit.

Externalization of costs occur in traditional economic measurement models such as Cost Benefit Analysis which do not take into consideration third party effects. The externalization of activities such as private vehicle use are therefore economically measured favorably and their use by the individual is incentivized as part of the cost is not paid. Similar incentives arise at the policy level where externalizing policies such as road building occur.

Market Failure is thus reflected in historical spending priorities which continue to the present, which favor existing and new roading infrastructure investment (Gunder, 2006; Mees & Dodson, 2001). Despite significant areas of public transport investment such as the North Shore Bus way, this distortion will continue over the life of the Growth Strategy (Regional Growth Forum, 1999). A focus on roading infrastructure is also reflected in the present National government spending election platform. Thus, the ARGS contributes to market failure by undermining its own goals in two ways. First, by continuing to prioritize roading infrastructure over public transport, it fails to meet its own goals relating to Sustainable Development. By spending disproportionately on roading projects, the Strategy encourages an increase in car dependence and their associated social and environmental impacts.

In summary, the ARGS does not make use of new developments in environmental costing, which leads to a flawed perception of the economic value of infrastructure spending. While the ARGS has made significant inroads to work on a more collective basis, the basic structure remains largely unchallenged and councils are still working in a highly fragmented manner, which is the subject of the following section.

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Auckland’s infrastructure has also suffered from underinvestment, particularly water supply and wastewater treatment, stormwater systems, refuse disposal operate at capacity, or close to it, with little provision for unanticipated demand events (Parliamentary Commissioner for the Environment, 2000). Market failure occurs by spurring demand for these services by incentivizing inefficiency, which undervalues their services by externalizing costs.
Institutional Fragmentation

As noted in the beginning of this section, adherence to the free-market within New Zealand’s planning context has had some detrimental effects on the ARGs. The Strategy is located within a planning context that has reformed local government structures based on the premise of market efficiency. This has created a series of specialized government functions with limited, or even independent cross-functional relationships. The impact of this has been not only a lack of institutional integration but lack of connectivity in terms of the knowledge of planners. As noted in Chapter III, Eggenburger and Partidario (2000) observe that procedural integration of planners’ knowledge and skills is critical to the creation of broad-based and robust policy (Table 20: Principles of Integration, p.111). When observing the ARGs creation process, one interviewee had a similar observation:

> Today very much of what you get is specialists in environmental areas who know nothing about anything else and it’s integration between different disciplines and how that integration is related to making decisions on integrating the RMA, [it] doesn’t exist much.

The impact of this lack of integration of planners is related to organizational capacity. As one interviewee noted, councils in Auckland have a high turnover of staff and councils in many cases rely on contractors to carry out specific research. These processes undermine institutional memory and the ability of councils in the long run to carry out robust research and develop policy. This is related to the pressure to achieve efficiency and the level of surveillance and measurement associated with the introduction of new managerialism, examined in Chapter IV. Based on rational choice, this managerial theory places emphasis on measurement and supervision. The retention of cross-area skills by planners and organizational capacity do not lend themselves well to this regime, resulting in a lack of emphasis in these areas. In turn, less integrated policies are the result. This lack of integration occurred at the Territorial Authority level as well, as one senior planner put it:

> ...there was no connection between land use and transport and there was competition between all the TAs [Territorial Authorities] about what should and shouldn’t happen so you just got ad hoc decisions been made and the Growth Strategy’s trying to deal with that, but it’s only one part of that we didn’t deal with economic development or business stuff, or regional affordable housing issues.
An example of the lack of institutional integration is the Waikato expressway. The Waikato Expressway is a 94 kilometer upgrade of State Highway 1 to four lane motorway between Mercer and Cambridge, south of Auckland. The expressway is intended to reduce congestion by adding more lanes, as well as passing lanes, reducing the journey time between Hamilton, Tauranga and Auckland.\textsuperscript{20} The reduction of travel time undermines Auckland’s Metropolitan Urban Limit (MUL) by making it easier to travel between these regions by car. Greater ease of travel will weaken the ability of the Regional Growth Forum to encourage higher density housing in the Auckland region by making it easier to commute greater distances between centers. As a result, vehicle mileage will continue to climb and Greenhouse House Gas will continue to be introduced into the atmosphere at higher rates. Similarly, rates of other vehicle-associated heavy metal pollution will also increase.

Failures such as these are indicative of a sector that fails to link itself appropriately to Sustainability-orientated, land-use planning processes. It is especially contradictory because a stated principle of Transit is to “ensure state highway corridors make the optimum contribution to an integrated multi-modal land transport system” (Transit New Zealand, 2005). When talking about a motorway extension to Warkworth, north of Auckland, a similar observation is made by one interviewee:

\begin{quote}
The motorway going up there to Warkworth, I don’t care what that says here, in 50 years’ time…that's urbanized. They’re not going to hold that, no way. It’s urbanized. The motorway’s going there. As I said, if you want to expand outside Warkworth any major developer will say that land is cost effective, Warkworth’s going to grow, there’ll be a sewerage plant put in there and sewerage treatment engineers always do bigger than this. So somewhere round there’s going to be rural land that can be serviced and on transport and that will be urbanized irrespective of what you say down here. The pressure is going to be so great. If you don’t want that to happen you don’t put a motorway there!
\end{quote}

Second, the Growth Strategy fails to make use of existing congestion as a tool to discourage motorists from using their cars, a situation which is reflected in a low or static level of public transport usage in Auckland, despite an overall increase in funding (Mees, 2006). The bias towards roading within the ARGS reflects both market failure as well as an underlying belief in the competition model (between transport modes). By doing this, the Growth Strategy pits modes against each other when a more integrated approach should be opted for. When roading and

\textsuperscript{20} Auckland and Tauranga are New Zealand’s two biggest container ports.
public transport are developed in tandem, they effectively work, not cooperatively, but in competition with each other, both undermining their efficacy. For public transport, this is seen in low patronage numbers, rendering them uneconomic and for private vehicles, greater congestion. The adherence to the free market also has had the effect of letting the market determine growth patterns. Apart from some associated undesirable effects, this process has led to an absence of planning decisions, as one planner put it:

Now if you come back to me and ask how you're going to make Auckland grow, or how you can control growth, reach your goals, I'd go back to what it says there and you concentrate on the main growth determinators and use them as a tool, not the other way around which is happening now and it's strangest systems in transport and you can use that as a tool. We recommended if this goes out there, well the first thing you do is build a motorway there. The growth will follow straight away. At the moment we're following growth and you're getting yourself into a bigger mess.

A further illustrative example of institutional failure affecting the Growth Strategy is the impacts of the liberalization of the building construction industry. The so called ‘leaky building syndrome’ (circa 1995 – 2005), has been criticized for being responsible for the creation of poorly designed, leaking buildings costing individuals and governments large sums of money to repair. The Leaky Building Syndrome can be traced back to the era of New Zealand’s free-market restructuring. In 1990, the Building Industry Commission published a report called Reform of Building Controls (1990). The report urged government to introduce a performance orientated scheme to replace the existing framework which the commission viewed as overly prescriptive and one which stifled innovation. The Commission concluded that over time, a more light-handed form of regulation would produce improved outcomes such as efficiency gains and a more flexible market (McGregor, 2006). With the benefit of hindsight, it is clear that the Commission overlooked the short-sightedness of allowing the introduction of, effectively, an industry self-supervision system. The result of which meant that, when left mainly to its own devices, the profit motive incentivised lower construction standards. This led to the widespread construction of substandard, leaky houses, apartment blocks, and school buildings. The fiscal impact was in the order of several billions of dollars worth of damage, as well as the costly re-imposition of council responsibility, higher building standards and on-going court costs, as well as the emotional impact on individuals.

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21 The ‘Leaky Building Syndrome’ was where a substantial number of buildings in New Zealand were built to sub-standard building standards, resulting in leaking buildings. The leaky building syndrome was a result of the de-regulation of the building industry, which eliminated requirements for buildings to have eaves, water drainage spaces between walls and the requirement for kiln-dried, treated timber.
and families of decomposing homes. The ARGS is thus undermined by a public perception of adherence by planning to the free market. The perception being that the ARGS will create low quality, decrepit inner city ghettos (Arbury, 2005). This perception is also reflected in the resistance by community groups in areas such as Grey Lynn and Panmure to initial urban intensification efforts.

Failures such as these highlight the limitations of market forces in their ability to achieve some planning goals. The ARGS is a document forged in the context of an intervention averse environment, which in many respects remains unchanged, in spite of these types of issues.

However, due to the limitations of market failure in the form of institutional fragmentation, as Memon, Davies and Fookes (2007) argue, local governments in Auckland have started to recognize these limitations and are beginning to re-capture many of the functions lost to the post 1989 local government reforms, particularly at the regional level. A further aspect of fragmentation is a reliance on non-statutory agreements to achieve the ends of the ARGS. As noted above in this Chapter (see Implementing the Auckland Regional Growth Strategy, p. 49), the local area sector agreements were a mechanism negotiated between councils to adhere to the purpose of the ARGS. These agreements proved to be inadequate for this purpose, requiring the ARGS to be given the status of a Regional Policy Statement. This demonstrates a potential weakness of non-statutory or voluntary agreements. The lack of legal enforceability gave opponents of the ARGS an opportunity to resist its application. Such resistance is more difficult when institutions use a more centralized approach to planning. In addition, the fragmented nature of local councils in Auckland poses procedural issues.

The ARGS was formed on the basis of issues identified by councils as important. While on the surface, this appears to be a useful starting point for a strategic planning process, from a Sustainability perspective, it is less so. The ARGS creation process took councils agendas as a beginning point, treating Sustainable Development effectively as an appendage. As one interviewee put:

I think the sequencing that we’ve done is wrong. I mean you don’t let TAs say what do you want first and you have it and then look at Sustainability. It was done the other way round…

I turn now to a further impact of the ARGS; it’s effect on democratic process.
Undermining Democratic Process through Regional Consolidation

The creation of the ARGS is in certain respects the culmination of a debate concerning what institutional arrangements will best serve Auckland as it faces the challenges of population expansion and Sustainable Development. As shown in Figure 2 of this Chapter (p. 35), Auckland is governed by a regional council and seven cities and districts, and a third tier of community boards. This structure reflects an international trend towards decentralized systems with sectoral differentiation, fragmented institutional models, and semi-autonomous single function satellites, privatisation and contracting out of services (Kuhlmann, 2006). This structure has resulted in what Memon, Davies and Fookes (2008) refer to as a system of government with “fragmented, overlapping local government jurisdictions with poor capability and reluctance to co-operate regionally” (p. 9). The management of these entities are governed in part by the principle of subsidiarity embedded within the RMA, a principle intended to bring decision-making closest to those that it affects.

The subsidiarity principle is one advocated at the World Summit on Sustainable Development in Stockholm in 1972. The Local Agenda 21 advocates a focus on devolution of decisions to low levels of government. In Section 8.5, it states a key aspect of planning for SD is “[d]elegating planning and management responsibilities to the lowest level of public authority consistent with effective action...” (UN Department of Economic and Social Affairs Division for Sustainable Development, 2006). The key outcomes of Local Agenda 21 include:

- stronger community and local government partnership
- ongoing community involvement in the resolution of sustainable development issues
- integrated decision making which takes all foreseeable economic, social and environmental considerations into account
- development, implementation and periodic review of a long term, integrated action plan which incorporates sustainable development principles
- changes which promote a continual improvement toward sustainable development (Environs Australia, 1999, p. 7)
Similar to SEA, the central feature of LA21 is the notion of decentralization. This appears to be, within certain respects, synonymous with both the neo-liberal worldview as well as for Sustainable Development. Within the green movement, and scholarly research (Benton & Short, 1999; Dryzek, 1997, 2005), the notion of decentralization and localized production and consumption go hand in hand with the principle of localized decision-making.

As planning increasingly crosses over into the domain of international initiatives such as global warming, questions arise as to what is the appropriate scale of structures needed to achieve effective government. In planning terms, this often revolves around questions of models based on market efficiency versus those that include wider environmental and social equity goals. While the former tend to advocate smaller, specialized or semi or fully privatized government functions, the latter tends to advocate what is referred to in ‘Blairite’ terminology as ‘joined-up’ government (Bogdanor, 2005). As noted earlier in this chapter, the ARGS recognizes the necessity of adopting a more strategic approach to planning in the Auckland region and to create institutions able to implement outcomes derived from this. The term strategic is a perspective that spans goals relating to micro-social interaction, military warfare or developing a national strategy. It involves in essence, recognizing a goal, principle or solution to a problem and formulating by definition a future-orientated process for its achievement. Engagement in strategic planning, whether planning for institutional, social or economic objectives, is often linked to global processes.

The ARGS is in this respect a reaction to this new influence. As Marx noted, unregulated capitalism is intrinsically monopolistic and concentrates power in hierarchic, corporate structures (Poulantzas, 1969). A similar dynamic may be observed of governments, which seek to extend their influence through both the taxation of local industries as well as of companies gaining foreign market penetration. As Epifani and Gancia (2008) observe, there is a perception that globalization affects a downward pressure on governments to reduce their size and taxation base. However, their research shows that, in fact, the opposite occurs. Economic integration via free trade is in reality linked to larger governments, for two main reasons. First, as more economies integrate, companies develop markets, extending a government’s tax base. Second, as economic integration exposes countries to more of the risks associated with international trade, there is a strong pressure to extend to workers the coverage of this risk in the form of welfare transfers. Both drivers work to make governments larger. Local governments are not exempt from this process as
they gain from higher property valuation (from exposure to international demand) and wealth from company growth. These conclusions are not inconsistent with the findings of Rational Choice theory, which comes to broadly similar conclusions.

In contrast to the view that governments and bureaucracies implement policies that represent the public interest, Rational Choice views bureaucrats as ‘self-interested utility maximizers’ (Denhardt & Denhardt, 2003). Niskanen (1973) argues that public employees or managers seek to enhance personal utility by growing budgets of their respective areas. As a result, budgets rise, along with personal income, power and status, derived from the greater potential for promotion. In this scenario, what is known as ‘empire building’ occurs. Empire building results in further demands for budgetary expansion, which tend to exceed the operational requirements. It incentivizes over statement of the benefits and achievements of this spending and also tends to inflate new budgets which anticipate the potential for cutbacks. Thus in order to avoid these issues, rational choice theorists advocate competition-based funding processes, a high degree of public oversight and agreements related to performance (for a further discussion of the impacts of rational choice theory on New Zealand local government see Chapter IV, p. 129).

Staying with the theme of globalization, as Giddens (1979) notes, modernity is a state where space is increasingly distanced from ‘place’. Locales are penetrated by distant social and economic and increasingly legal, forces or as Giddens further observes – “what structures the locale is not simply that which is present on the scene; the “visible form” of the locale conceals the distanciated relations which determine nature” (p. 19). These observations highlight how globalization undermines the subsidiarity principle by reducing proximity to those whom decisions are made. The same process occurs within institutional structures, whether governmental or private, creating distanciated power structures. The construction of distanciated power structures runs the risk of creating a process where decisions are made at a distance from those affected by those decisions. An insight into the dangers of this dynamic may be drawn from psychology.

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22 For a definition of rational utility maximization see Chapter IV – Rational Choice Theory.

In Stanley Milgram’s famous experiment *Obedience to Authority Study* (1964), subjects were told that they were taking part in an experiment using negative reinforcement to encourage learning. Subjects were placed in charge of a device that delivered electric shocks to English language learners. If the learner made an error, they were given a mild shock. Unbeknown to the subject, the learners were in fact actors. The experiment was not, as the subjects were led to believe, an experiment about using negative reinforcement to encourage learning, rather, one that tested obedience to authority. In this scenario, the authority figure was Milgram himself playing the role of authority figure (in this case, an academic expert) giving permission to deliver shocks when errors were made. When an outline of the proposed experiment was given to experts for peer review, they unanimously predicted that few subjects would acquiesce to the instructions given by the authority figure. In fact, the opposite was true. The experiment subjects were told to administer shocks to actors when they made a learning error. As the learning tasks became harder and more errors were made, subjects were told to increase the voltage in order to discover if a higher level of negative reinforcement would have an impact on learning. As the voltage increased, so too did the level of ‘pain’ expressed by the actors. In some test runs, subjects were even told that the learner had a heart condition yet were still given instructions to carry on with the experiment and to increase voltage to life threatening levels. It was found that few subjects refused to inflict pain on the actors, and most carried on obediently shocking the learners. Some subjects carried on even to the point where the learner went completely silent (possibly dying), continuing to administer shocks. During the experiment, subjects were face to face with their learners.

A further variation was to fully separate the subjects from the actors. What Milgram found, was that the further the distance the subject was away from the learner, the greater the ease of which the subject inflicted electric shocks on the actors. Milgram referred to this effect as ethical distancing. Ethical distancing occurs where the level of ethical behavior is inversely proportional to the distance of a person in power to those they affect. The further a person is away from those he or she affects, the easier it is to treat them unethically. That is, moral conviction may be inversely correlated to distance of observation (or not observing at all). This insight may be applied to institutions. As planning processes become increasingly distanciated, the potential for what Milgram termed the “moral proximity problem”, increases. Here I speak of moral duty, not only to people but also to the biophysical environment.
A similar criticism of exploitative power hierarchies is observed by sociologist Zigmunt Bauman, who in *Modernity and the Holocaust* (1989), examined the violent behavior of SS (Schutzstaffel) guards at Dachau and Auschwitz concentration camps during World War II. From his observations, he concluded that the construction of military and governmental power hierarchies combined with the conformism of German society, created a context that enabled SS guards to distance themselves from those at the bottom of the power hierarchy (the prisoners). This distanciation creates a mindset that reduces others to the sub-human, and it is this distance that weakens empathy and ethical standards. With exceptions, Bauman concluded that the mental health of the majority of the SS camp guards was within the normal range and that if these camp guards were to sit an entrance exam for any modern police forces, they would be considered acceptable candidates. It is this distanciation of both the increasingly elongated supply chain, as well as internationalized decision-making structures that has undermined the ethical treatment of the environment.

This effect, Bauman argues, occurs not only in micro-social relationships, but also in hierarchies of power such as institutions and corporate structures. The tendency of capitalism to create powerful hierarchies distances those at the apex of corporate or governmental structures and they are therefore more likely to ethically distance themselves from the impacts of their decisions. Following Weber, when applying his analysis to the institutional context, like the Schutzstaffel guards, those who work in institutions distance themselves from those impacted by their actions, by deferring upward to a distanciated authority who are in turn insulated by those in lesser positions of power. In this way, power hierarchies reinforce unethical behavior. The implication in the context of globalization is that internationalized value chains and decision-making processes are undermined by elongated distances between those who make decisions and those who are impacted by them.

This issue goes to the heart of the Sustainable Development debate which looks at the aspect of the relationship between power and social and institutional hierarchies. Murray Bookchin, who made famous the Social Ecology movement, argued that humanity would never rid itself of the desire to dominate or control others, including nature, until we rid ourselves of power and class hierarchies. This includes not only removing class divisions, but also other hierarchical forms of exploitation, such as gender, racism and economic disparity. Bookchin argues that it is the
creation of power hierarchies that has enabled the domination of others and nature to be normalized, and therefore to form the basis of bedrock policies and social structure.

In addition to the regional and institutional cooperation intended by the ARGs, the strategy includes other goals related to urban containment of sprawl and greater community cohesion through spatial design. These principles are examined in the following section.

**New Urbanism as a Theoretical Basis of the ARGs**

In Auckland, communities have demonstrated a history of attachment to low density housing or the image of a traditional single house surrounded by a quarter acre block of land. In response to growth pressures and recent urban intensification, many Aucklanders fear a loss of architectural integrity, cultural identity and express concerns at crowding and the overuse of infrastructure (Syme, McGregor, & Mead, 2005). As a consequence, the move to high-density or mixed-use zoning has been met with ambivalence and opposition. In the early 2000s, there was a backlash against infill housing when the residents of the Eastern suburbs formed the Residents Action Group to oppose these new developments. More recently, in areas such as Grey Lynn, the Positively Grey Lynn group formed in opposition to Auckland City Council plans to give consent to multi-story apartment blocks near and around the center of Grey Lynn. There was also a similar group in existence in Mount Wellington with the same purpose.

At the political level, concerns regarding the rate of Auckland’s expansion have been expressed since at least the 1960s. For example, in 1967, the Auckland Regional Authority’s (ARA) Regional Master Plan, predicted population expansion into outer lying suburbs of Orewa, Okura, Long Bay and others (Regional Growth Forum, 1997). In the same vein, the ARA’s 1976 Regional Growth Strategy suggested that there was only twelve years remaining capacity for infill housing. These predictions proved false as they were based on assumptions of size of housing choices i.e. that Aucklanders would not live in high-density areas such as apartment buildings. Since then Auckland has absorbed over 300,000 people, and will absorb a further million people in the following decades. Most recently, the ARGs has supported high-density housing. In addition, the Growth Strategy has adopted New Urbanist (NU) concepts in its spatial design.
New Urbanism seeks to reconfigure the landscape at three levels: metropolitan, neighborhood and street. By analyzing space at these levels, NU aims to generate environmental benefits by promoting high-density development and greater use of public transport, preserving historical boundaries of existing communities and by creating easily accessible, communal open spaces (Rees, 2003). Proponents of New Urbanism argue that community livability may be improved with the following attributes:

(a) Well-structured cities and towns with clear edges and the preservation of surrounding agricultural land and environmentally sensitive areas;
(b) Transit-oriented nodal development with mass transit within walking distance of most homes;
(c) Strong city centers and other community focal points with high quality public spaces and areas for community interaction;
(d) Neighborhoods which are compact with networks of streets designed to encourage walking and cycling through inter-connected streets and traffic calming;
(e) Diversity of housing types in the same neighborhood (apartments, row houses, detached homes) and mixed use areas with stores and commercial activities/ workplaces provided alongside residential accommodation;
(f) Use of design guides to control the look and feel of buildings and streets (Johnson & Weller, 2007, para 6).

A great deal of research has been carried out assessing the benefits of the application of these principles. Grant (1999) observes of NU housing developments in the United States that, instead of creating highly energy efficient, mixed-use neighborhoods, she notes a trend towards using New Urbanism as a form of branding “re-urbanizing the city, and simply creating cuter cookie-cutter suburbs”.24 That is, sprawl is being marketed as New Urbanist communities. Houses within these communities are often more expensive to build than traditional ones, as they are in many cases aimed at the more costly end of the market, having higher than average lot sizes. The creation of larger, more exclusive housing seems at odds with the NU aim of reducing social hardship by creating affordable housing (Congress for the New Urbanism, 2004). Other critics have noted that NU developments have not lived up to the claims of reducing private vehicle

distances traveled to work, as they are, in many cases, not well integrated with public transport corridors and employment nodes (Ross, 2003).

A further aim of NU is to create a greater sense of community cohesion through spatial design. This is achieved by generating opportunities for social engagement by creating privately owned but communally focused areas with little or no physical boundaries between buildings. Social contact is also fostered by discouraging the use of cars by creating greater connectivity via foot traffic corridors, usually located near transport or service provision nodes. By paying attention to such things as sight lines, New Urbanist designs are also intended to create a sense of safety and trust through collective community observation (Feller, 2003; Williams, 2000). In addition, it is claimed that NU builds heterogeneous communities by encouraging ethnic, religious and socio-economic diversity (Smith, 2002). However, Maccannel (1999) deconstructs this imagery, suggesting it to be largely false or a misleading marketing strategy, which creates a nostalgic myth, aimed at recreating an idealized image of post-war community, that this period supposedly entailed. The inability of NU to create socially diverse neighborhoods seems at odds with one of the “very important” desired regional outcome of multiculturalism, expressed in Table 8: Prioritizing Desired Regional Outcomes (DROs).

The NU ideal of achieving cohesive, heterogeneous communities is doubtful. Communities are more likely to have a greater level of cohesion if they share similar characteristics. For example, Dyckman (1961) argues that if a community is of a similar level of wealth, individuals will tend to have greater commonality and therefore a greater level of social interaction is more likely to occur. Talen (1999) also observed that social homogeneity was a stronger predictor variable for strength of community: “[R]esidents actively seek affiliation with a homogenous, like-minded social group and avoid heterogenous social interaction” (p. 1367). Talen thus concluded that there is therefore only a weak relationship between urban design and strength of community. In addition, there appears evidence that social solidarity and ethnic diversity may be negatively correlated (Anderson & Paskeviciute, 2006; Newton & Delhey, 2005). These authors’ communities characterized by ethnic diversity are more likely to be conflictive, generating a generalized sense of distrust.

The fostering of a sense of community through spatial design is also at odds with narratives in sociology that examine the socio-economic determinants of cohesion. The decline of ‘community’
was observed over a century ago by post Industrial Revolution sociologist Emile Durkheim (1964) who posited the shift from homogenous cultural groupings or ‘mechanical’ solidarity to social solidarity based more on mutual (usually economic) interdependence (specialization) or ‘organic’ solidarity. Durkheim observed that modern organic societies tended to produce a sense of what he referred to as ‘anomic’ separation. In 1883, Durkheim wrote *The Division of Labour in Society* (1964), in which he noted that as societies industrialize, work and other social roles take on a greater level of complexity. With greater complexity, also comes greater personal freedom, which results in less discernable mores or rules to guide social behavior. As societies industrialize and congregate in larger, more urbanized areas, social life becomes more impersonal and rationalized. This process was also observed by Max Weber (1930), who examined the development of the ‘disenchanted world’, where, due to urbanization, severed social bonds are replaced by ‘systems’. Moral authority is displaced, only to be replaced by an increasingly bureaucratized and ‘rationalized’ (bureaucratic) existence (Yar, 2003).

Other authors argue that we have seen an undermining of social connectivity through the movement of civil society to the private sphere (Rosenthal, 1998; Seligman, 1992). Similarly Putnam (2000), observes a decline in social capital, which he argues, is a loss of both civic virtue and political engagement as well as economic productivity. Here social capital refers to “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Colemen, 1988, p. 98). Putnam’s central argument is that:

“…social networks have value. Just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so too social contacts affect productivity of individuals and groups” (p. 19).

The existence of high levels of social capital entails a greater level of connectivity among people, and the trust derived from these relationships is also important. In this way, social capital is related to the notion of civic virtue. Building on Bourdieu, civic virtue is at its strongest when rooted in a densely interrelated network of reciprocal relationships. Social connectivity is underpinned by what Putnam refers to as “generalized reciprocity” (p. 21), which refers to a broad sense of mutual engagement and trust in the generalized other or wider society. Putnam argues that societies ordered by the notion of generalized reciprocity tend to be more efficient than those characterized by distrust. Stated differently, trust is a social lubricant for broader social life. As will be noted in Chapter IV, the decline in generalized reciprocity is linked to the decline in political participation
and community disempowerment. Similarly Riesman (1956) depicts a lonesome “other directed” city dweller, where contemporaries and the media are the most influential sources of ideology and values, providing heightened sensitivity to others while, paradoxically encouraging social isolation. Just as Putnam argues, in many cases, people spend much of their day in isolation, traveling to work, in front of a computer, or pursuing individual research. Traveling to work is most often carried out in isolation in vehicles or even on public transport. Leisure time has also become a far more individualized activity, whether in front of a television, the internet and increasingly in virtual reality (VR) worlds and potentially the total isolation created through advances in human to machine interface technology such as VR helmets. Virtual relationships are an increasingly pervasive form of community, the issue here relates to enduring debates in linguistics and semiotics vis a vis the relationship between the “signifier” and “signified” (Baudrillard, 1994). Hence:

Abstraction today is no longer that of the map, the double, the mirror or the concept. Simulation is … the generation by models of a real without origin or reality: a hyperreal. The territory no longer precedes the map… (Baudrillard 1988, p. 166, cited Heikkila, 2007).

The issue concerns the authenticity of representation, where the virtual community in effect undermines its own reality. In the absence of a reified relationship to the signifier (reality), the hyperreal has no link to any form of reality, all is virtuality and simulacrum.25 These questions however go beyond the purview of this research to adequately address at this juncture.

These narratives, when combined with the growth of an increasingly globalized workforce, displace the notion of the relationship between community and space. Lash and Urry (1994; 2000) noted the emergence of three types of transient ‘classes’. First, the unfettered economic (wealthy) elite who traverse the globe with ease. This group is far less attached to the physical communities they live in, giving rise to the thesis that wealth is strongly associated with greater distances traveled and less associated with place (Ahlbrandt, 1984). Their community is far more fluid, transient and short-term, where individuals have greater access to air transport and will go further to associate with those whom they have a relationship with.

25 This is not to say that the use of the internet or the creation of virtual communities cannot be used to augment democratic process and provide a linkage that parallels and reinforces social engagement.
A second ‘managerial class’ is also transient. This group moves often to oversee mergers, attend conferences, establish offices or carry out short term contract work. This group is also less attached to space moving from hotels to short-term rental accommodation. A third category of transience also exists, which is the underclass. This group often exists without the resources needed to gain adequate housing, and simply moves from place to place unable to afford long-term rent or a mortgage. For people living in this context, it affords fewer opportunities to engage in community strengthening activities such as participation in education, voluntary work or sporting activities. The actions of these three groups suggests a commitment to travel, whether by choice or otherwise, thus undermining the notion of community ties through spatial construction.

Through a reading of the above authors, the notion of creating community wellbeing through spatial design is spurious. New Urbanism appears to ignore more structural determinants of what constitutes a community. It further ignores socio-economic disparities as a driver for negatively affecting social cohesiveness and mentions little of the impact of globalization on the workforce. There appears to be questions relating to the role of technology in the creation of communities and its impact on the notion of civil society.

I turn now to an offshoot of New Urbanist principles, which is the application of principles of Smart Growth (SG), used by the ARGS.

The Application of Smart Growth in Auckland

As a derivative of New Urbanism, SG seeks to address the problems associated with urban sprawl and create improved community cohesion through spatial design methods (Calthorpe et al., 1991). SG emerged from the United States in the early 1990s and shares a number of elements of New Urbanism. This includes higher density housing, mixed-use zoning, greater investment in public transport (Duany, Plater-Zyberk, & Speck, 2001). At the city or regional level, SG is aimed at urban revitalization as well as the containment of urban sprawl through the implementation of Metropolitan Urban Limits (Williams, 2000).

As shown in Local authorities in Figure 8, (p. 48), Auckland, particularly in Waitakere and Auckland cities have fostered center-based development, for example Newmarket and Takapuna.
Areas such as Addison in Papakura and Harbourview in Waitakere have used New Urbanist principles (Magee, 2007). According to Magee: “the core toolkit for building our cities more sustainably is drawn from two major movements. The first, a design led approach, is called variously new urbanism or smart growth” (p.6). The examination of social wellbeing within the context of New Urbanism is closely linked to the secondary research question relating to the integration of social Sustainability within an impact assessment framework. The criticism of New Urbanist principles is that social issues are less able to be dealt with at the design level. The further implication is that social issues and the ARG’Ss Desired Regional Outcome of social wellbeing, cannot be adequately tackled without a focus on the more structural determinants of social dysfunction.

In order to gauge the efficacy of the SG model, it is useful to examine the lessons learnt from a real-life example. When examining the experience of Portland, Oregon and other cities in the US with urban growth boundaries (UGBs), it appears that such boundaries can be an effective means of containing urban sprawl, limiting the cost of public service provision and preserving productive agricultural land (Department of Land Conservation and Development, 1992). However, UGBs may not be without cost. Staley and Mildner (1999) argue that, due to the limitation of available land for housing, UGBs may cause an increase in the cost of housing, impacting on the middle and lower income earners. Others argue that housing prices are more strongly related to exogenous factors such as population growth or greater demand spurred by improved planning leading to better quality of life outcomes (Young, 1999). Still others argue that Portland’s experience with house price increases are little different to other cities in the US with more permeable boundaries, and may even be lower than others (Downs, 2002). Similarly, Richardson and Gordon (2004) in their comparison between Portland and the Los Angeles region, dispute that smart growth has had any discernable effect and may have made the situation even worse, suggesting that UGBs have restricted economic development, and led to, in fact, lower densities of the type discussed in the above section relating to exclusive New Urbanist housing developments. In addition, they may lead to higher per capita roading and lower public transport patronage rates.

Gow (2000) in his analysis of Portland concluded that even with extensive adherence to NU principles, particularly public transport, it remains an auto-dominated city, with the city’s mass
transit system contributing to just four percent of trips in the metropolitan area. When comparing Auckland’s experience with Portland, Gow further concluded that, similar to Portland, the consequences of the MUL have been steadily rising urban density and shrinking average lot size, as well as an increased cost of housing. Dravitzki (2007) in his study of the impact of MULs on housing prices also concluded that higher urban densities led to higher house prices.

Increased housing costs constitute a form of social dislocation and undermines the ability of the Growth Strategy to contain urban sprawl. As house prices go up, this creates a pressure to move beyond the urban boundary, leading to even higher vehicle miles, demand for inefficient infrastructure and more sprawl. This indicates a lack of connectivity to the social aspects of this strategy.

By failing to provide low cost housing alternatives, the ARGS has spurred Auckland’s housing boom and undermined its own objectives in relation to furthering social wellbeing. In addition, the 50-year strategy seeks to limit housing provision to growth nodes (see Figure 8: Growth Concept Map of Auckland, p. 48). In a report by economic consultancy Motu for the Centre for Housing Research, titled Housing Supply in the Auckland Region 2000–2005, it was found that of the 60,000 consents issues between the years 2000 and 2005, over 75 percent were outside the growth nodes. This signals a change of only seven percent following the Growth Strategy. The report concluded that the lion’s share of building was at the periphery of cities, most likely due to the availability of land in these areas. The report also concluded that the MUL had a strong effect on house prices, with properties inside the MUL costing significantly more. The implication is that housing prices are driving down home ownership rates and therefore undermining the socially inclusive aspects of the Growth Strategy.

As noted above in the section on institutional integration, the lack of housing provision demonstrates a disconnect between institutional goals of the ARGS and Transit New Zealand. The ARGS advocates higher urban densities while Transit advocates inter-regional transport goals which create roading projects which encourage allow private vehicles to travel further, generating more Greenhouse gasses and undermining the metropolitan Urban Limit. While housing provision is mentioned in the Strategy, the overall level of social housing provision remains low. According primary research, the reality is that councils are providing most houses in new growth areas to the detriment of other poorer areas which demonstrate a greater need.
is an issue of related to institutional integration. The inconsistent provision of social housing shows a commitment to new growth nodes, demonstrating a lack of systemic thinking, ignoring the region as a whole. By ignoring the region as a whole, the ARGS will tend to encourage social polarization. Newer areas of housing development will tend to have fewer members of low socio-economic status, and thus will exacerbate existing polarization. Social polarization is an effect that is contrary to the primary Desired Regional Outcomes given in the Strategy (see Table 8: Prioritizing Desired Regional Outcomes (DROs), p. 49). The lack of systemic thinking also shows a dislocation between government and council objectives. Had Housing New Zealand been involved to a greater degree, it might have led to more equitable outcomes. The SSD model, if applied, would make stronger linkages to national-level social equity outcomes, a linkage that would reduce the tendency of silo thinking.

The use of New Urbanism and Smart Growth as models on which to base the ARGS have been found to demonstrate significant flaws in assuming that social cohesion may be augmented through spatial design. Upon reviewing research on this topic one has to conclude that social cohesion may have only a limited relationship to NU approaches and applications. Without addressing structural determinants of social dislocation, NU and the ARGS will have only limited success in this area. The new SSD model makes direct reference to the structural determinants of social dislocation, relating them to the social externalities generated by free market political ideologies. Without the creation of policies aimed at reducing social disparity, this model will not live up to its aims of social wellbeing. I turn now to analyzing how the ARGS conceptualizes Sustainable Development.

The ARGS Poorly Defines its Model of Sustainable Development

The Strategy has a poorly defined model of Sustainable Development. It is a model that appears to be couched in terms of fluffy political rhetoric, without expressly examining the assumptions made by the model. This aspect is derived from primary research, which posed the question of: What sort of Sustainability framework does the ARGS have? As one interviewee replied:

There isn’t one. Not when we developed the strategy. Other people will say something different, but it wasn’t. People think this Growth Strategy went through a clear logical process
and it and a nice framework around it – it didn’t. It was a result of some issues that Auckland was facing, a failure of the politicians to get together and agree.

In this model, three areas social, economic and environment are identified. The reality of this model is that, while these areas are in theory related, in practice these areas are often treated as distinct areas. In addition, insight from primary research shows that the strategy is largely an economically focused document, created in the main to deal with population growth. Although Sustainability is stated as a key driver for the ARGS, it is questionable whether the main drivers for this are strongly related to Sustainability. In a Regional Growth Forum report titled “No or Slow Growth the Rationale, Policy Approaches, Techniques and Implications” (1998d), the commitment to the growth discourse is demonstrated with its intent to accommodate growth, listing a variety of economic benefits. An elaboration of the notion of a growth discourse is given in Chapter V. The ARGS as it stands is a policy document aimed only loosely at achieving SD.

One of the core elements of the strategy is Sustainability. Sustainability involves the interdependence of economic values, social values and environmental values... Managing and minimising (sic) the conflicts between and within these values will be the challenge to achieving Sustainability. The strategy aims to capture and enhance the synergies between these values to create a vision for a sustainable future for the Auckland region (Regional Growth Forum, 1999. p. 7).

The above “core element” appears to be couched in the language of fluffy political rhetoric, which uses the language of Sustainable development without specifying which model of SD it actually uses. In fairness, on the following page, a diagram is given of a model of sustainable development, one that is associated with Weak Sustainability (for a more in depth discussion see Figure 19, p. 184). Based on this model I conclude that this strategy is based on the principles of the Weak Sustainability paradigm. As I argue in Chapter V, this model is deeply problematic as it relies heavily on the principles of neo-classical economics, it fails to distinguish between qualitatively different aspects of social, environmental and economic capital. Nor does it allow for social Sustainability issues to be included fully into policy creation.

The above four areas of critique, namely market failure, institutional fragmentation, reduced democratic process, and a poorly articulated model of Sustainable Development, these issues form negative synergies which collectively undermine the success of a potentially successful growth strategy. The model developed in this thesis forms the basis of how such issues might be overcome.
Lessons Learned

In writing this chapter, the key lessons learned involve the historical processes that led to the predicament that the Auckland region presently faces; that is, a fragmented local government system, large areas of low density housing (sprawl), and associated Greenhouse Gas output, and an underutilized public transport system, all exacerbated by population growth.

This chapter highlighted one of the central deficiencies of environmental planning in Auckland – a tendency to discount the value of ‘strategic planning’. Strategic planning is not simply an academic exercise; it is a process intimately involved in social, economic and biophysical processes, as well as the everyday lifeworlds of those in its jurisdiction and beyond. As such, decisions made during the course of planning processes must be taken with a high level of analysis regarding the long-term implications of past and future development.

As noted in the above critique applied to the ARGs, the strategy entailed movement towards a regional mode of government in the form of the Regional Growth Forum. There have also been discussions towards creating a super city, or one local authority combining the Regional and District councils. Although in the context of this research, these tendencies are counterbalanced by the high level of democratization of New Zealand local government, most recently through the development of the Local Government Act 2002, the danger of this tendency is that structures grow in scale and power and the distance between those that decide futures and those who are subject to those decisions tends to increase.

The ARGs is a document that, by any measure, fails to live up to the notion of Sustainability. While a brief survey of all of the Auckland Region’s councils reveals a commitment to Sustainable Development, they have all signed on to an agreement that fails to come even close. The ARGS couches the various cities’ commitment to the growth discourse in a ‘green-washed’ terminology, one that pays only lip service to the notion of Sustainable Development. The research carried out reveals that Sustainable Development was only of secondary importance, one that was considered only after central issues and council agendas were explored. This thesis recognizes this shortfall and develops a model that is intended to create linkages between institutional fragmentation, not only within Auckland, but also outside of the Auckland Region. The model also develops a strong link between local communities and macro or central government level policy.
Democratic process is also enhanced by attempting to address social structures that create barriers to democratic participation.

The following Chapter introduces the core principles and processes of Strategic Environmental Assessment, in order to lay a foundation for the model developed in this research.
CHAPTER III: STRATEGIC ENVIRONMENTAL ASSESSMENT: PRINCIPLES, SCOPE AND PROCESS

Introduction

This Chapter introduces the principles and processes of Strategic Environmental Assessment (SEA). It traces the origins of SEA by examining its development from a methodology based on Environmental Impact Assessment (EIA) to one that expands the focus of EIA to one of integrated strategic thinking. This chapter will show that project level planning alone is an insufficient instrument to achieve Sustainability related outcomes. End of pipe solutions, while critical to achieving the mitigation of more obvious negative additions to the environment, are ill suited to changing more structurally complex and cumulative processes leading to environmental damage. As will be argued below, the achievement of SD implies nuanced social and economic change from governmental to individual behavior. Hence, three broad categories or levels of SEA are identified: that of policy, plan and programmatic SEAs. These categories suggest a hierarchical relationship to planning structures and processes, implying an easy fit to levels of government. However, as SEA has a Sustainable Development orientation, the relationship to IA structure should be viewed as more of a semi-lattice form (Alexander, 1988) or curvilinear in nature.

This Chapter then reviews the core principles of SEA, which attempt to integrate the demands placed on governments as they attempt to reconcile the competing and highly complex problems associated with achieving a high standard of living as well as SD. This Chapter reviews the primary models of SEA and identifies problematic aspects of its theory and application. The thesis draws on this analysis to create a model that addresses these issues.

As SEA remains in its infancy, it is appropriate to begin with its origins.
Origins of Strategic Environmental Assessment

Early attempts at impact assessment were based on technical feasibility studies, and in many cases, cost-benefit analysis (CBA). The use of CBA analysis dates as far back as the 1920s, but it was not until the 1950s and 60s that it became commonly accepted (Porter, 1995). Up to the 1960s, a number of major projects were proposed, for example, a third London airport, and the Aswan High Dam were assessed using CBA, both projects causing considerable public interest (Clark, 1983). Projects of this nature were analyzed from technical feasibility, economic or political perspectives but rarely incorporated environmental, social or health impacts. As a result, these developments caused a range of unforeseen or indirect environmental impacts. In Aswan, for example, the reduction in flooding caused a loss of nutrient flow to farmland, which in turn led to lower agricultural productivity resulting in a significant reduction of economic benefits derived from the project (ibid.).

The methodology of CBA standardizes the costs and benefits or economic values into a common metric, usually money, of a proposed project. It calculates these positive or negative factors over a given time horizon in present-day or discounted dollars. Similar to EIA, CBA is a quantitative method for assessing a broad array of complex impacts and provides a process akin to ranking and weighting approaches to decision-making (Petts, 1999b). CBA provides three main benefits.

First, it is seen as a method of avoiding policies that have exacting standards and high compliance costs, but have marginal value. By quantitatively comparing the costs and benefits, it allows decision-makers to allocate funds in the most productive or efficient manner. Second, in the world of resource scarcity, it simplifies the process of deciding on trade-offs in a more rational manner by creating a more robust method of risk calculation. This reduces the risk of decision-making being based on uninformed or inaccurate information. Finally, by seeking to maximize utility, CB analysis is derived from utilitarianism and thus lends itself to egalitarianism, with every interest been given equal weighting (Bryner, 2006).

CB analysis also plays a dominant role in analyzing political actions, but it has also attracted three main areas of criticism. Langlois (1982) observes that CB analysis is linked to an instrumentalist understanding of rational action, adopting an ahistoric perspective, that is to say, it is solely concerned with goal maximization, reducing all (including the rights of humans) to the status of a
means to an end. The non-utilitarian perspective is largely derived from Kant, who to paraphrase, asserted “do not to others what you do not want to happen to you” (cited in Richard, 2001, p. 76). Similarly, Nozick (1981) rejects the means-to-an-end perspective, arguing that people cannot be regarded in the above light suggesting that people are an end in themselves and therefore should not be regarded as simply a source of maximization. Slavery, for example, may have served an economic purpose, yet few would dispute its immorality, nor would we accept the death of a person as an acceptable price to pay in order to achieve a given end. Yet, hospital management commonly make these types of scarce resource allocation decisions which affect many people’s lives (Arler, 2006). Similarly, environmentalists argue that the construction of a toxic waste emitting facility that generates significant economic benefits to the wider community, yet also poses significant environmental or health risks for those who live near it, cannot be justified (Been, 1994; Bullard et al., 1999).

CB analysis quantifies impacts to the common metric of money. This process carries with it an impression of objectivity, which can be misleading. CBA is typically only able to quantify those costs and benefits which readily lend themselves to quantification. Other values such as the emotional cost to people of, for example, the loss of wilderness land or civic engagement, will not feature strongly in this model. Although money is a critical element in achieving the necessities of life through the process of the wealth creation and the division of labor, it was Aristotle (1996) who argued that we should avoid turning all qualities into money-making activities as if they were an end in themselves. He thought that should this occur, humans would become slaves to an insatiable desire without limit, leading to excess and the loss of social cohesion.

CB analysis uses discounting to incorporate peoples’ future time preferences and inflation to compare value in present-day dollar terms. The result of this is that future costs when subjected to discounting, after a short span of time, are reduced to almost zero. Thus environmental values may appear insignificant, which in turn undermines notions of intergenerational equity (Organisation for Economic Cooperation and Development, 2006c).

In the United States in the 1960s, a driver for greater inclusion of environmental issues was the public’s reaction to Carson’s *Silent Spring* (1962), which raised issues about pesticide contamination and its potential for human impacts (Graham, 1970). Following the activism of the
1960s, a high point was the Earth Day concert in 1970. Similar to Woodstock,\textsuperscript{26} the Earth Day was an event that combined the hedonism of the period with the ‘counterculture’ of the 1960s (Gottlieb, 1993). The ground for this activism was laid by America’s earlier involvement in Vietnam and the opposition it created. The experience gained by opposition groups from these political actions gave them a range of organizational skills and experience that readily transferred over to environmental activism. This social dynamic also had its counterpart in policy. After a decade of intense political effort, the enactment of the National Environmental Policy Act 1969 (NEPA), along with a host of other major environmental statutes, established standards for water, air, wildlife as well as the requirement for EIA of major federal actions.\textsuperscript{27}

The requirement for EIA within NEPA made it commonly applied both in the US and internationally, with many other countries following suit, enacting their own environmental laws requiring EIA. Following NEPA, EIA was introduced into policy in Australia in 1974, Thailand in 1975, France in 1976, Philippines in 1978, Israel in 1981 and Pakistan in 1983 (Overseas Environmental Cooperation Center, 2000) and New Zealand in 1973.\textsuperscript{28} EIA was also introduced throughout the EU in 1985 (EC Directive 85 / 337) which made EIA compulsory under specific circumstances. EIA is now applied in some form in most countries throughout the world.

In the US, despite strong support for environmental principles amongst the American public, consensus on environmental issues was never achieved. This conflict had its corollary within the EIA methodology. When it came to issues that were conflictive, such as economic development and its associated environmental impacts, or more simply stated, the perception of job losses versus environmental preservation, EIA was unable to create an effective trade-off mechanism (Wolf, 1983). When combined with developments in environmental science and of pollution control technology, this incapacity led to a greater deferment to scientific empiricism. EIA thus created a mechanism for turning normative or value statements into scientific ones. While in one sense, this

\textsuperscript{26} Woodstock occurred in August 1969, attracting over 500,000 people. It has been defined as the height of the so called ‘hippie’ generation (Gottlieb, 1993).

\textsuperscript{27} There were some environmental laws passed prior to NEPA such as the Clean Air Act in 1963, but most were passed after 1969, for example, the US Safe Drinking Water Act 1974; the Clean Water Act 1977; the Resource Conservation and Recovery Act 1976; the Comprehensive Environmental Response, Compensation Liability Act 1982; the Hazardous and Solid Waste Amendments and Reauthorization Acts 1984; and the Superfund Amendments and Reauthorization Act in 1986. These Acts are closely related to the NEPA process (Moore, 2000).

\textsuperscript{28} Ministry for the Environment (2005c).
remains a strength, as it reduces the risk of bias and encourages a systematic examination of issues, it also has the potential to create a conflictive mechanism between values and science, as Wolf observes:

Failing that consensus, we are left with a patchwork of environmental standards that are science-based to some extent [however]... there can never be enough scientific research to establish them conclusively... A viable and defensive system would, of course, require both (1983, pp. 25 – 26).

In this way, EIA distinguished itself from CBA by attempting to bring into the equation an analysis of human values (in non-monetary terms). This is argued cogently by Patterson:

Any assessment of environmental impact -- to be meaningful -- must necessarily be built on upon assumptions as to public attitudes as well as on technical findings. Our benchmarks for clean air, clean water, or clean streets, have less to do with a definable “degree above zero” than with what various members of the public consider acceptable or attainable. No matter how accurately the probability and magnitude of, say, certain fish kills are quantified, the impact of such kills is essentially subjective, loaded with emotional factors, not amenable to cost-value analysis. It is the impact of a particular set of findings or predictions on the minds of men (sic) -- not the impact of the pollution on the environment per se -- that is our key unknown (cited in Wolf, 1983, p. 28) [underscore in original].

It was insights such as these that led to the creation of a model that included a greater environmental focus and the social impacts of environmental actions on affected communities. While the integration of other applications of IA methodologies was beginning to occur, the limitations of project-level EIA were also recognized. It began to be recognized that the underlying difficulty with EIA is that it is normally conducted only at the project level, well beyond the point at which critical or policy-level decisions have already been made. Indeed, it was observed of early EIAs that fewer than a quarter evaluated alternatives (Thérivel, Wilson, Thompson, Heaney, & Protchard, 1992). The scale of application generated other methodological issues.

While the science of Sustainability was far less advanced in the early 1980s than it is in the present, for example, Climate Change was only poorly understood and was treated with a great deal more skepticism than today, other issues such as the impacts of sulfur dioxide (S02) were known about. However, these impacts were of a scale that could not be addressed by a standard, project-level EIA. A coal powered electricity generator would be treated on a project-by-project basis, with little effort being applied to the cumulative impact of many individual stations. In addition, the assessment of alternatives to project sites may already possess political baggage, as the decision to site a project may be the result of a political trade-off, as opposed to making a
decision based on more environmental criteria. Thus, a proper EIA may in itself be limited in scope to a narrow range of options.

EIA originated from technical feasibility studies and CBA, which included only a very limited range of environmental and social issues into the impact assessment process. EIA has become a highly successful methodology for assessing environmental impacts throughout the world, being applied to a broad range of projects. Application at the project level only has in turn exposed the limitations of the EIA model, in its lack of focus on strategic or cumulative impacts. The lack of strategic focus been the driver for creating a second generation EIA in the form of Strategic Environmental Impact Assessment, to which I now turn.

The Need for Strategic Environmental Assessment

As EIA became an accepted methodology being applied to a range of projects, as well as being codified into law, it was presumed that, as knowledge and experience of the process developed, EIA would eventually be applied to larger and more complex projects and policies. This view remains at present, for example, Fischer (2002a) concludes that the same principles that apply to EIA also apply to SEA, rejecting any suggesting that SEA is significantly different from EIA.

From the mid 1980s onwards, interest in SEA emerged from the practice of EIA and issues concerning its application (or lack of) to policy. It was acknowledged that EIA by itself was inadequate to achieve sustainable development (Petts, 1999), as Stinchcome and Gibson observe:

SEA emerged as a subject of deliberation and experimentation in part out of, and in response to the limitations of, environmental assessment at the project level. In particular, it is a response to the tendency of project-level assessments to be reactionary (examining already selected and often already designed undertakings), narrow (failing to address cumulative impacts), and poorly integrated into broader political and economic processes (2001, p.346).

Like EIA, the concept of SEA also grew out of issues related to land-use planning in Europe and the US, which led to the creation of NEPA. NEPA required that legislative proposals that were of a strategic nature be subject to an anticipatory environmental evaluation. The earliest reference to SEA was the interim area-wide impact assessment guidebook published by the U.S. Housing and
Urban Development Department in 1974 (cited in Partidario, 2004). Following this, programmatic environmental assessments have been applied programs in the US (see Table 14 below). Many countries' interest in SEA was created principally as a response to the above limitations. A consequence of this was that EIA was thought to be too limited in scope to deal with large-scale strategic and cumulative or synergistic effects. Cumulative effects can take five broad forms.

Synergistic consequences where several projects’ total impacts are greater than the sum of their individual parts - where impact A + impact B have a total impact of more than A+B: for instance NOx emissions and ozone emissions which together cause smog, which has impacts over and above those of just the NOx + ozone.

Indirect, secondary or induced impacts: impacts that occur several steps away from the original action, for instance new houses that generate more vehicle movements that increase air pollution that affect the flora in an area.

Global impacts: impacts that go beyond the local, project level, for instance Climate Change (Therivel, 2006).

Cumulative effects where individual projects have little effect, but collectively have large effects (Harvey, 1998) when assessing several marina proposals for the Spencer Gulf in South Australia. In this development, the State Government needed to develop a Marina Location Policy which would provide a framework against which individual projects could be assessed through EIA.

Threshold / saturation impacts, where the environment may be resilient up to a certain level and then becomes rapidly degraded. An example would be a stream that is self-purifying up to a given level of pollutants and then loses its self-purification ability (Therivel, Wilson, Thompson, Heaney, & Protchard, 1992, p. 20).

A further limitation of EIA is temporal impacts, which may be exposed only after a significant period of time. In many cases, economic development has long-term impacts that accumulate far beyond the lifespan of the project. EIAs are typically short-term and therefore may be unable to predict and deal with the gradual build-up of toxic elements in the environment. A similar criticism is applied to EIA when considering global-scale impacts. The nature of global impacts such as global warming or sea pollution is complex and requires a strategic approach, involving a far longer timeframe, multiple actors and a range of different methodologies employed. SEA is qualitatively different to EIA in the sense that it has far longer timeframe, geographic spread and involves a greater focus on the inclusion of a wider range of interested parties, particularly low socio-economic status groupings.

29 A synergistic effect is where a number of different projects have impacts that are greater than the sum of their individual effects.
In addition, EIA may in some cases be unable to consider alternative projects or siting proposals, and when it does occur, the comparison of these projects may not be considered in a timely manner (Kjorven & Lindhjem, 2001). The timeframe for preparing an EIA may often be determined by other factors, for example, financial constraints, mandatory planning document reviews, and external political events. This can result in EIAs being compressed into a less than optimal timescale. This limits the collection of baseline data, it may also influence the quality of research as well as expertise being brought in too late into the process to make an adequate contribution (Thérivel, Wilson, Thompson, Heaney, & Protchard, 1992). Hence, there is a tendency for EIA to address options that may have been previously decided:

because EIAs take place once many strategic decisions have already been made, they often address only a limited range of alternatives and mitigation measures; those of a wider nature are generally poorly integrated into project planning (Thérivel & Partidario, 1996, p. 8).

Thus, from a SD perspective, EIA may be only capable of dealing with sustainability reactively, lacking the tools to address the deeper, structural causes of unsustainable practices. According to Dovers: “EIA identifies and instructs how to ameliorate the environmental impacts of the symptoms of unsustainable use of the environment but does not address the cause” (Dovers, 2002, para 2). Thus the introduction of SEA allows the problems of EIA to be more optimally addressed by examining the policy implications far earlier in the process. From the above literature, a number of differences between the two (complementary) models emerges; these differences are summarized in the following Table 13.
Table 13: Comparing EIA and SEA

<table>
<thead>
<tr>
<th></th>
<th>EIA</th>
<th>SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carried out by</td>
<td>Commissioned by private developers</td>
<td>Carried out mostly by governmental agencies</td>
</tr>
<tr>
<td>Decision making level</td>
<td>PPP&lt;sup&gt;30&lt;/sup&gt;</td>
<td>Project</td>
</tr>
<tr>
<td>Nature of action</td>
<td>Is reactive to a development proposal</td>
<td>Is pro-active and informs development proposals</td>
</tr>
<tr>
<td>Outputs</td>
<td>Detailed</td>
<td>General</td>
</tr>
<tr>
<td>Scale of impacts</td>
<td>Addresses a specific project</td>
<td>Addresses areas, regions or sectors</td>
</tr>
<tr>
<td>Time scale</td>
<td>Has a well defined beginning and end</td>
<td>Is a continuing process aimed at providing information at the right time</td>
</tr>
<tr>
<td>Key data sources</td>
<td>Field work, sample analysis</td>
<td>Sustainable development, strategies, state of the environment reports, visions</td>
</tr>
<tr>
<td>Breadth of analysis</td>
<td>Assesses direct impacts and benefits only</td>
<td>Assesses cumulative impacts and identifies implications and issues for Sustainable Development</td>
</tr>
<tr>
<td>Focus</td>
<td>Focused on the mitigation of impacts</td>
<td>Focused on maintaining a chosen level of environmental quality</td>
</tr>
<tr>
<td>Type of data</td>
<td>More qualitative</td>
<td>More quantitative</td>
</tr>
<tr>
<td>Alternatives</td>
<td>Narrow perspective and a high level of detail</td>
<td>Wide perspective and a low level of detail to provide a vision and overall framework</td>
</tr>
<tr>
<td>Rigor of analysis</td>
<td>More rigor</td>
<td>More uncertainty</td>
</tr>
<tr>
<td>Assessment benchmarks</td>
<td>Sustainability benchmarks (criteria and objectives)</td>
<td>Legal restrictions and best practice</td>
</tr>
<tr>
<td>Role of practitioner</td>
<td>Advocator of values and norms, using stakeholder values</td>
<td>Mediator for negotiations</td>
</tr>
<tr>
<td>Public perception</td>
<td>More reactive (NIMBY)&lt;sup&gt;31&lt;/sup&gt;</td>
<td>More vague, distant</td>
</tr>
</tbody>
</table>


Table 13 brings out the following points of differentiation. The first major difference between the models is that SEA is most often (but not always) carried out by public agencies and is overseen by government; in contrast, EIA is most often commissioned by private developers.

EIA tends to take place at the end of the decision-making process and is therefore often a reactive approach to a development proposal, resulting in mitigation after the fact, whereas SEA is intended to take place at an early stage in the planning cycle and takes a proactive approach to the development of proposals.

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<sup>30</sup> Policy Plans and Programs

<sup>31</sup> NIMBY - Not in My Back Yard (Fookes, 1999).
While EIA assesses the impact on a specific proposal and its impact on its surrounding environment, SEA takes a much broader view and attempts to integrate the needs of the environment on development. This may be seen in how EIA is applied in terms of area. While EIA is applied typically to geographically small projects, SEA often covers larger areas, regions or watersheds and policies which may be as large as countries or even extended to trade agreements. This allows for the evaluation of trans-boundary impacts and multi-jurisdictional issues.

The scope of applications also varies temporally. EIA tends to have a well-defined beginning and end; in contrast, SEA is often an ongoing process or series of iterations, following the development of policy, regime changes and development over long periods. SEA recognizes that environmental horizons may be quite different to human planning horizons. EIA tends to more short term in nature. This is in turn related to where the ‘strategic’ comes into SEA. As EIA is applied often after the project has been designed, it focuses on mitigation. SEA focuses on maintaining and improving (or even creating) a given environmental context. As EIA is project-focused it is able to provide a high level of detail, while SEA addresses larger, more complex system, it can only provide a broader overview with less detail.

The notion of what constitutes ‘strategic’ is a term common to both SEA and planning. The Cambridge dictionary defines strategy as “a detailed plan for achieving success in situations such as war, politics, business, industry or sport, or the skill of planning for such situations.” The notion of strategy is often associated with military or corporate objectives. In terms of SEA, strategy involves the coordinated process where alternative policies are evaluated according to the application of often pre-defined principles and ends, such as, but not limited too, Sustainable Development. Noble (2000) argues therefore that SEA is a:

process or means that leads to a strategy for action. The key component in SEA is strategy – the art of the general; the prelude to the beginning; the determination of objectives and means, and the adoption of courses and action to achieve specified goals (p. 206).

Despite claims to the contrary, planning often favors short-term change over the long term, largely because methods of forecasting tend to be weak. As is the case for planning in New Zealand,

32 The Cambridge dictionary is available online at: http://dictionary.cambridge.org/define.asp?key=78677&dict=CALD.
strategic planning is often tied to budgetary planning, which also focuses attention on short term
goals. As a result, the long term often does not count in the real world. The Auckland Regional
Growth Strategy is an exception to this. A further driver of short term thinking may be an over
reliance of formalized systems. Mintzberg (1994) observes what he refers to as the “fallacy of
formalization” (p. 18). This refers to the strategy formulation process which is often immensely
complex, involving sophisticated, nuanced, and even sub-conscious human cognition within the
context of wider social systems. The formulation of strategy therefore draws on many kinds of
informational inputs, many of which are unable to be quantified. As a consequence, some types of
information may be only available to those who are deeply connected to the process, as opposed
to those viewing and synthesizing information in a detached or formal way. The development of
strategies involves the interaction of such complex variables that emergent properties appear,
even when engaged in a formal process. The discovery of such qualities may even play a pivotal
role in the final development of strategy. The strategy formulation process requires a degree of
insight and creativity as well as informational synthesis. The formalization of strategy formulation
processes tends to undermine this. Consequently, the lack of success of strategic planning is
failure of formalism. In Mintzberg’s words:

The failure of strategic planning is the failure of formalization systems to do better than or
even nearly as well as flesh and blood people. It is the failure of forecasting to predict
discontinuities, of programming to provide creativity, of hard data to substitute for soft, of
scheduling to handle the dynamics. It has become clear that the systems have offered no
improved means to deal with the information overload of human brains; indeed, often they
have made matters worse. The mechanical combination of information did not solve any
fundamental problem that existed with human intuition. All the promises made about ‘artificial
19).

As a consequence of formalizing the IA process, the danger that SEA and planning risk is over
analysis and over-supervision of systems, in the name of efficiency and transparency, at the
expense of long-term goals. An example of this is drawn from the primary research. When
commenting on a strategic plan to manage agricultural land in the Franklin District one planner
commented:

That study was done by four people.... We had something like 100 years’ service at the ARC,
the four of us. We bought together an immense amount of knowledge and we wrote it up in
the form of an essay. It’s highly readable. We then took it out to the community, we had great
reaction from the private sector who liked it, they could understand it and we had people like
[name] saying “Get on and implement it can you.” And we want some certainty, go ahead and
do it. We had some initial reaction from the local councils in favor but then you haven’t quantified it. We want to see all the logistics that go with it. And then and that’s where, eventually it fell down by, it wasn’t one of those studies. We didn’t go and do that. We’d set it all out in a subjective way where you could read it and understand it without tables and tables to give you the guts and whatever.

This planner refers to the issue of over-analysis or over-quantification. This issue is of relevance as it speaks to the issue of over supervision, or the culture of heavy accountability applied because of the application of New Mangelialist practices. The upshot being that over or overly formal process-orientated demands may significantly reduce the effectiveness of whatever process is adopted. This may be a reflection of the sense of defensiveness generated by the legalistic interpretations of planning processes. That is, planners are having to create processes that is motivated on some level by legal defendability and therefore far more inclusive of information and research that may be of little real value. For further discussion of the issue of over-accountability, see the following Chapter IV, The Effects of Neo-liberal Reform on Local Government, p. 155). The problem of over accountability culture also related to the issue of integration. By contractually defining roles in the planning sphere, the system creates specialists. Specialists, by definition, are only responsible for their immediate area of influence. From both an academic and practice perspective, this leads to a lack of issue connectivity. This problem was identified by primary research where some of the respondents noted that good policy creation required of planners a high level of understanding of the complexities of the planning environment. The creation of specialists tends to undermine this requirement.

This section has shown the differences between EIA and SEA, particularly in the areas of the level of project, plan or policy focus, the scope of impact assessed by the two methods and the level of strategic thinking. The section then went on to discuss the issue of over-formalization of process, concluding that a culture of over accountability may be detrimental to the substantive goals of the IA process.

I turn now to a section that briefly outlines the various models of SEA
Models of SEA

Partidario and Clark (2000) have brought together a range of Types of SEA (Figure 10) and expressed them as a series of categories. This method of reviewing SEA practice and categorizing it is common in the literature; further discussion of these categorizations now follows.

Figure 10: Types of Strategic Environmental Assessment

<table>
<thead>
<tr>
<th>Trade Agreements</th>
<th>Policy</th>
<th>Plans</th>
<th>Program</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EIA</td>
</tr>
<tr>
<td>Trade Agreement SEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy SEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative IA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional SEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sectoral SEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Partidario and Clark (2000, p. 9)

Figure 10 shows that SEA is applied to, and has been established predominately in sectors such as land-use planning and transport (Healy, 2002; Sadler, 1996) and energy and waste management. However, the application of SEA to sectors such as water management, industry, agriculture and tourism is still infrequent (European Commission, 1997). In addition, Sadler (2005) identifies two further categories of SEA:

1. Near-equivalent processes that correspond to SEA in their aims and elements of approach but are applied informally or flexibly as part of policy or law-making

2. Para-SEA processes and elements, which have the same function as formal SEA processes but only some of their characteristics (p. 2)

Cherp and Hogskolan (2004) have also identified the potential for SEA to be applied to corporate environmental management systems. As government functions have in many countries become linked to the private sector in the form of privatized utility provision and contracting out services,
many governments now manage their service delivery functions in a more business-like fashion. In addition, corporate entities are increasingly being viewed as a major source of environmental impact, but also as active agents in the creation of private-public partnerships that are environmentally significant, carrying out not only EIA but also beginning to engaging with SEA (Nierynck, 1997). Evaluating this area, however, goes beyond the scope of this research.

Sadler and Brook (1998) identify two main types of SEA. Model (i) promotes environmental and socially sustainable development (ESSD) by

- anticipating and preventing adverse effects at source
- considering and identifying best practicable environmental options
- ensuring policies and plans are consistent with ESSD goals and safeguards

(ii) The second model seeks to strengthen and streamline project EIA by:

- environmental “clearance” of policy and planning issues that are addressed either ineffectively or not at all by EIA (need, justification and major alternatives);
- early warning of cumulative effects from programmatic or other, spatially related actions;
- pre-examination of potentially significant effects of specific proposals, thereby reducing the time and effort necessary for EIA (when it can be tiered to SEA as described later) (Cited in Abaza, Bisset, & Sadler, 2004, p. 92)

This section provided a definition of SEA, noting a variety of similar or para-SEA processes. It defined a general process of SEA, which was used as a basis for later critique. The section also briefly examined national level SEA, noting a lack of application at this level.

**Levels of Impact Assessment**

As Partidario and Clark (2000) illustrate, it is quite common to find SEA categorized by differentiating between policy, plans and programs (Sadler, 2001; Sadler & Verheem, 1996; Therivel, 2004) with the terms defined as follows:

**Policy** – a general course of action or proposed overall direction that a government is, or will be, pursuing and which guides ongoing decision-making
**Plan** – a purposeful, forward looking strategy or design, often with coordinated priorities, options and measures, that elaborates and implements policy

**Program** – a coherent, organized agenda or schedule of commitments, proposals instruments and / or activities that elaborates and implements policy (Department of Environmental Affairs and Tourism, 2000, p. 8)

Table 14 distinguishes between the three levels or categories of SEA. Policy impact assessment, as the name suggests, assesses the impacts of proposed policies or ones already in existence.

### Table 14: Differentiation Between Levels of SEA

<table>
<thead>
<tr>
<th>Types of SEA</th>
<th>Status and Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy SEA</td>
<td>To be prepared at the earliest stage in the planning cycle&lt;br&gt;To consider scenarios&lt;br&gt;To assess any option that can lead to previously defined objectives&lt;br&gt;To consider regulatory, fiscal and economic measures and inter-modal alternatives</td>
</tr>
<tr>
<td>Sectoral SEA</td>
<td>To consider a selected number of environmental and socio-economic impacts in a cumulative and inter-sectoral manner</td>
</tr>
<tr>
<td>Plan SEA</td>
<td>Can be used to refine policy options&lt;br&gt;Is fully integrated into the PPP formulation&lt;br&gt;To be applied between policy-SEA and program SEA&lt;br&gt;To focus on environmental impacts&lt;br&gt;May include only parts of the geographical area covered by policy-SEA (i.e. improving accessibility within defined areas)</td>
</tr>
<tr>
<td>Program SEA</td>
<td>To be applied in the latest stage in the planning cycle&lt;br&gt;To use multi-criteria analysis or cost-benefit analysis&lt;br&gt;To rank those projects being passed on from plan-SEA&lt;br&gt;To assess environmental and socio-economic impacts with the same framework</td>
</tr>
</tbody>
</table>

Source: (adapted from Fisher, 2002 p. 236)

Sectoral SEA examines the potential for environmental impact of projects within a specific sector, such as energy or transport. Plan level SEA may be applied more specifically to refine policies. Programmatic SEA primarily refers to the analysis of federal or state actions in the United States.

In this context, there is a hierarchy that exists between policies, plans and programs, beginning with policies. Although in the practice of SEA, the differences between the terms are not particularly clear (Wiseman, 2005) as elements of other categories may exist at other levels of analysis.

This may be seen with examples of applications of SEA at all levels of government. On an even larger scale, a number of SEAs have been conducted on the global or continental scale. These
examples have been carried out in order to construct a baseline for improved global-scale SEA, and these include the Global environmental outlook by UNEP (United Nations Environment Programme (sic)) in 2000, the World Resources Report by the World Bank in 2000 and Europe’s Environment: The Third Assessment in 2003 (Dalal-Clayton & Sadler, 2004).

National-Level SEA

The application of SEA at the national level remains rare even though a number of countries mandate it in some form. While there are national-level SEAs in some of member states of the EU, the SEA Directive does not require national-level SEA and so there are few working examples. Overall, it is clear from the literature on SEA practice that there is a wide variation of approaches, and given the increasing level of interest in environmental issues, by governments, it is clearly a potential for future development.

In New Zealand, while the Resource Management Act 1991 has provision for national-level Policy Statements (National-level SEA), only one is mandatory (the New Zealand Coastal Policy Statement) and no others have been established. The same can be said for national-level SEA in the United States. This does not imply that policy through to plan-level SEA corresponds to levels of government. Policy-level SEA is carried out at the regional level, for example, in New Zealand, the Canterbury Regional Council Policy Statement. Similarly, a plan-level SEA will have elements of policy. Table 15 provides a summary of national-level frameworks for the application of SEA by selected countries and organizations.
### Table 15: National-Level SEA Frameworks

<table>
<thead>
<tr>
<th>Country</th>
<th>Provision</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>Prime Minister’s Office circular (1993, amended 1995 &amp; 1998)</td>
<td>Minimum procedure, separate from project EIA (ibid.).</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Resource Management Act 1991</td>
<td>No definable procedure; part of “effects-based” policy and plan-making. For the preparation of District or Regional plans, s32 requires TAs to consider alternatives to accomplish the environmental outcomes sought. s32 essentially tests the most appropriate means or the suitability of selected methods. s35 of the RMA also requires TAs to monitor the effectiveness of policies (Dawson, Barnett, &amp; Purves, 2005).</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>A Better Quality of Life: A Strategy for Sustainable Development for the UK (UK Department of the Environment Transport and the Regions, 1999)</td>
<td>This policy places a strong emphasis on the social dimension of Sustainability as opposed its economic and biophysical dimensions (UK DETR, 1999).</td>
</tr>
</tbody>
</table>

### Policy-Level SEA

Policy-SEA refers to scenarios that are broad-scale, assessing impacts of policy alternatives that are often in the form of visions or general strategies (Fisher, 2002). Examples include the assessment of policy proposals for cabinet approval in Canada, the assessment of proposed legislation in the Netherlands (Environmental-Test) and similar legislative evaluation carried out by
the government of Denmark as well as in the UK (Partidario, 2003; Therivel, 2004). The term policy is understood to include the following three areas:

- Legislation including draft bills, regulations, rules and agreements
- Government strategies, papers, memoranda or statements of intent that outline new policies or proposed directions or options at the highest level, and
- Norms, guides, principles or arrangements that are understood or acted upon as if they were policy or law (Sadler, 2005, p. 2)

In the United Kingdom, Policy-SEA can be in the form of a white paper or an announcement made through the media that has a range of goals cross-cutting other policies (Noble, 2000). The UK has a non-statutory system that has existed since 1991. In addition, the UK environmental appraisal system covers central government policies, land use plans at the regional and local level, as well as programs for various sectors. As early as 1991, the UK government has demonstrated a commitment to assessing the environmental effects of policies, giving detailed assessments of policies, which are needed for cabinet approval. In addition, departments have created the role of green ministers whose role is to assess impacts of departmental policies. Although while commendable, this appears to apply more to the Sustainable Development of government ministries, as opposed to achieving the SD of Britain. At the local authority level, while no statutory requirements exist, the Planning Policy Guidance note 12 requires local authorities to carry out environmental appraisals of development plans (Wiseman, 2005). Examples of types of initiatives (not called SEA) include the National Energy Policy in the United Kingdom, as well as the proposed London Project, the Strategic Futures initiative as well as planning guidance launched in 2004, concerning planning procedures for air, water and management of polluted land (Office of the Deputy Prime Minister, 2004a).

In 1999, the UK adopted the policy titled A Better Quality of Life: A Strategy for Sustainable Development for the UK (UK Department of the Environment Transport and the Regions, 1999).

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33 The proposed London Project is not an SEA; however, it is a large-scale strategic document covering a range of issues that relate to Sustainability outcomes, for example, public transport, social isolation and car usage (Prime Minister’s Strategy Unit, 2004).

34 The Strategic Futures initiative is a national-level, cross-governmental (including the EU) future-orientated exercise designed to examine issues relating to the environment, public transport, demographics and economic globalization (Prime Minister’s Strategy Unit at: http://www.pm.gov.uk/output/Page696.asp).
This policy statement intends to go beyond biophysical and economic Sustainability and includes a focus on social wellbeing. In New Zealand, examples such as the National Biodiversity Strategy have also occurred. However, as the UK is a signatory to the SEA Protocol, most SEAs in Britain are still carried out at the plan or programmatic level. Table 16 gives examples of recent SEAs carried out at the policy level.

Table 16: Policy-Level SEA

<table>
<thead>
<tr>
<th>Country</th>
<th>SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Local Agenda 21 (Sheate et al, 2001)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>4th National Environmental Policy Plan (Netherlands Ministry of Housing, Spatial Development and the Environment, 2003)</td>
</tr>
<tr>
<td>Canada</td>
<td>Framework for SEA of Trade Negotiations (1999) (Sheate et al, 2001)</td>
</tr>
<tr>
<td>EU</td>
<td>EU Sustainable Development Strategy (National Strategies for Sustainable Development) (<a href="http://www.nssd.net/key_docs.html#key">http://www.nssd.net/key_docs.html#key</a>)</td>
</tr>
</tbody>
</table>

Plan-Level SEA

A plan may be defined as “a purposeful, forward-looking strategy or design, often with coordinated priorities, options and measures that elaborates and implements policy” (European Commission, 1999, p. 12). Therefore, plan-level SEAs are often carried out at the level of the decision-making tier below policy-level SEA. They are enacted mostly for examining spatial alternatives, for example studies of transport corridors or the suitability of land for development (Table 17). As they fall beneath the policy level, they tend to be less strategic in nature and will have a corresponding increase in the level of detail able to be applied to the process / report.
Table 17: Examples of Plan-Level SEA

<table>
<thead>
<tr>
<th>Country</th>
<th>SEA Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>Auckland Regional Growth Strategy (Regional Growth Forum, 1999b)</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>Spatial Planning Strategy (Dalal-Clayton and Sadler, 2004)</td>
</tr>
<tr>
<td>Hungary / Poland</td>
<td>Warsaw to Budapest Multi-Modal Transport Corridor (Disik, 2001)</td>
</tr>
<tr>
<td>USA</td>
<td>Seattle-Washington Long Range Transportation Plan (Skaer, 1999)</td>
</tr>
<tr>
<td>UK</td>
<td>SEA of the North Nottinghamshire Local Transport Plan 2006-2011</td>
</tr>
<tr>
<td></td>
<td>(Nottinghamshire County Council, 2005)</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Landscape Protected Area (Isere Mountains) (Dalal-Clayton and Sadler, 2004)</td>
</tr>
</tbody>
</table>

Program-level SEA is employed to assess the priorities of various projects (Table 18). At this level, decisions are made by using such tools as Multi-Criteria Analysis or Cost-Benefit Analysis and are intended to be employed prior to the projects being carried out.

Table 18: Examples of Program-Level SEA

<table>
<thead>
<tr>
<th>Country</th>
<th>SEA Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>State Privatization Program (Regional Growth Forum, 1999b)</td>
</tr>
<tr>
<td>Jamaica</td>
<td>Jamaican Privatization Program (Regional Growth Forum, 1999b)</td>
</tr>
<tr>
<td>Tonga</td>
<td>Neiafu Master Plan (Morgan and Onorio, 2000).</td>
</tr>
<tr>
<td>USA</td>
<td>East Bay Municipal Utility District Water Supply Program EI Report</td>
</tr>
<tr>
<td></td>
<td>(Bass and Herson, 2000)</td>
</tr>
<tr>
<td>USA</td>
<td>California Bay Delta Program (California Bay Delta Authority, 2004)</td>
</tr>
<tr>
<td>USA</td>
<td>Louisiana Shoreline Restoration Program (Wilson and Hamilton, 2000)</td>
</tr>
<tr>
<td>USA</td>
<td>Department of Energy Programmatic Spent Fuel Management Program</td>
</tr>
<tr>
<td></td>
<td>(Department of Energy, 1995)</td>
</tr>
<tr>
<td>USA</td>
<td>I – 70 Mountain Corridor (Federal Highway Administration (n.d.))</td>
</tr>
</tbody>
</table>

The literature reveals that within the basic PPP structure described above several other views exist on how SEA may be described and categorized. The examples summarized here illustrate the diversity of views; it is not intended to cover all cases.

The first alternative category of SEA is proposed by Noble (2000), who groups SEAs into three general categories, which are based on a range of proposals being considered:
1. Sectoral SEA: An example of a sectoral SEA includes the SEA of transport networks in Europe which evaluated 5 transport corridors (European Commission, DG Environment, 2001). In this study, the authors concluded that, while SEA was applied to theoretically comparable areas, the actual processes carried out were context-dependent and resulted in quite different approaches being carried out. A further example of sectoral SEA is employed by the World Bank, to address poverty in third world countries. In this model, Hanrahan (2002) found that SEA was a viable method of introducing environmental considerations into poverty reduction.

2. Comprehensive SEA: The second type is exemplified by land-use planning models in Sweden. In this case, SEA is much broader in its application. The Swedish Government has given priority to developing a national Sustainability strategy, encompassing land-use planning, agriculture and forestry. The Swedish Government has created National Environmental Quality Goals for different regions and sectors as well as creating an Environmental Protection Agency that supports Local Agenda 21 related activities. However, the term ‘comprehensive’ is misleading. Although party to the SEA Directive, Sweden’s progress to date has taken a minimalist path. There is no requirement to carry out regional level SEA, and SEAs are not tiered well together (McLauchlan & Joao, 2005). Moreover, the distinction between EIA and SEA appears to be unclear as both are part of the same legislation. In this case, Swedish SEA is an extension of the pre-existing EIA legislation suggesting a lack of clarity in its application in terms of the purpose and methods of SEA.

3. Policy SEA: Nobles’ description is consistent with the definitions above where this category is applied to cases where policy is a general course of action or proposed overall direction that a government is, or will be putting into effect.

The second alternative category is that SEA may be further categorized into two distinct, yet complementary approaches. Therivel (2004) identifies two approaches to SEA, the baseline model and the objectives-led model. The most common approach is the baseline model, which attempts to solve present-day problems by integrating Sustainability issues. In contrast, the objectives-led approach attempts to create a ‘vision’ or sustainable objectives for strategic action.
The third alternative category is Programmatic EIA. This is a variation on the SEA ‘theme’ which is based on NEPA and titled “Programmatic Environmental Impact Statement” (or PEIS). As such, Programmatic EIA (PEIA) is described as an up-scaled version of EIA, moved upstream from the project to the program level. PEIA is a process surrounding a group or set of actions that are related geographically, or technologically, and drawn into a broader EIA. It is doubtful whether this model is truly strategic in nature and therefore it is not clear whether or not PEIA should be included into the ‘family’ of SEA models or stand within EIA.

It is at the program level that similarities between the USA Programmatic EIA and the EU’s program-level SEA become most apparent. Similar to the USA, Clark (2000) found that many roading programs in the EU were closer to the USA model of having a lower level of strategic vision than the SEA model suggests, for example, in many cases in Europe, roading projects leave the IA process too late, foreclosing discussion about development of alternatives. These types of discussions may be strategic in nature but are circumvented in favor of a less flexible (EIA) model.

Similarly, national-level government plans may be subjected to plan-level SEA, for example, Article two of the EU SEA Directive states that plans and programs are subject to preparation and / or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government (2000, p. 8).

What distinguishes policy, plan or programmatic SEA is the level of abstraction or complexity and the range of options to be considered. Indeed, it was this level of complexity that led to the creation of SEA in the first place as a distinct methodology from EIA. However, as Partidario (2002) notes, there appears to be two strands of SEA appearing, programmatic IA (as used in both the USA and in the EU) and a more integrated Sustainability-orientated SEA; this research focuses on the latter.

As SEA is a process designed to integrate improved environmental outcomes with decision-making, it is pertinent to consider how decision-making occurs and how SEA can be improved by

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35 In this case, EIA is used interchangeably with the USA version the EIS or PEIS. Similarly, the term ‘consent’ is used in place of permit or permitted activity.
a greater understanding of the human element of decision-making. When first created SEA grew out of EIA, which in turn was a methodology largely informed by a science-based perspective, for example, such events as the publication of *Silent Spring* (Carson, 1962) publicized the scientific lens. While a scientific process is essential for the gathering of data and evidence for the assessment of impacts, it is not intended as a decision-making framework. EIA has been criticized for being overly reliant on the assumption that improved information leads to improved decision-making (Kornov & Thissen, 2000). Decision-making based on this assumption has proven to be inadequate as more integrative approaches accept a greater level of public involvement where social values are given greater credence. In addition, advances in decision-making theory have undermined the notion of the fully rational and informed decision-maker. Models of decision making now accept the notion of bounded rationality, where decision makers are informed by a wide range of often competing information sources (Kornov & Thissen, 2000). As the limitations of EIA became apparent, it became accepted that a high level strategic thinking is needed to create an environmentally sustainable society. This level of decision-making has also been accompanied by an increase in the level of complexity of the decision making.

The view that PPPs should be conceptualized as hierarchical in nature relates to a model of planning where planning processes are intended to be vertically integrated in order to achieve maximal environmental or Sustainability related outcomes (Partidario, 2003). Examples of this include SEA and New Zealand’s Resource Management Act 1991, both, at least schematically, are structured hierarchically as shown in Figure 11.
SEA encompasses, national, regional and local planning systems, in which EIA forms a localized element of the broader SEA. These tiered planning levels are intended to integrate Sustainability at all planning levels. This allows synergies to develop both horizontally and vertically, for example, national (or international) guidelines or environmental standards such as air quality or strategic decisions taken prior to plans or projects. In this typology, policies provide a vision or framework for the creation of plans, plans overarch programs and programs lead to projects (Glasson, Therivel, & Chadwick, 1999). The higher the level of planning or strategic orientation, the less detail is required of the SEA. As scale increases, the ability and need for detail is reduced.

For example, if a region-wide plan is created, it must be less specific in order to conform to the principle of clarity of presentation and consultation processes. If a proposal is too complex, the level of understanding tends to be reduced. In addition, as complexity and scale increase, the level of decision-making required becomes higher; in other words, as resources and scale increase the more senior the participants or decision-makers tend to be. These decision-makers
require less detail and focus on the ‘visioning’ aspect, leaving the lower level details to sub-plans and lower level officials, as is the case with the ARGS.

Although tiered systems are held as exemplars, the model given in the above Figure 11 suggests that the IA process is top-down, with objectives determining policy and policy determining plans and so on. This is to a degree misleading in the sense that it ignores the possibility of lower order IAs affecting higher order decisions. It is quite conceivable that a project-level IA could influence a higher level decision by unearthing relevant data leading to a policy change or an IA coming to a no-go conclusion in a key area, preventing further development. For example, the need to build a power station may spark an analysis of the energy industry, with implications for larger strategic-level strategies (Noble, 2000).

In addition, a view is held by Fookes (pers. comm., December 12, 2004), who contends that PPPs should not be viewed as a hierarchy, but rather as a range of categories of SEA. Similarly, Fisher (2002) concludes that a policy or project orientation is not dependent on whatever tier the SEA is operating on. Stated differently, higher level SEAs are not inherently more policy orientated and lower level tiers are not inherently more project orientated. My own analysis concludes that, while Fookes is correct in suggesting that there is little to differentiate SEAs at different levels of application, the achievement of Sustainable Development requires a hierarchy of PPPs. As will be shown in Chapter V, certain types of policy decisions may only be made at a high or national level of government, yet they still need to be applied at the regional level or lower.

Such a tiered system allows synergies to be gained from these planning levels that give consistency to the application of environmental standards. In addition, it makes the EIA / consent process more efficient by avoiding duplication of plan or program creation processes and establishing rules relating to acceptable levels of risk or polluting activities. The advantage of these standardized environmental rules is that they tend to foreclose disagreement by establishing legal precedent, thus reducing the likelihood of impacts being continuously re-litigated.

Examples of standardized rules are occurring in many nations such as the USA and New Zealand where such things as water and air quality standards have become established in law. These standards allow local authorities as well as business to plan to these standards, avoiding the confusion that potentially arises from ad hoc planning processes. Legally enshrined national-level
environmental standards reduce the workload of planning authorities by eliminating or reducing the duplication of effort for projects or implementation of processes relating to the intent of these standards. Similarly, as planning authorities vary in their focus or level of resources they are able to dedicate to these types of projects, standardization sets a minimum standard that planning authorities can aim at. Whether or not this encourages industry to simply work to a minimum standard or innovate is an area beyond the scope of this research.

The following section provides an outline of the core principles on which SEA is based.

**Principles of Strategic Environmental Assessment**

This section introduces the reader to the core principles of SEA. It should be noted at this stage that Noble (2000) argues that SEA is not necessarily Sustainability-led as many strategic-level actions (such as PPPs) are not motivated by Sustainability related drivers. Just as the literature has shown diversity across approaches to or practices of SEA, so too is there is no ‘one’ method, type, or universally applicable set of principles of SEA. However, some features are broadly applicable to most types of SEA being carried out. Some approaches are for all intents and purposes identical to SEA, but are not referred to as SEA; the New Zealand RMA (section 32) is one such an example (Dixon, 2002; Fookes, 2002; Partidario, 2003). Similarly, aspects of EIA can contain (strategic) elements of SEA (Devuyst, 1999; Holder & Verheem, 1997). The below table gives an overview of the eight main principles of the SEA model used as a starting point in this research.
Table 19: Principles of Strategic Environmental Assessment

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Fit-for-purpose</td>
<td>the SEA process should be customised (sic) to the context and characteristics of policy and plan making;</td>
</tr>
<tr>
<td>Objectives-led</td>
<td>the SEA process should be undertaken with reference to environmental goals and priorities;</td>
</tr>
<tr>
<td>Sustainability-driven</td>
<td>the SEA process should identify how development options and proposals contribute to environmentally and socially Sustainable Development;</td>
</tr>
<tr>
<td>Comprehensive scope</td>
<td>the SEA process should cover all levels and types of decision-making likely to have significant environmental effects;</td>
</tr>
<tr>
<td>Decision-centered</td>
<td>the SEA process should provide sound information in a form appropriate to the level of decision-making (e.g. statement of implications, issues and/or impacts);</td>
</tr>
<tr>
<td>Integrative</td>
<td>the SEA process should include consideration of social, health and other effects as necessary;</td>
</tr>
<tr>
<td>Participative</td>
<td>the SEA process should provide an opportunity for public involvement, which is appropriate to the level and issues of decision-making;</td>
</tr>
<tr>
<td>Cost-effective</td>
<td>the SEA process should achieve its purpose in a timely and expeditious manner, including, as practicable, setting a context for project EIA.</td>
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Source: (Abaza, Bisset, & Sadler, 2004, pp. 92 - 93)

Each of the above principles is discussed in turn.

Principle 1: Fit For Purpose

While at the core of SEA there are a series of more or less transferable tools and techniques, each SEA is uniquely related to its political, cultural and economic context. Thus SEA must be individually tailored to the type of decision being made, particularly at the high end of the scale as many of these decisions are often highly complex and politicized and qualitative in nature. Also, given the diverse range of planning systems (or lack thereof, in some cases), it is not helpful to attempt to fully define the exact nature of SEA beyond a range of planning principles. This thesis argues that it is not a strict adherence to models or systems that is important, rather it is the application of sound principles and the achievement of positive environmental outcomes that matter the most in the end. Suffice it to say, SEA will be more likely to be effective if the process is consistent and systematic.
Principle 2: SEA is Objectives-Led

For SEA to satisfy the requirement of being objectives-led, it must have a consistent set of environmental goals that have preferably been reviewed at a national, regional and local level. (It will be shown later that these criteria can then be used as criteria for both Sustainability and for the evaluation of the SEA itself. Being an objectives led process suggests it is axiomatic that if a proposed PPP leads to the fulfillment of stated objectives, then it is considered to be favorable to Sustainable Development. A precondition for this is that Sustainability related objectives must be plain and detailed enough to be used effectively as criteria (Balfors & Schmidtbauer, 2002).

A critical factor is a clear definition of the purpose of the SEA. In other words, the objectives used for the SEA have been described and defined, quantitatively where appropriate. This may also entail the identification of any potential conflicts that may arise between objectives of the plan and other policies and plans (p. 45).

Principle 3: SEA is Sustainability Driven

As noted above, there are many types and applications of SEA, all with different objectives. I focus on the type of SEA that is intended to achieve Sustainable Development. Various authors have argued that the raison d'être of SEA is the integration of Sustainability issues into the PPP creation process (Partidario & Clark, 2000; Sadler, 1996; Sadler & Verheem, 1996). Definitions and models of Sustainable Development are discussed in detail in Chapter V.

Principle 4: Comprehensive Scope – Levels of Decision-Making

The SEA process should be broad enough to encapsulate all types of decision-making that have potential environmental impacts. This is largely related to the notion of tiering, where some decisions are best made at the policy or strategic level and others at the project level.

Arts, Tomlinson and Voogd (2005) identify three types of tiering: (1) Vertical tiering involves a hierarchy between planning levels for example, policies relating to national transport programs and plans that consecutively involve each other. (2) Horizontal tiering involves similar levels of
administration or trans-sectoral planning for example water and waste management and energy policy. (3) Diagonal tiering combines vertical and horizontal for example a national air quality strategy influencing transport plans.

The benefits of tiering include:

- Prevention of foreclosure of assessing important environmental issues;
- Better focused environmental assessments (this relates to e.g. the scope (in issues, time, geographical area), the type of alternatives and impacts assessed, the abstract level of analysis (broad brush methods, expert opinions vs. advanced quantitative and detailed methods etc.);
- Efficiency gains for (S)EA at lower levels by doing environmental assessments at higher levels (indication of major issues that need further elaboration, or not; guidelines for subsequent environmental assessments);
- Better fit with the ongoing nature of decision-making and planning processes by tiering of environmental assessments;
- Improvement of plans and projects developed and implemented (Arts, Tomlinson & Voogd, 2005, p. 3).

The practice may not conform to this neatly created package. National-level policy may not precede regional plans and so on down the hierarchy. Tiering may work up the hierarchy as well. As series of projects may coalesce to have a cumulative effect and may either force a review of an existing plan creating the need for another SEA altogether (Arts, Tomlinson, & Voogd, 2005).

Other research gives a mixed reaction to tiering. Fischer (2002b) in his research on twelve regions in the EU concluded that in nine out of the twelve areas studied, efficiencies were gained and time taken for plan preparation was reduced from a tiering process. In the three other study areas however, the SEA experienced project delays. Fischer notes that this was largely a capacity issue, rather than an issue related to SEA per se. This issue is given space in Chapter VI, which examines the issue of institutional capacity.
Principle 5: SEA Should be Decision-Centred

Kornov and Thissen (2000) argue that SEA often assumes that the use of rational information will improve the process of decision-making. This assumption is problematic. It often envisions the process of policy creation through following a linear sequence:

- A goal for solving a problem is established
- All alternative strategies of achieving the goal are explored and listed
- All significant consequences of each alternative strategy are predicted and the probability of those consequences occurring is estimated
- Finally, the strategy that most nearly solves the problem or solves it at least cost is selected (Howlett & Ramesh, 1995, cited in Stinchcombe & Gibson, 2001, p. 366)

This model is largely derived from early developments in the history of Sustainability as many environmental issues came to the fore, including calls for a formalized, public process for decision-making.

Literature on IA emphasized rationalistic language that had embedded notions of the ‘objective’ (Dalkmann, Herrera, & Bongardt, 2002; Petts, 1999a). This remains the case as SEA and EIA are often dominated by ideas of positivism and rationality (Nitz & Brown, 2001).

Nilsson (2001) argues that an SEA framework cannot therefore rely on rationalist approaches to decision-making. Decisions have to be based on rational assessments and measurements, but ultimately be taken based on the values that society assigns to the environment, which may not always be considered rational.

The issue of context of SEAs is therefore also crucial. The type of SEA employed depends very much on a range of contextually related variables, specifically the legal context, or ideological influences. The conclusion being that there is no one right way to carry out SEA rather, according to Brown (2002) it will:

…need to be adaptive to the existence of different agendas, actors, discourses, knowledge requirements (substantive issues; qualitative quantitative information) and bargaining styles within different policy-making sectors (p. 185).

Thus, a decision can be described as when:
An individual or a group of individuals has to make a choice among several alternatives and uses their individual values as a criteria in the selection of the possible options. A “rational” decision is one that attempts to maximize the benefits an individual can gain from their choice (Jiliberto, 2002, p. 62).

If SEA is to be an effective model for improved environmental outcomes, it must be a vehicle for change that incorporates lasting alternatives into the decision-making processes. Decision making is often a creature of institutional capacity, an issue discussed in more detail in Chapter VI.

**Principle 6: SEA Should be Integrative**

The Rio Conference in 1992 was a spur to integrate environmental considerations into the processes of decision-making and planning. Article 4 states that “[i]n order to achieve Sustainable Development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation” (United Nations Environment Programme, 1992, para. 5). The concept is expanded in Agenda 21 which appeals to governments to “review the status of the planning and management system and, where appropriate, modify and strengthen procedures so as to facilitate the integrated consideration of social, economic and environmental issues” (cited in George, 2001, p. 95).

In response, Eggenburger and Partidario (2000) have developed a framework to assist the integration of environmental, social and economic issues in planning. When speaking of integration, five present areas of integration can be identified: (1) substantive, (2) methodological, (3) procedural, (4) institutional, and (5) policy integration.
Table 20: Principles of Integration

| Substantive                      | The integration of biophysical with social and economic issues  
The integration of emerging issues such as health risks, bio-diversity and Climate Change  
The (appropriate) integration of global and local issues |
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<tr>
<td>Methodological</td>
<td>The integration of environmental, economic and social (impact) assessment approaches such as cumulative assessment, risk assessment technological assessment, C-B analysis, multi-criteria analysis etc.</td>
</tr>
</tbody>
</table>
| Procedural                      | The integration of environmental, social, economic planning / assessment, spatial planning & EIA  
The integration of sector approval / licensing processes spatial planning and EIA  
The adoption of coordination, cooperation and subsidiary as a guiding principle for (governmental) planning at different levels of decision-making  
The integration of affected stakeholders (public, private, NGO) in the decision making process  
The integration of professionals in a truly interdisciplinary team |
| Institutional                   | The provision of capacities to cope with emerging issues and duties  
The definition of a governmental organization to ensure integration  
The exchange of information and possibilities of interventions between different sectors  
The definition of leading and participating agencies and their respective duties and responsibilities |
| Policy                          | The integration of “Sustainable Development” as an overall guiding principle in planning and EIA  
The integration of sector regulations  
The integration of sector strategies  
The timing and provision for political interventions  
Accountability of government |

Source: (Eggenberger and Partidario, 2000, p. 204)

The key aspects challenging integration are (i) Defining the nature of Sustainability – the ideological and academic conflict between discourses of consumption and resource scarcity. This is linked to levels of scientific uncertainty surrounding issues. (ii) Linking institutional functions is a major challenge to SEA. This issue is one that the Auckland Regional Growth Strategy is faced with, along with other planning institutions in the Auckland region. This problem is related to the general nature of Sustainability issues in the sense that they often cross-cut institutional actors and political boundaries. Glasson and Gosling (2001), in the area of regional planning, identify a fourfold typology of SEA: (1) incremental (2) stapled (3) concurrent models and (4) holistic models (Figure 12).
In this typology, SEA ranges from a limited form of integration of environmental issues to full integration. The ‘incremental’ model is essentially the application of an EIA-based methodology to components of a plan. The ‘stapled’ type of SEA occurs after a specific stage of a plan has been completed and the stapling occurs when the report section of an SEA is ‘stapled’ together with the original plan. The ‘concurrent’ model, as the title suggests, is a process where the SEA is integrated into various stages of the plan making process in an iterative fashion as concurrent impact assessment. The final model is held up as an ideal model of the full integration of environmental aspects into the planning process. In this model, the SEA becomes an inherent part of the planning process to the extent that it ceases to be a separate planning exercise. This model is advocated as separate IA systems are less likely to be compatible institutional norms, rules and structures, as Connor and Dovers observe:
A systems view of institutions makes it clear that the specification of new types of organization, on its own, is an ad hoc approach and likely to prove inadequate to the task of institutionalizing Sustainability. It is the rationality, the principles and goals that organizational form must embody and implement, that is required to be elaborated within the institution system first, along with a credible commitment from government to support it (2004, p. 18).

The above quote is suggests that changes are required in normative values at all levels of institutional workings, particularly implementation of policy. The difficulty here for SEA is the issue of how to embed a new way of carrying out the tasks and purpose of an institution. Since it is the norms of an institution that legitimate rules and policies, it follows that those norms must be changed, regardless of whatever system is being put in place. A further implication is that these norms do not change quickly and therefore introducing an SEA-like process, will be a long-term project, if it is to be fully integrated with the institution or organization.

In addition, the link between social, environmental and economic Sustainability is generally not addressed well. Issues related to social Sustainability include anomic dislocation - the decline of civil society and engagement or lack trust in democratic institutions (for a more in-depth treatment of this topic see Chapter V, The Declining Trust in Governments, p. 162). This section examines the decline of faith in governments by publics in relation to globalization and the growing power of trans-national entities.

**Principle 7: SEA is Participative**

Public participation in decision-making has become a foundation of the modern state (Casals, 2004; Inglehart, 1977). Publics are demanding (and gaining) increased participation in public decision-making processes as they realize decisions can have major impacts on their lives. Hence, public participation is considered a cornerstone of SEA. Similarly, NGOs have become increasingly recognized as providing a critical commentary and a fruitful source of research and information for local and central governments, individual researchers and related organizations.

SEA may also be a vehicle for voicing the needs of those who are less able to participate in democratic processes. Research has demonstrated the existence of inequalities of environmental planning processes internationally (Been, 1994; Bullard, 1993) and in New Zealand (Baines, Taylor, McClintock, & Douglas-Lane, 1999; Davies & Baines, 2000). In New Zealand, Davies and
Baines (2000) examined planning processes surrounding the construction of solid waste transfer stations and landfills concluding that poorer, ethnic minorities tend to bear the burden of environmental impacts disproportionately. Disproportionate environmental impact is related to structural disadvantage or socio-economic status, in that low Socio-Economic Status groups tend to have less choice in where to live (Been, 1994). This highlights the need for integrative approaches that include social impact assessment as a standard aspect of SEA.

This need for integrative approaches is addressed in the Strong Sustainability model and refers to what is meant in this context by the term ‘intra’-generational equity.

Intra-generational equity is the principle of equity between different groups of people alive today. Similar to inter-generational equity, intra-generational equity implies that consumption and production in one community should not undermine the ecological, social, and economic basis for other communities to maintain or improve their quality of life (International Institute for Sustainable Development, 2004, para. 7).

Over the coming decades, if current trends continue, environmental phenomena such as Climate Change, top-soil loss and degraded water systems will have an even greater effect on society. In addition, if the planet is to experience further environmental disruption, this will have a disproportionate impact on the low SES groups and ethnic minorities, as they often have a lesser ability to fend off potential impacts.

Intra-generational equity is a key aspect of achieving SD. As will be discussed in Chapter V, the development of collective solutions to environmental issues requires the engagement of the full spectrum of society. For this to occur, addressing structural exclusion (social inequality) is part of a solution as it underpins a host of other Sustainability related issues.

**Principle 8: SEA is Cost-Effective**

SEA is often applied to PPPs that are funded by public resources. As such, agencies employing SEA should be held accountable for costs associated with implementation. The European Commission (1996) concluded that the cost of introducing IA to spatial planning often increased costs by between 5 and 10 percent of the planning exercise. However, as EIA and IA systems
become more integrated into wider planning systems the associated costs become harder to distinguish from the wider process.

In line with the precautionary principle, these costs should be considered marginal in comparison to the potential costs of environmental damage and restoration (Austrian Federal Environment Agency Ltd, 1999; Parassram, 2002). The costs of prevention of impacts may also be difficult to measure and predict, and can depend on the quality of the planning environment. If a well structured or holistic process, identified by Glasson and Gosling (2001), is in place (Figure 12), SEA will be more likely to eliminate costly project overlaps, and highlight environmental constraints earlier in the process and thus reduce costs.

The largest aspect of the SEA process is public participation, which is particularly true of SEAs that are in remote areas or are targeting multiple ethnic groups. This can be complex requiring the translation of SEAs into multiple languages or for cultural differences and protocols that may have to be negotiated. For example, the New Zealand Resource Management Act 1991 makes specific reference to Treaty considerations and spiritual values and consultation of indigenous Māori. Good SEA therefore should make adequate time and resource provision for the recording, analysis and negotiation of the public consultation exercise.

The need for public consultation processes also highlights the need for good social impact assessment (SIA) as part of the SEA process. The inclusion of SIA into the process should lead to a clearer understanding of social issues by governments, developers and local communities. This in turn makes it easier to develop a process designed for local people to adapt to change. This should result in a reduction in costs due to the greater level of consensus and reduced political and legal challenges to the proposed PPP.

Alternatively, this may prove to be problematic, as stakeholder involvement is increasingly becoming the norm, which may in turn cause ‘stakeholder burnout’ because of the increasing use of publics in a greater range of application to the PPP formation process. This in turn highlights the need for efficient integration of separate plans and tiers of impact assessment in order to avoid cross consultation of issues.

36 The aim of this principle is to implement measures to warn against serious and irreversible risks or damage.
Other costs include:

- EIA / SEA team time, travel and accommodation costs to support the work (especially the data collection, analysis and reporting work which is time-consuming and often neglected);
- Hiring of social scientists with local knowledge and experience;
- Travel costs and “sitting allowances” to enable certain individuals to attend meetings;
- Preparation of materials in local languages; and
- Management of media publicity (Abaza, Bisset, & Sadler, 2004, p. 78)

While these costs are important, SEA should not lose sight of the fact that, as the Stern Review (2006) pointed out, the cost of ignoring major environmental issues may be vastly larger than action aimed at solving them. The small cost of implementing a successful SEA therefore should be seen in the context of the cost of inaction. Costing environmental issues relates to the further issue of what is considered a ‘cost’, examined in Chapter V.

A Critique of the SEA Process and its Social Context

This section provides a critique at SEA, looking at both its methodology and its social context.

The essence of Impact Assessment (IA) thinking is that it adds value, or is an adjunct to existing policy / planning processes. That is, IA provides a reminder to ask questions about unanticipated outcomes, such as the additive or synergistic effects of policies, plans and projects; the possible consequences of adopting specific strategies for development; as well as distributional and equity implications of planning outcomes (R. Morgan, pers. comm., March 22, 2004). Similarly, Abaza, Bisset and Sadler (2004) note that, “the SEA process should identify how development options and proposals contribute to environmentally and socially sustainable development” (p. 92). These objectives have yet to be met, as Partidario and Therivel observe:

On the scale from light to dark green SEA as it is normally and currently practiced, is so light-green as to be virtually invisible. However, SEA has the potential to be a much stronger tool for “dark green” Sustainability (2000, p. 277).
Similarly as Stinchcombe and Gibson (2001) note, “even where SEA is practiced, it has not yet made impressive contributions to Sustainability” (p. 347).

Drawing from Chapters II and III, I summarize criticism of SEA and the obstacles it faces. These are: the limited agreement of what SD is; SEA exists within a context of declining trust in governments; it also faces the free rider problem; inconsistent application; short term planning horizons; poor integration of social Sustainability; limited resources dedicated to SEA; fragmented planning structures and finally what I refer to as an evaluative mode of analysis. These issues are discussed below.

**Limited Agreement on What Constitutes Sustainable Development**

SEA is limited in its ability to achieve its objectives as an acceptable definition of Sustainability is yet to be widely accepted. The closest definition that meets this criterion is the Brundtland definition which is so encompassing it loses meaning. In addition, as Norton and Toman (1997) observe, the term “sustainable” embodies deep conceptual ambiguities. These ambiguities cannot be easily resolved because they rest... on serious theoretical disagreements that transcend disciplinary boundaries” (p. 554). As noted in Chapter V, models of Sustainable Development are contested and no one model is accepted by the majority. Consequently, SEA defaults often to a limited (Weak) form of Sustainability (for a broader discussion see Chapter V, The Weak Sustainability (WS) Perspective, p. 183).

**Declining Trust in Governments**

A further obstacle that faces SEA is the increasing level of social exclusion or widening inequality in many countries. As shown in Chapter IV, social exclusion feeds into the declining trust and democratic engagement with governments. Although the EU SEA Directive (2001/42/EC) refers to human health and population and examples of SEA exist that address poverty, such as the UK Strategy for Sustainable Development, SEA is hampered by structural tendencies towards social inequality. As will be discussed in detail in Chapter IV, there is evidence to suggest that these
factors impede the ability of SEA-based or other SD orientated PPPs to implement substantive policies.

**The Free-Rider Problem**

SEA is limited within individual countries as they are subject to the dilemma where unilateral self-promotion is incentivized at the expense of wider global goals, or environmental free riding (see The Polluter Pays Principle, p. 191). For example, the Kyoto Protocol has been significantly hampered by countries that have refused to sign. As countries seek to address environmental issues via market instruments (e.g. the Polluter Pays principle), they are often at least perceived as incentivizing the production of pollution in other countries with lower environmental standards (Taylor & Copeland, 2005), to the disadvantage of traders in other countries. Consequently SD orientated policies may face internal opposition from affected parties who may draw attention to adversely affected trading conditions.

**Inconsistent Application of SEA**

SEA is not generally carried out at the national level and therefore is not applied often enough, or not at all, to high-level policy. This is problematic for lower level decision-making bodies as it potentially leads to inconsistent environmental standards, replication of research, staff effort and the quality of process outputs and capacity issues. As many governments often provide only weak SD orientated policy statements, a policy vacuum is created which is taken up by either the free market or local authorities. Either of these groupings, without significant central government support and commitment may experience serious capacity or jurisdictional issues.

(v) SEA remains largely in an evaluative mode as it is often applied too late in the process to create meaningful SD orientated policy. To quote Partidario:

> [The] evidence shows that many SEA[s] are following the path of EIA, looking backwards rather than forward. In fact, there’s a number of people that criticize SEA for not being
sufficiently provocative exactly because it’s really more revising decisions that have been made and making sure that the impacts are minimum with its development (2003, p. 5).

In addition, the question of level of application raises the issue of the ability of SEA to apply the Polluter Pays Principle. The notion of polluter pays has yet to be fully integrated in SEA. In many ways, it goes beyond the ability of SEA to deliver as this relates to taxation structures, systems that are usually delivered at the national level where SEA is mostly nonexistent. Although, there is no reason why user charges cannot be employed at the sub-national level.

SEA in New Zealand remains outside of the knowledge of many policy creators and analysts and is only published in a relatively limited range of academic journals (Connor & Dovers, 2004). As such, its application and implementation remains limited.

Limited Planning Horizons

Planning horizons for achieving Sustainable Development are in many cases longer than accepted political timeframes. As most planning or governmental timeframes are between one and ten years, or two election cycles, many issues are dropped off the policy radar. Issues such as biodiversity, poverty reduction or Climate Change require a longer timeframe than SEA is currently able to provide. In addition, As Stinchcombe and Gibson (2001) note, the time between the creation of policy and its actual implementation and effect may be very long and therefore time horizons may also be long or even unknown.

Poor Representation of Social Issues

Much debate concerns the development of Sustainability Assessment (SA). As the author understands SA to mean, a greater focus on social issues i.e. the inclusion of inter and intra-generational equity, as a focus. This flaw reflects what Sadler (2008) refers to as the biophysical bias demonstrated by SEA. To date, social issues remain poorly represented amongst SEAs, hence the related research question (3).

37 See Davies and Fookes (2002).
Limited Resources Dedicated to SEA Processes

Fisher and Stoughton (2002) in their research conclude that most SEAs are carried out within a very limited period, usually over a period of less than two years and with limited resources. They further note that teams rarely spend more than a few months conducting actual assessment work. This frequently leads to poorly developed mitigation and monitoring plans, which in turn leads to imperfect monitoring and mitigation measures. They further note that assessment time horizons are too short and are often restricted to only the expected life of the program. This runs the risk of missing long-term impacts of PPPs. This issue is related to the above point (Limited Planning Horizons) and risks the instigation of short-term mitigation only, in favor of establishing more foundational value or behavioral changes. In addition, the limited resources dedicated to SEA is a reflection of institutional resistance to the perceived high cost of SEA.

Fragmented Planning Structures

For reasons discussed in the socio-political context, outlined in Chapter IV, SEA is often carried out in a fragmented government context, making appropriate connections between issues and functions problematic. This leads to ill-defined issues, un-needed complexity and institutional or inter-agency conflict over resources and goals. For a further discussion of the impact of fragmentation the reader is referred to Chapter IV, The Effects of Neo-liberal Reform on Local Government, p. 155.

SEA Too Often falls into an Evaluative Mode of Analysis

SEA is applied often too late in its application. While this is not intended as denigration of ex ante SEA, as these methodologies when applied correctly can be useful. This critique here is aimed at those SEAs that lack proper (timely) integration into the planning process, which are applied early enough to shape whatever policy is being created.
Lessons Learned

This Chapter introduced the reader to the history and principles of SEA. SEA is a model first created in the United States under NEPA in the late 1960s. It developed as a response to the limitations exposed by the application of Cost-Benefit Analysis and EIA, specifically, the lesser ability to incorporate the concerns of the public when considering major developments such as airports and large-scale energy projects. The use of Cost-Benefit Analysis for example remains a controversial approach to environmental evaluation as the use of high discounting rates may undermine the future value of environmental capital vis à vis social equity issues.

As environmental issues came to the fore via publications such as Silent Spring, as well as being spurred by events such as Woodstock, Earth Day and the Vietnam War, the requirement for a more sophisticated treatment of environmental issues became of greater importance. This led to the enactment of Environmental Impact Assessment beyond the National Environmental Protection Act in the United States, as well as a host of other countries adopting similar IA methodologies.

The key difference between the CB analysis and IA was that IA incorporated social and environmental issues in an ordered way. That is, in a way that recognized the often conflicting environmental, social values. IA thus provided an approach that tried to address these conflicts using science as a form of mediation, i.e. rational argument. However, as environmental science and arguably impact assessment methodologies remain limited, these types of conflicts may not be fully resolvable by deferring to scientific knowledge, which may be trounced by the identification of knowledge and methodology gaps.

Issues such as these led to the creation of a broader form of assessment, one that took a more strategic approach to environmental issues, paying more attention to the analysis of longer term or diffuse (cumulative) impacts and the coordination of lower level EIA. As a result, SEA was developed. The development of SEA highlights a further point of departure between EIA and SEA, which is project-level EIA is a much more defined process in terms of the time taken to address whatever the EIA is assessing. The opposite is true for SEA. While many SEAs are designed to be short term, SEA in a more ideal form takes a much longer timeframe, subject to repeated iterations. Thus, as SEA is designed to encompass a far broader range of issues, a range of
approaches emerge. Consequently SEA may be regarded as a family of tools dependent on the context of the impact assessment. Most recently, SEA has become an accepted tool, particularly in Europe and the United States, as well as in many other parts of the world, including New Zealand. However, it faces a range of difficulties, namely a lingering focus on biophysical issues, which may work to the detriment of economic or social issues. SEA also faces a number of other challenges including the notion of Sustainable Development itself. To date, there appears little agreement of what constitutes SD and which models should be embraced. Furthermore, SEA faces institutional barriers to both the acceptance of SEA itself as well as the types of policies SEA might create. In addition, many governments or communities face significant capacity issues, specifically funding for thorough IA and the underpinning research. Finally, SEA faces the conundrum of a public that demonstrates a growing environmental awareness, but appears to be unable to motivate itself to support many initiatives requiring behavioral change.

The SSD model developed in Chapter VI addresses the issue of motivating public action by highlighting the need for the development of national-level strategies that encourage individual incentives linked to a collective action.
CHAPTER IV: SOCIO-POLITICAL CONTEXT:
THE NEW RIGHT AGENDA LEGISLATIVE REFORM 1984 – 2004

Introduction

Having examined the concept of SEA, this Chapter extends the frame of this thesis by turning to the impacts of events in New Zealand since 1984. This is a significant year because it marked the election of a Labour administration that adopted, for a social democrat-center left government, radical neo-liberal economic and social policies and associated reforms, with little notice given to the electorate. While Labour was elected for a second term, by 1990, the electorate chose to vote in a center right National administration that continued the neo-liberal transformation for a further two terms before a Labour administration was returned again. By this time (1999), the pressure was on the Labour party to re-consider the neo-liberal approach. At the time of writing (2009) a more traditional center left administration has completed a three-term period of government which means it is an appropriate time to examine what it all has meant for Sustainability and SEA developments. The selected timeframe ends with the 2004 local Government (Auckland) Amendment Act. This Act is significant as it re-positions the ARGS from a non-statutory status plan to the status of a Regional Policy Statement.

A neo-liberal philosophy has influenced New Zealand’s political life, and its social and economic development, for over two decades, which covers an important stage in the history of thinking which has seen Sustainable Development and SEA become internationally recognized parts of contemporary approaches to social and economic development. This Chapter begins therefore with a history of New Zealand’s local and central governments’ economic reform over the last two decades. These trends have not developed in isolation and have become a permanent feature of New Zealand society. An examination of these trends is of relevance, as the structures and processes created by this reform underpin both the creation and flaws of the ARGS, and how it
reflects tensions within broader New Zealand society in its attempt to embrace Sustainable Development. The ARGS is a microcosm of the SD debate in the sense that it attempts to reconcile growth versus anti-growth discourses via a system of land-use controls and it addressed Climate Change through urban intensification and greater investment in public transport. At the same time, the growth paradigm (explored in Chapter V) has encouraged significant new investment in roading projects, which later will be shown to potentially undermine many of the ARGS’s key goals. This Chapter will also reveal that the neo-liberal reforms both undermine, and present a framework for the introduction of Sustainability orientated policies, potentially via an SEA framework, as Auckland is in a position to make a greater use of market-based environmental instruments, for example, ecological taxation (Jackson & Dixon, 2007).

By the early 1970s, New Zealand began to experience significant downturn in its economic performance. Internationally, many countries, particularly the US and Britain, began to shift their economic trajectories by rejecting protectionism and embracing the Free Trade agenda. With a rapidly globalizing world, New Zealand’s heavily protected economy became increasingly distorted. With heavy farming subsidies needed to prop up an ailing agricultural system, combined with generous social welfare and increasing energy costs and rising unemployment, New Zealand faced a range of challenging and related economic issues (King, 2003). Because of these factors, between 1976 and the mid 1980s, government debt as a proportion of gross domestic production rose from 9, to over 41 percent (Evans, Grimes, Wilkinson, & Teece, 1996). This was exacerbated by poor economic performance with New Zealand experiencing minimal growth in GDP, averaging only 1.15 percent over the same period (Boston, Martin, Pallot, & Walsh, 1996).

These issues came to a head in the period leading up to the 1984 election. New Zealand could not ignore the changes occurring in other countries such as Britain and the United States to which it historically looked to for leadership, who also threw off their ‘Keynesian shackles’ (Douglas, 1987). Gone were egalitarian principles of state intervention and broad commitment to social equality. These were replaced by values of individual liberty and equal access to opportunity, an agenda broadly described as the Washington Consensus (Giddens, 2001; McKibbin & Sachs, 1991).
The Washington Consensus as understood in the present has become synonymous with the neo-liberal agenda of adherence to the principles of free trade and globalization. This understanding of the Washington Consensus, it is however, a distortion of the term’s original author John Williamson (1993). Williamson originally coined the term, not as a policy prescription for the development of countries, but rather as a “list of policies that [he] claimed were widely held in Washington to be…desirable in Latin America” (2004, p. 1). Wiliamson never intended the term to be associated with neo-liberalism, as he states:

I of course never intended my term to imply policies like capital account liberalization...monetarism, supply-side economics, or a minimal state (getting the state out of welfare provision and income redistribution), which I think of as the quintessentially neo-liberal idea (2002).

Since the publication of Wiliamson’s original work, the term has become a lightning rod for those who oppose neo-liberal policies. While the term was coined well after New Zealand’s 1984 election, the political reforms associated with this agenda were not, and were readily adopted by New Zealand’s New Right. It is ironic to note that the newly elected and supposedly left wing ‘Labour’ government may be referred to as the New Right. Exponents of the New Right agenda privatized many of New Zealand’s state functions following the reforms carried out by British Prime Minister Margaret Thatcher between 1979 and 1991. Similarly, Ronald Reagan President of the US between 1981 and 1989 instigated policies broadly following the neo-liberal agenda. “Reaganomics” was essentially a program of lowering or flattening of tax rates, cutting back state expenditure and deregulating state functions such as airlines, ports, transport industry and telecommunications. In terms of Reagan’s environmental management record, his was at best an

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38 The Washington Consensus consists of a series of intended reforms, these are:

- Fiscal discipline
- A redirection of public expenditure priorities toward fields offering both high economic returns and the potential to improve income distribution, such as primary health care, primary education, and infrastructure
- Tax reform (to lower marginal rates and broaden the tax base)
- Interest rate liberalization
- A competitive exchange rate
- Trade liberalization
- Liberalization of inflows of foreign direct investment
- Privatization
- Deregulation (to abolish barriers to entry and exit)
- Secure property rights (Center for International Development at Harvard University, 2003, p. 1)

ambivalent relationship, resulting in a light-handed approach to environmental management. Others have gone so far as to describe him as anti-environmentalist (Czech, 2000; Kennedy, 2004). These authors argue that his management of the American Environmental Protection Agency (EPA) was associated with the weakening of environmental regulation with the appointment of Anne Gorsuch, an attorney who fought against EPA Clean Air laws and tightening environmental regulation. Gorsuch sought to lower pollution standards on many products as well as weaken the Clean Water Act. Reagan also significantly cut funding to the EPA and appointed James Watt, a pro private enterprise lobbyist who also fought against environmental regulation. While working for the EPA, Watt advocated the opening up of federal wilderness land for logging and development (Barcott, 2004). In addition, Reagan appointed a number of conservative federal judges who were less inclined to find in favor of suits filed on behalf of environmental organizations, the result being the marginalization of the American environmental movement (Luccarelli, 2007). The Reagan administration was also instrumental in resisting the introduction of environmental impact assessment (EIA).

Two years prior to Reagan’s election, the US Congress introduced a requirement for EIA under the National Environmental Policy Act. NEPA required the preparation of Environmental Impact Statements (EIS) to be applied to actions undertaken by federal bodies that are likely to have significant environmental effects. NEPA also created the Council on Environmental Quality, which is charged with evaluating EISs. This function was mandated by law, which ultimately saved it from abolition by the Reagan administration (Canter, 1984).

In Britain, a similar political process occurred under Prime Minister Margaret Thatcher, who became a close ally of Reagan both politically and philosophically. Both leaders promoted free enterprise and gave greater credence to economic over urban policy (Levine, 1998). Thatcher however differentiated herself from Reagan by endorsing Sustainable Development as defined by the Brundtland commission; in 1988, she made a speech to the Royal Society arguing for action to combat Climate Change (Rydin, 2003). Thatcher also embraced neo-liberalism with its emphasis on privatization, which had some negative implications for British planning. Reflecting the market-led approach, Thatcher undermined the scope of planning by adopting a pro-development agenda. As Davoudi observes:
Within this pro-development climate, the quality of the environment was treated as a commodity which along with buildings and sites, could be packaged and traded. This ‘marketised utilitarian’ conception of the environment was combined with a narrow conception of conservation on heritage landscapes and wildlife sites (2005, p. 50).

In 1988, a significant change to the British planning system occurred with the introduction of EU regulations requiring EIA as a central planning mechanism. Like Reagan, the British conservatives opposed its introduction, but eventually complied as they came under pressure from the EU and to a degree from their rural support base (Rydin, 2003). Similar resistance to environmental regulation occurred over the issue of sulfur dioxide emissions, otherwise known as ‘acid rain’ (Tietenberg, 1984). Britain’s refusal to join the group of European nations committed to reduction was eventually overturned, again in response to EU pressure. Thatcher eventually agreed to the 1985 protocol on sulfur dioxide requiring the installation of de-sulfurization equipment in power plants (Rydin, 2003). In the transport arena, environmentalism showed little impact. Roading development was one of the main responses to the economic downturn Britain experienced in the late 1970s. In a policy statement on transport in 1980, it was argued that a greater focus on roading development would stimulate Britain’s economic recovery, with the general aim of introducing private sector transport wherever possible (Rydin, 2003). Clearly, parallels may be drawn between these administrations and the development of planning within New Zealand. The supply-side based economic policies of Thatcher and Reagan were clearly a strong influence of the policies to come out of the New Zealand New Right. As Dryzek (2005) observes:

In the last three decades, the most prominent perspective on policy in general has been an economic one. This perspective goes by different names in different places: market liberalism, classical liberalism and free-market conservatism. Sometimes it is even personalized, and becomes Thatcherism in the UK, Reaganomics in the United States…or Rogernomics in New Zealand (p. 121).

New Zealand’s abrupt reform altered core social, economic and political structures, which have to date, remained largely in place. The reforms, while in many respects benefited New Zealand in terms of an improved standard of living and macro-level economic management, from a planning perspective, the results have been mixed. I argue that these reforms are both the basis of the issues facing Auckland, as well as providing a structure for its solutions for generating mechanisms for Sustainable Development. New Zealand has a well-established democratic system and a sophisticated market; one capable of sustaining ecological modernization or the use of market instruments to improve environmental planning, as well as provision for social
Sustainability within the local government Act discussed below. In addition, New Zealand possesses a political climate where policies aimed at addressing global warming features strongly on the political platforms of both major parties on the right and left alike, as well as strongly advocated by the Green party of Aotearoa / New Zealand.\(^\text{40}\)

As will be shown below, market-based instruments are becoming commonplace and are growing in number and sophistication as governments and societies become more experienced with their application. As more market-based environmental initiatives are created, particularly the use of green taxes, their application will most likely continue to grow. From the beginning of the 1990s, particularly in Europe, there has been a proliferation of new environmental taxes that seek to internalize so-called environmental externalities (Brown, 2006). Similarly, there has also been a growing acceptance from companies that believe that sustainable development is an important issue (Giddings, Hopwood, & O’Bien, 2002). These trends and instruments, when combined with greater wealth (and therefore the greater the likelihood of generating the capacity for improved environmental regulation), stronger impact assessment, higher standards of environmental awareness and regulation and quota systems, provide a sound basis for further environmental gains to be made. Consequently, the measures and conclusions regarding the potential for implementing SEA with the aim of achieving Sustainable Development are arguably more viable than ever (Hawken, 1995; Hawken, Lovins, & Lovins, 1999; Neumayer, 2003).

However, I also argue that planning systems based on the ideology of neo-liberalism have also experienced side effects to the detriment of social cohesion within New Zealand society and other nations that have embraced this ideology (Putnam, 2000). In addition, the impacts of neo-liberal thought are also thought to be linked to the purported worsening trust of government institutions reflected in declining voting patterns (O’Neill, 2002). This decline is in turn linked by some authors to reduced individual democratic engagement with government institutions and therefore the overall strength of governments to produce substantive environmental policies (Barnes, 2006; Diamond, 2005).

Within the neoliberal agenda, and its application in New Zealand, three theoretical strands emerge: (1) Rational Choice theory (2) Agency theory and (3) New Managerialism. These are

\(^{40}\) New Zealand is also a signatory of the Kyoto Protocol.
discussed in turn below. I follow with how these have been applied at the central and local government level, which will in turn be followed by an analysis of their impacts. I begin with Rational Choice Theory.

**Rational Choice Theory**

The New Right drew its theoretical position from the Utilitarian tradition (Colins, 1994), the public choice theory of James Buchanan (Buchanan & Tullock, 1962). Rational choice theory involves four broadly agreed assumptions.

(1) Rational choice involves utility. In economics, “utility’ is used as a measure of the happiness or satisfaction gained from a good or service maximization” (Black, 2006). When an actor is presented with a range of options, s/he will maximize his / her utility by selecting the preferred option that serves his or her objectives. Behavior is considered ‘rational’ when some form of maximization or goal orientation occurs (Green & Shapiro, 1994).

(2) Rational choice theorists also postulate that there are two consistency requirements that are essential for an action to be considered rational. These are, (i) the assumption of connectedness, and (ii) the concept of transitivity. The assumption of connectedness requires that all available options open to an individual must be rank ordered. That is, any two or more options must be of different or unequal value, thus allowing choice. Consistency also requires transitivity, that is, if option (a) is preferred to option (b), then option (a) must also outweigh option (c) and so on. Transitivity assumes little about the intensity of individual preferences other than option (a) outweighs option (b), nor is there an examination of the distance between the two options. For example, options (a) and (b) might be of similar value but options (c) and (d) could be extremely distant or unlikely to be selected. Transitivity necessitates only minimal consistency within preference orderings (Green & Shapiro, 1994).

(3) The third aspect of rational choice is the assumption that every individual maximizes the expected payoff, calculated on the above utility scale. The consideration of an expected, as opposed to an actual utility, is essential as decisions are often made in a context of uncertainty or
risk. Essentially, the theory of utility is created as a basis of providing a common denominator (usually money) for a range of goods or symbolic exchange values (Little, 2001). A business person creates a particular product or service based on expected changes or gaps in the market and s/he is unable to predict with certainty how a given market will react. Thus, it is assumed that numerical probabilities will be attached to particular eventualities and our actions are based on these calculations.

(4) The fourth aspect of rational choice is that the individual is the central unit of analysis. Collective action, therefore, is nothing more than the action of individuals working together. Thus, it becomes the core focus of theorists to explain collective action in individualistic terms. Consequently, rational choice theorists assert that their models apply equally to all units of study. Thus, rational choice assumes homogeneity of human behavior, based upon individual utility maximization.

The implication of individual utility maximization is that institutions are made up of individuals who inevitably engage in rent-seeking behavior. These decisions in turn affect the distribution of scarce resources and therefore environmental outcomes. As government institutions and behaviors are largely viewed in the same light, institutions are best treated in the same way - as profit orientated actors. However, the notion of treating governmental institutions and corporates in the same way is questioned, as Auckland is faced with myriad examples of market failure. Hence, the issue of collective action or market failure in relation to environmental outcomes is the key criticism of Rational Choice. Consequently, the problem for SEA within the context of Rational Choice becomes how to deal with the problem of Sustainable Development, given this level of market failure. In addition, market failure is an aspect of the Auckland Regional Growth Strategy, the impacts of which are discussed in Chapter II.

The Application of Agency Theory

The second theoretical influence to be employed by the new right is agency theory. Based on rational choice, agency theory posits that political / economic and social life is best understood as a series of contracts, where one actor enters into an agreement to undertake an action for a given
reward, agreed to by both parties. Similar to rational choice, agency theory constructs the rational actor as rational or self-interested utility maximizing agent.

Agency theory was initially applied to problems relating to the ownership and management of corporate entities in which, for example, CEOs are employed to manage a company acting as an agent on behalf of shareholders in order to maximize profits. The application of the theory expanded with the realization that these types of proxy relationships existed in many different arenas and levels of organizations. Consequently a high proportion of agency theory deals with understanding the process of principals’ (shareholders or governments) goals and motivations when entering into a contract with an agent. Most often, this takes the form of a range of rewards for goal maximizing behavior and sanctions for failure to achieve predetermined goals. The purpose of sanctions and rewards is thus to neutralize the potential conflict of utility maximization or opportunism between agent and principal (Boston, Martin, Pallot, & Walsh, 1996).

Just as in the private sector, firms run the risk of ‘agency costs’, as the interests of owners may diverge from those of the manager’s. Agency theory argues that these conflicts, inefficiencies and costs also arise between state bureaucracies and the taxpayer. Just as in the private sector, market discipline may be applied, and therefore these conflicts are dealt with most efficiently by the market and through contractual obligations, consisting of a series of stated objectives and sanctions for divergence from these goals. This logic was applied by the Fourth Labour Government to the state sector and was adopted by later administrations and applied to such things as employment law and education provision.

The result of the adoption agency theory was many government services being either fully or partially privatized, or devolved to the community level. Couched in terms of community empowerment, accountability and consumer control, government functions previously under the control of ministers were transferred to the private sector. Rational choice was applied to most government departments including Crown Health Entities, Education (the Tomorrows Schools program), and Social Welfare and Māori affairs, as well as local government. As a point of reference, Figure 13 shown below provides a timeline of these events, combined with national elections and other local and central government reforms.
The Application of New Managerialism

The new reforms reflected the wider, Western societies’ movement towards neo-liberalism, which regard the issues they face as problems to be solved through the application of the new management theory (Fitzsimons, 1999). The adoption of these principles, both in New Zealand and overseas, reflects a movement away from policy and administration, to emphasizing management, known as New Public Management (NPM) and has been used as basis of the legitimization of state reform. NPM has the following attributes:

- The differences between the public and private sectors are not generally significant; hence public and private organizations can, and should be managed on more or less the same basis;

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41 Along with United New Zealand led by Peter Dunne, Member of Parliament for the Wellington electorate of Ohariu-Belmont.
• A shift in emphasis from process accountability to accountability for results (e.g. a move away from input controls and bureaucratic procedures, rules, and standards to a greater reliance on quantifiable output (or outcome) measures and performance targets);

• An emphasis on management rather than policy, in particular a new stress on generic management skills;

• The devolution of management control coupled with the development of improved reporting, monitoring, and accountability mechanisms;

• The disaggregation of large bureaucratic structures into quasi-autonomous agencies, in particular the separation of commercial from non-commercial functions and policy advice from delivery and regulatory functions;

• A preference for private ownership, contestable provision, and the contracting out of most publicly funded services;

• A shift from relational to classical modes of contracting (i.e. from long-term and generally poorly specified contracts to shorter-term and much more tightly specified contracts);

• The imitation of certain private sector management practices such as the use short-term labor contracts, the development of strategic plans, corporate plans, performance agreements, and mission statements, the introduction of performance-linked remuneration systems, the development of new information management information systems, and a greater concern for corporate image;

• A preference for monetary incentives, such as ethics, ethos, and status; and

• A stress on cost-cutting, efficiency, and cutback management (Boston, Martin, Pallot, & Walsh, 1996, p. 26)

The reform was founded on five main principles: (1) the adoption or articulation of clear objectives of government departments and ministries, (2) the clarification of relationships, particularly between ministers and chief executives, (3) a greater level of managerial flexibility, (4) a greater level of accountability for decisions and (5) a greater level of transparency of government decisions (Organisation for Economic Co-operation and Development, 2000) and especially the privatization of government functions. These principles were embedded within the following legislative reforms:

• The State Owned Enterprises Act 1986

• The State Sector Act 1988

• The Public Finance Act 1989 and the Fiscal Responsibility Act 1994

• The Resource Management Act 1991
• The Local Government Act 1989, 2002

Figure 14 shows the relationship between these theories and their application to local and central government reform.

The State Owned Enterprises Act 1986 was enacted to reduce Crown debt by increasing state sector efficiency. The SOE (State Owned Enterprises) Act provided the framework for the corporatization of nine Crown entities, government departments, and departmental divisions, with new corporations becoming limited liability companies with shares held by the Minister of Finance. The Act required the SOEs to operate profitably as non state-owned companies did. Examples include the privatization of the Electricity Corporation, New Zealand Post, Radio and Television New Zealand and New Zealand Railway Corporation.

At the local government level, the corporatization agenda was reflected in a similar process to the creation of SOEs. Councils were required to privatize airports, seaports, energy delivery and public transport systems (Fookes & Hucker, 1997). Efficiencies were sought by contracting out
departments responsible for services such as sewage, water and waste disposal, which became Local Area Trading Enterprises (LATEs).

Similar to SOEs, LATEs became whole or partly owned companies under the control of a board of directors appointed by councils, operating as commercial enterprises. The rationale for the creation of LATEs was to introduce efficiency, transparency and to remove ‘political interference’ (Bush 1995). The requirement of councils to privatize was quickly adopted. Prior to the reforms, most council services were delivered in-house. By 1994, this had declined sharply to less than 16 percent of council services being exclusively run through internal agencies; these were mainly sewage, water supply, drainage, and refuse disposal (Bush 1995).

While the political climate at the time was amenable to contracting out services, it was never compulsory. This however changed in 1992, when Regional Councils were directed to contract-out functions unless there was a clear advantage to doing them in-house. Explicit legal sanction was given for contractual relationships, but consideration had to be given to such things as effectiveness and efficiency, and liability remained with the councils (Bush, 1995).

The State Sector Act 1988 redefined the role of Ministry heads as Chief Executive Officers. This Act was a direct application of agency theory, with its separation of service provision and ownership, according to Scott, “[t]he fundamental concept underlying the… Act was the distinction between the government’s purchase interests and the ownership interests within a department” (2001, p. 17). With its focus on ‘outputs’ the Act enabled managers to introduce new managerial practices and supported a decentralized approach to public management.

Chief executives became employers in their own right over all staff. This meant that public sector employment relations became similar to the private sector, with a primary focus being to bring private sector economic discipline to public management. Accountability to government was defined in terms of assessing resource productivity through measures of inputs, outputs and outcomes.

A related reform was the Public Finance Act 1989 (amended in 2004), which introduced new financial reporting systems into the public service with accrual accounting replacing cash accounting and departments having stricter financial reporting processes (Boston, Martin, Pallot, & Walsh, 1996). The Act required departments to create service performance reports which included
defining responsibilities, developing a definition of their performance and level of service provided, compared with those specified in purchase agreements. The Act also encouraged greater efficiency and effectiveness of public resources with financial managerial incentives (Fookes & Hucker, 1997). These provisions were made to apply to many output categories and be publicly available under the requirements of the Official Information Act. A further reform was a response to the high level of public debt accumulated during the Muldoon (National) era.

In 1994, the then National Party Minister of Finance, the Rt. Hon. Ruth Richardson, introduced the Fiscal Responsibility Act. The Act provided the legislative framework for the management of SOEs, government departments and ministries. The core aim was to develop financial policy through the establishment of five ‘principles of responsibility’ of fiscal management by means of strengthening the reporting provisions on the Government.

The Act is intended to promote improved decision-making by the Crown, improve accountability, and encourage a greater level of informed public discourse concerning fiscal policy. The Crown is now required to be transparent about its short and long-term fiscal planning (Birch, 2003). The Act involves the following principles:

- Reducing total Crown debt to prudent levels, so as to provide a buffer against future adverse events, by achieving operating surpluses every year until prudent levels of debt have been achieved.
- Achieving levels of Crown net worth that provide a buffer against adverse future events.
- Managing prudently the risks facing the Crown; i.e., to recognize risk and where possible take steps to manage it.
- Pursuing policies that are consistent with a reasonable degree of predictability about the level and stability of tax rates for future years; i.e., to avoid surprises about future tax rates (Birch, 2003, para. 1 - 6).

Definitions of a “prudent” level of debt, or risk management, a level of Crown net worth that provides a “buffer against future events”, or a “reasonable” degree of predictability are not stated in the legislation. It is up to the Government of the day to decide what relevant financial terms are included in its Budget Policy Statement and Fiscal Strategy Report.

The above reforms were also given effect at the local government level, to which I now turn.
Local Government Reform 1984 - 1999

An examination of New Zealand’s experience of neo-liberalism shows that market-orientated reform has had a significant impact on local and central government structure. In pursuit of greater efficiency and in line with the new managerial approaches given above, local governments were restructured and devolved to regions and districts. This section outlines the key reforms relating to local government.

The ideological position espoused by central and local government alike was a reflection macro-level reform and resulted in local governments actively defaulting to the market and discouraging long-term or strategic planning, as it smacked of the centralized planning approach of the pre neo-liberal era (Muldoonism)\(^{42}\) (Douglas, 1993), and market efficiency became the new benchmark for local councils.

This benchmark was initiated by the Labour administration and was articulated in the Statement on Reform of Local and Regional Government (1988) by the Minister of Local Government, the Rt. Hon. Dr Michael Bassett, who led the local government reform process. In this statement economic efficiency became the yardstick for measuring the performance of local authorities. As it was considered ‘anti-competitive’ for local authorities to compete with the private sector while at the same time providing regulatory control, local governments were required to separate commercial agencies from regulatory and policy functions, as well as gaining efficiency by contracting out services. While local governments were indeed made more fiscally trim, the price of embracing the free market was functional disconnectivity resulting in weakened planning instruments.

The Local Government Act 1989

The pattern of local government structural development has been one of non-integrated functions, to consolidation, and then devolvement, and most recently, a swing back to the consolidated

---

42 Sir Robert Muldoon was Prime Minister and leader of the National Party (conservative) between 1975 and 1984.
model of the pre-reform era (Memon, Davies & Fookes, 2007). The Local Government Act reflects these changes.

For the majority of their history, local governments in New Zealand consisted of *ad hoc* development of county councils and boroughs, roads boards and municipalities. Water supply boards managed water related services and the roads boards built more roads. As W. B. Sutch noted: “it was a case of most of the provincial powers being devolved to Lilliputian local authorities with the centre assuming responsibility for the absolute minimum” (cited in Bush, 1995, p. 11). The pattern of development changed little until 1912, when the benefits of a more unified system were reviewed by central government in the Local Government Bill. At that time, there were 110 counties, 137 municipalities and 121 *ad hoc* authorities (368 in total). By 1975, the number of local government entities increased to 912 local authorities at the borough, city and county levels, including catchment boards, land drainage boards, harbor boards, electric and gas boards, fire and pest destruction boards (Scott, 1979). Reform included the abolition of the bulk of single-purpose boards, the creation of community boards as well as the adoption of management practices, previously associated with central government (Bush, 2001).

The Local Government Act 1989 reduced the number of Regional and territorial authorities from 205 to only 88, 74 local authorities and 14 regional authorities (Table 21).
Table 21: Structure of Local Bodies Before and After Restructuring November 1989

<table>
<thead>
<tr>
<th></th>
<th>As at 31 March 1989</th>
<th>1 November 1989</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regional</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td>Regional 3</td>
<td>Regional 14</td>
</tr>
<tr>
<td>United</td>
<td>1</td>
<td>(22)</td>
</tr>
<tr>
<td></td>
<td>(14)</td>
<td></td>
</tr>
<tr>
<td><strong>Territorial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipality</td>
<td>106</td>
<td>City 14</td>
</tr>
<tr>
<td>County</td>
<td>67</td>
<td>County 1</td>
</tr>
<tr>
<td>District</td>
<td>31</td>
<td>District 59</td>
</tr>
<tr>
<td>Town District</td>
<td>1</td>
<td>(205)</td>
</tr>
<tr>
<td></td>
<td>(74)</td>
<td></td>
</tr>
<tr>
<td><strong>Special purpose</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pest destruction</td>
<td>61</td>
<td>Energy 37</td>
</tr>
<tr>
<td>Energy</td>
<td>38</td>
<td>Hospital/area health 14</td>
</tr>
<tr>
<td>Hospital/area health</td>
<td>29</td>
<td>Licensing trust 28</td>
</tr>
<tr>
<td>Licensing trust</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>River/land</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td>27</td>
<td>-</td>
</tr>
<tr>
<td>Catchment</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Harbour (sic)</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>20</td>
<td>(235)</td>
</tr>
<tr>
<td></td>
<td>(86)</td>
<td></td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District community</td>
<td>13</td>
<td>Community board 159</td>
</tr>
<tr>
<td>Community</td>
<td>118</td>
<td>(159)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>593</td>
<td>333</td>
</tr>
</tbody>
</table>

Source: (Table 1 cited in Bush, 1994, p. 105)

In addition, the Local Government Act also:

- established direct election for regional councilors;
- reduced number of ad hoc or special purpose authorities from 400 to 7;
- separated regulatory functions from operational and policy functions;
- corporatised (sic) trading activities;
- established new accountability procedures for “objective led corporate planning” with requirements for public input;
- specified appointment of chief executives on contracts (Frieder, 1997, p. 8)
The leading proponents of local government reform during the neo-liberal era were the cabinets of both major parties augmented by policy advice from the New Zealand Treasury. In 1987, Treasury created a series of briefing papers to the newly re-elected Labour Government that recommended that broad reform based on New Public Management (NPM). Treasury argued that local government was financially wasteful, excessively bureaucratic and performing poorly, largely due to the lack of management performance incentives. After being received by cabinet, the then Minister of Local Government Michael Bassett fast-tracked a reform package.

The sweeping reforms since 1987 embraced efficiency gains as the unifying driver for local government. It was envisaged that these gains would reduce the cost of local government without compromising capacity. As NPM stresses the application of private sector discipline to local governments, town clerks and city engineers became chief executive officers. This contractually based relationship formed the basic structure for many government services where bureaucrats function as agents of elected officials or other funding agencies (Wallis & Dollery, 2000). In the case of CEOs, performance agreements were created and outputs specified. The intent of the NPM reforms also included the expansion of choice via privatization of the decision-making process and the separation of policy creation and service delivery (Thomas & Memon, 2005).

New Managerialism embraces the following principles:

- public and private organizations are essentially similar and should be managed in the same way,
- a shift towards the measurement to accountability for results,
- a stress on generic management skills,
- the devolution of management,
- the separation of policy advice from service delivery,
- a preference for private ownership and contracting out services.

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43 The council clerk was usually the chief administrative officer and acted as a conduit between the council and the public. Both the clerk and the engineer were appointed by council (Boston, Martin, Pallet & Walsh, 1996).
• a shift to short-term specific contracts,
• the introduction of strategic plans, performance agreements, mission statements, and performance linked remuneration schemes and IT management systems,
• a preference for monetary incentives and finally,
• a focus on cost-cutting, efficiency and cutback management (Boston, Martin, Pallot, & Walsh, 1996).

The impact of New managerialism may be seen in the provision of services. Prior to the reforms, the bulk of council services were in-house. Following the amendment of the Local Government Act s247 D required local authorities to consider the advantages and disadvantages of different service options, especially contracting out and the creation of Local Area Trading Enterprises (LATES). The impact of this requirement saw exclusive council service delivery decline significantly and the corresponding increase in out-sourcing (Boston, Martin, Pallot, & Walsh, 1996). This was later strengthened in a 1992 amendment with the presumption that in-house delivery of services would not occur unless a case for it could be made.

The reform of local government is related to the implementation of the Resource Management Act in several ways. First, the reviews of legislation relating to local government were coupled. They were both examined in the same select committee reviewing the draft legislation. Second, water catchments provided the basis for boundaries for regional authorities. Third, while it is the responsibility of central government to create national policy statements, it is up to local governments to implement them (Frieder, 1997). In the following section the RMA is discussed.

The Resource Management Act 1991

Although the RMA was enacted earlier than the 1992 United Nations Conference on Environment and Development (the Earth Summit), it was designed to incorporate many of the principles of Local Agenda 21, including the assessment of environmental effects of projects, more commonly known internationally as EIA. In addition, the RMA includes a strategic focus with provision for
national-level strategic policy planning (national policy statements) as well as strategically orientated regional and district planning instruments, which are taken in this thesis as SEA equivalent.

The RMA was passed in response to the increasing recognition that the previous method of managing New Zealand’s natural resources was unable to address the complexity of environmental issues in a piecemeal way. Prior to the RMA, land, air and soil-use were treated largely independently of each other and a new, more integrated means of addressing these issues was needed. Prior to the RM Act, it was thought that the previous dis-integrated framework made the management of the environment as well as compliance expensive, inefficient and in some case ineffective. Interest in local government planning reform was high even before the 1984 election, for example, The Water and Soil Conservation Act had been under review for over a decade prior to the RMA. Similarly, the Town and Country Planning Act, which the RMA replaced, was perceived as sluggish and expensive, and the minerals law had come under attack because of its exclusion of the public from the process (Frieder, 1997).

By merging many of the existing natural resources laws, the Act introduced a new approach to environmental management, looking at the environment as a whole and included greater provision for public involvement and the wider use of EIA. The Act shifted the focus away from intended outcomes as opposed to the use of regulation to one of effects-based planning. The upshot of effects-based planning was that, unlike the previous Town and Country Planning Act 1977, where activities were forced to operate in specific zones, under the RMA, if activities are able to meet environmental standards, businesses for example, they should be able to operate theoretically in any area. This approach supposedly incentivized resource users to create more environmentally efficient production processes (Jackson & Dixon, 2007). Reflecting Local Agenda 21, the RMA

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44 The Town and Country Planning Act was originally enacted in 1926 to meet the needs of urban growth in New Zealand. The Act required planning authorities to create and administer Town Plans to regulate land use through prescriptive zoning. The Act was reformed in 1953 to allow the delegation of central government control over local government and to enable communities a greater say over local government activities. In 1977, the Act was further reformed to include matters of national importance to be include in all schemes, for example, the encroachment of sprawl on land with a high food production value. However, the Act was criticized by environmentalists for focusing too much on economic development and transport infrastructure and doing little for the natural environment. The Act came under fire from the business community who criticized it for impeding development. In 1991, the Act was replaced by the Resource Management Act (Perkins, Memon, Swaffield & Gelfand, 1993).
was created to include the “subsidiary principle”, where decision-making is carried out as close to affected communities as possible. Similar to the structure of SEA, the RMA gave greater democratic powers to the community by granting them opportunities to comment on resource consents, district, and regional plan changes, as well as aspects of the consent process (EIA). While creating a devolved system, based on the subsidiarity principle, the RMA created a structure whereby a hierarchy of plans exists to achieve the purpose of the RMA. It was intended that governments would create national policy statements, forming the apex of planning in New Zealand. Consistent with national policy statements, regional councils would then have an overarching framework with which to base their regional plans for integrated management. Districts were to produce local plans consistent with regional and national policy statements (see Figure 15: Resource Management Act 1991), which provides a statutory context for the consent process.

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45 Peterson (1994) citing the Oxford English Dictionary defines the subsidiarity principle as: “the quality of being subsidiary; specifically the principle that central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at a more immediate or local level” (p. 117), http://pa.oxfordjournals.org/cgi/reprint/47/1/116.pdf.
The RM Act also specified the responsibilities of District and Regional councils.

**District and City Councils**

Territorial authorities are primarily responsible for controlling:

- the effects of land-use (including hazardous substances, natural hazards and indigenous biodiversity)
• noise
• the effects of activities on the surface of lakes and rivers.
• Subdivision can also be controlled under the RMA, though only to the extent that it forms a method of carrying out the functions specified above.
• To enable them to carry out these functions, territorial and unitary authorities are charged with preparing district plans, issuing resource consents, taking enforcement action, and monitoring the state of the environment and the effects of their own decisions.

**Regional Councils**

The regional and unitary councils\(^{46}\) are responsible for controlling:

• the taking, use, damming, and diversion of surface water, groundwater and geothermal water
• the discharge of contaminants to land, air or water
• the effects of activities in the coastal marine area (together with the Minister of Conservation)
• the introduction of plants into water bodies
• maintaining indigenous biodiversity
• land-use for matters such as soil conservation, maintaining and enhancing ecosystems in water bodies, water quality and quantity, and controlling natural hazards and hazardous substances
• the strategic integration of infrastructure with land-use (Ministry for the Environment, 2006a, p. 16)

Figure 16 demonstrates the distinction between district and regional authorities.

While committed to the notion of sustainable management, the RMA reflects many of the principles more widely associated with the Sustainable Development articulated by the World Summits. However, according to the then Minister for the Environment the Rt. Hon. Simon Upton, the Act was never intended to achieve Sustainable Development (Upton, Atkins, & Willis, 2002).

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\(^{46}\) New Zealand also has five unitary authorities. Unitary authorities have the combined responsibilities of district and regional councils. These authorities are: Tasman District Council, Nelson City Council, Marlborough District Council, Gisborne District Council and the Chatham Islands Council (Department of Internal Affairs, 2004).
Hence, the purpose of the RMA is to promote the “sustainable management of natural and physical resources” (Ministry for the Environment, 2006a, p. 6).

Figure 16: Functions of Territorial Authorities

To achieve this end, the RMA uses an impact assessment process as a key planning instrument. The Fourth schedule of the RMA sets out the elements for the assessment of environmental effects as well as an environmental statement which includes a description of the proposal, methods for avoiding, remedying or mitigating any significant environmental impacts as well as how monitoring will be carried out. The inclusion of EIA into New Zealand’s RMA was not new. The first use of IA may be dated back to a Cabinet Minute, which was passed in 1974 called the Environmental Protection and Enhancement Procedures. The minute had no legal force and
applied only to activities carried out by government departments or requiring a license or permit, for example, a mining license (Ministry for the Environment, 2005c).

The RMA was created at the height of New Zealand’s engagement with neo-liberalism and associated restructuring under the then National (conservative) government. Concurrent to this reform, the expansion of environmental knowledge led to a greater sophistication and more widespread understanding of environmental issues. This created a tension between support for free-market reform and those who demanded improved environmental planning and legislation (Perkins & Thorns, 2001). While the RMA is intended as an integrative approach, i.e. one that attempts to incorporate social, economic and biophysical aspects of the environment into planning, the outcome has been quite different. As intended by its authors, the interpretation by regional and district authorities has historically been one that concerns itself predominately with the management of natural and physical resources only (Upton, Atkins, & Willis, 2002). This remains a distinguishing feature of the RMA in its focus on the biophysical only to the exclusion of the notion of society, indeed the intent of the Act was to exclude the social from planning (Perkins & Thorns, 2001).

Under this political agenda, and contrary to its own, overt aims, the enactment of the RMA was largely relegated to the level of local government. This vision is shared by both neo-liberal orthodoxy (Upton, Atkins, & Willis, 2002), as well as a core concept within Sustainability literature (Dryzek, 2005; Neumayer, 2003). The issue with decentralization is that it results in rather similar outcomes to that of free-market social engineering; Dresner (2002) exposes this problem:

> The paradox is that Sustainability is a philosophy firmly based on the notion that attempts to transform Nature are likely to be self-defeating, but is itself committed to attempting to transform and control its future direction. The Green movement attempts to get around this problem by advocating radical decentralization of decision-making so that Sustainability can be implemented from the grassroots upwards. One difficulty with that answer is that Sustainability is a global problem requiring global coordination of action. Leaving all decisions to local communities is not very different from the neo-liberal solution of leaving everything to the market to decide; there is every possibility for free-riding and the tragedy of the commons (cited in Porrit, 2003, p. 282).

With little in the way of government support for Sustainable Development, the creation and bedding down of the Act was poorly resourced, leading to weak implementation. Chapman, Erickson, Crawford, Berke, and Dixon (2003) in their evaluation of first generation District Plans found that they “were only of poor to average [quality]”, (p. 14). The research noted the absence of
guidance and lack of resourcing from central government as key factors in determining the low quality and inconsistency of plans throughout New Zealand.

The poor quality of implementation reflected the ‘hands-off’ approach to governance underpinning the RMA (Gunder & Mouat, 2002), and when combined with an acceptance of this ideology on the part of planners and regional authorities, little ‘strategic-level’ or long term planning occurred over the following decade (Lewis, 1999). The result of this approach to planning was poor planning outcomes as many councils were and remain under-resourced for key activities such as the monitoring of environmental outcomes and plan creation and community involvement. In addition, to the detriment of the overall intent of the Act, it has been criticized for its over-emphasis on process (Dixon, 2002). The Parliamentary Commissioner for the Environment comments:

> The extensive criticisms of the RMA have largely been about process, rather than the substance of the Act, and the broader goal of advancing the country towards Sustainability has largely been forgotten in disputes over detail within the RMA (Williams, 2002, p. 52).

The RMA, while on paper, is a robust structure linking national policy to District and Regional planning, it failed to live up to its promise, largely because of the lack of central government support. While the RMA remains a leading edge example of strategic planning legislation, to date, central governments have consistently failed to vertically integrate policy.

While the RMA was intended as a strategic-level planning instrument as well as establishing a development control process, local councils, whether because of ideological commitment to the market principle (Upton, Atkins, & Willis, 2002) or lack of capacity, failed to live up to expectations, with little evidence of the type of long term planning required to meet the demands of Sustainability, if it ever was intended (Memon, 2002). The drive for economic efficiency and privatized service provision caused a de-linking of services, resulting in a great deal of internal fragmentation of councils.

### The Local Government Act 2002

The Local Government Act 2002 (LGA) is, in many respects, a response to the growing sophistication of the New Zealand public, and how it demands political representation. This is in
turn reflected in how local communities wish to be consulted in local government decisions and a
greater emphasis on SD than is provided by the RMA.

In 1999, the New Zealand public, tiring of the market liberalization carried out by both the left -
administrations, elected a Labour administration that espoused a ‘Third Way’ or social democratic
government. This administration, true to its ideological roots, produced a greater level of centrism,
higher taxation and a weaker emphasis on market forces. Since its election in 1999, the New
Zealand Labour Government rolled back many of the neo-liberal reforms of the last twenty years,
and attempted to recreate ‘big government’ (Giddens, 1998, 2001; Palmer, 2002; Reid, 2003). The
Third Way approach, a term originally coined by Karl Mannheim (1893-1947) (1943), refers to a
type of governance or a form of modified capitalism that falls under the rubric of social democracy
(Winship, 2003) – an ideology that emphasizes the primacy of the market, yet rejects the
conservative fundamentalism associated with the 1980s and 1990s.

The Third Way is intended to provide a softer edge to un-moderated capitalism, and is associated
with the Scandinavian approach to governance, and an emphasis on generating policies aimed at
creating greater social cohesion and a more inclusive structure for the articulation of community or
individual voices in decision-making. The LGA is a product of this doctrine and entails a more
collaborative approach to integrate strategic planning in the context of Sustainable Development,
and provides a stronger mechanism for the expression of what communities want from local
authorities, who are required by law to take note of these directions.

The LGA is a new initiative that is intended to improve democratic processes by shifting the
emphasis of local governance from a culture of consultation to one of participatory democracy.
The introduction of participatory democracy into New Zealand’s planning processes is a step
intended to improve social, economic and environmental outcomes as well as cross and supra-
agency integration. The main mechanism for generating these outcomes is the Long Term Council
Community Plan (LTCCP). LTCCPs include many aspects similar to SEA. For example, both
processes are intended to articulate a long-term vision aimed at Sustainable Development. This
may be seen in Part I, which states that the purpose of the Act is to:

provide for democratic and effective local government that:
(d) provides for local authorities to play a broad role in promoting the social, economic, environmental, and cultural well-being of communities, taking a sustainable development approach. [italics added]

The Waitakere City Council summarizes the purpose of the LTCCP to:

- describe the activities of the Council
- describe the community outcomes desired for the city
- provide integrated decision making (between the Council and the community) and co-ordination of resources
- provide a long term focus for the Council’s decision and activities
- provide a basis for accountability
- provide an opportunity for community participation (2007)

In addition, the LTCCP may be viewed as a strategic document, which takes a relatively long-term approach by laying out the planning process for the next decade. Like SEA, the LTCCP also emphasizes consultation to deliver goals which are agreed to between the council and the public, which are updated every three years.

The LTCCP consultative procedures go beyond standard consultation such as the planning instruments created under the RMA as well as other legislation. The principles of consulting publics has been expressed in case law. Two years after the creation of the RMA, an influential case at the Wellington Court of Appeal (“Wellington International Airport v Air New Zealand, 1993”) defined the term ‘consultation’. According to Justice Cooke, this was to mean that consultation does:

…not require that there be agreement, although this might occur particularly as the tendency in consultation was at least to seek consensus. It clearly required more than mere prior notification. If a party having the power to make a decision after consultation held meetings with the parties it was required to consult, provided those parties with relevant information and with such further information as the requested, entered the meeting with an open mind, took due notice of what was said and waited until they had their say before making a decision; then the decision was properly described as having been made after consultation (p. 674, line 21).

The case went further to suggest that consultation must never be treated as a mere formality. Those consulted must know what is proposed and be given ample time and opportunity to express their views or to point to problems or issues with a proposal – publics must be given the opportunity to state what they think. The concept of good faith is also an important element. Citing previous case law, in the above case, Air New Zealand argued that a genuine effort must be made, thus consultation does not mean simply to inform or present, nor does it mean to agree. It also does not mean to involve negotiation toward agreement, although this may follow. Consultation therefore, is an intermediate position, one that involves meaningful discussion. Therefore, consulting parties, who may often have preconceptions of how a project should go ahead, should be open to potential changes suggested or even to start afresh. These principles have since been used as a basis for consultation processes employed by central and local government alike.

LTCCPs are the key instrument whereby councils are required every six years to identify community outcomes for the short and long-term development of the district or region. It is intended to create a process where the community takes a degree of ownership of council direction.

Similar to SEA, the LTCCP provides a vehicle for community empowerment by offering the opportunity for groups to express opinions. The intent of the Act is to create a more collaborative, community-driven process. LTCCPs do not override the RMA and there is no requirement that new plans developed should be created in accordance with the LTCCP. However, because LTCCPs record the intentions of the community, other plans are expected to reflect these desired outcomes (See Figure 17).

The LGA also signals a departure from earlier local government legislation as previous administrations were limited by statute to specific activities such as roading or drainage infrastructure. The LGA allows local government to act outside of these traditionally defined core activities. The Act directs councils to orientate their policies towards Sustainability, predicated on the acquiescence of the local community, in a highly transparent and consultative manner.

Central to the LGA is the notion that local government gains its legitimacy from the participation of citizens and communities, and that political participation is good for communities (Reid, 2001).
The issue has come to revolve around a number of dimensions including the place of representative democracy, the role of voting and annual planning in providing effective accountability, and social capital.

**General Competence**

The LGA is intended to encourage a greater level of regional autonomy and allow councils greater flexibility in governance.

The reform of the Local Government Act was motivated by the dissatisfaction felt by Government at the way the RMA has been applied to local governmental planning (Hutchings, 2003). This dissatisfaction was partly a result of an adherence to the principles of the free market and a consequent reluctance on the part of local governments to exercise collective control over individuals and property owners on the behalf of the community.

The LGA 2002 departs from its earlier version, as it was based on the principle of *ultra vires*, which limits the activities of local government to those stated in statute. One of the key changes embedded within the reformed Act is the Power of General Competence (PGC), which represents the opposite of *ultra vires*. The PGC allows local government to carry out any activity that is not outside its statement of purpose and does not contravene general law.

The PGC is related to central government’s intention to encourage local government to engage in a wider range of issues than previously. In New Zealand, it has been a lasting tradition that services such as the creation of roads or sewage management are provided mainly by local government while social services are solely the domain of central government and voluntary agencies (Scott, 1979). This separation of services remains largely in place today, although with some exceptions such as housing, limited educational services and the promotion of cultural (ethnic) activities. The power of general competence given to regional and district councils alike represents a potential vehicle for applying SEA. A strategic perspective is adopted with local governments being required to prepare long-term council community plans. These instruments have a ten-year planning horizon, with the intent of identifying community outcomes every six years. The process for identifying community outcomes is stated in section 91(c). These are:
• Providing opportunities to discuss their desired outcomes in terms of the present and future social, economic, environmental and cultural well-being of the community;

• Allowing communities to discuss the relative importance and priorities of identified outcomes to the present and future well-being;

• Providing scope to measure progress towards the achievement of progress towards the achievement of community outcomes;

• Promoting better co-ordination and application of community resources; and

• Informing and guiding the setting of priorities in relation to activities of the local authority and other organisations (Mitchel & Salter, 2003, p. 14).

Once community outcomes are identified, councils must evaluate their LTCCPs no less than once every three years, to determine progress in desired outcomes. As noted above, the Act gives clear direction to local government to promote sustainable development in an integrated way, requiring local governments to consider economic, social, cultural and environmental issues (Jackson & Dixon, 2007). From an SEA perspective, the first most significant departure may be seen in Part I which encourage territorial authorities to promote “social, economic, environmental, and cultural well-being of their communities, taking a sustainable development approach.” [italics added] (Local Government Act 2002). Under the Act, authorities now have wider discretion of what services they provide.

In 2004, the LGA was amended to include the Auckland Regional Growth Strategy (the Local Government (Auckland) Amendment Act 2004). This reform was intended to give statutory recognition of the ARGS as it had previously stood outside the normal RMA planning process (Dixon, 2002). This amendment conferred upon the Growth Strategy, the status of a Regional Policy Statement, thus formalizing the compatibility of sub-regional planning instruments, i.e. Regional and District Plans, strategies and local area agreements.
I now turn to an analysis of the impacts of neoliberal reform on local government and wider society.

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The Effects of Neo-liberal Reform on Local Government

The period between 1984 and 1999 may be characterized in New Zealand as the libertarian era with corresponding free market policies, initially under Labour in 1984 and National until 1999. The core achievement of this era was the modernization of local government in terms of its amalgamation of fragmented local government, and the creation of a two-tier system. In line with the New Public Management (NPM), territorial authorities were required to run their operations in a similar fashion to the private sector, with the intent of improving transparency, accountability and contestability (Memon, Davies & Fookes, 2007). Proponents of NPM argue that local governments are at their most efficient when they are structurally fragmented and subject to market competition (Starr, 1988). NPM may be described as applying theories of economics to the study and application of politics. It is interesting to note that although the term has become synonymous with neo-liberalism, its application in New Zealand has been one of unifying and amalgamating local government function, a process that historically began prior to the neo-liberal period in at least 1974, the local government Act. 49

The contracting out of public services is in certain respects also linked to poor council performance and the loss of confidence or trust in public institutions. While there is a range of theories relating to the decline in trust of public institutions relating to varying demographic cohort voting, gender differences, the rational calculation of effort of voting versus time, as well as varying responsiveness of institutions, I focus on the privatization of council services as a key factor in detracting from the ability of local authorities to act in a way that enables them to achieve Sustainable Development.

The inability of councils to achieve SD outcomes is related to the loss of confidence in public institutions, as they are seen by publics as less of a public institution or service and more as a self-serving organization. As noted above, NPM focuses on measurable outputs defined in contracts. This practice is relatively rare, as the majority of countries focus on targeting performance. Under the New Zealand system, outputs are targeted. Performance focuses on the key important results or those needing most attention; outputs on the other hand are a series of

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49 The Local Government Act 1974 restructured local governments into district and regional councils.
goods and services that are created by an organization. In theory, this allows cleaner separation of management and policy. It encourages a greater level of entrepreneurship and circumvents the potential for routinized bureaucracy. The New Zealand government output specification may be described as government by contract; formal agreement is made between leaders and managers, outputs specified. This description is however largely illusionary. Internationally, this level of formality is rare and other NPM countries often rely on relationships that are more informal. In many respects, New Zealand is no exception; in reality, public managers unavoidably operate in a political environment. It would be an exceptional politician who refrained from intervening in operational matters (Minogue, 2002). The contract is in many respects a costly and irrelevant by-product (Schick, 2001).

The issue with this approach is, you get what you measure. For example, a government service may require a certain number of reports to be written in a given timeframe. While punctuality may be considered virtuous, this says little of the quality of the reports. There is also the issue of measurement. As noted above, what is measured is what is done. If a hospital measured success by the number of discharges in a given year, emphasis would be placed on getting patients through the doors, irrespective of the quality of care the patient receives. The impact on the family of substandard medicine is substantial, as is the impact on other government functions when costs are passed around to social welfare that might end up caring for a person in the long term because of receiving ineffective care (Easton, 1999).

A useful example of the management or measurement culture is the recent study on the implementation and administration of the RMA by all local authorities across the country carried out bi-annually by the Ministry for the Environment (2007). Largely in response to political pressures regarding the efficiency or more specifically the time taken to process resource consents, the study evaluates the efficacy of the RMA. To judge the effectiveness of such an important and influential environmental legislation, one would expect to see an evaluation based on the principles embedded within the law and how they have been applied. Instead, the research focuses on time taken to process consents. Absent are questions relating intangibles such as quality, experience or educational level of consents processing staff. Absent is the level of research gone into consultation processes and other informational needs for key planning instruments such as District Plans. Absent is the quality of Assessments of Environmental Effects.

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Absent are questions relating to funding of local authorities and capacity and these factors are related to the quality of planning processes. The point being made here is that what I refer to as measurement culture is a poor way of evaluating such a complex instrument as the RMA. A further example of the failure of measurement culture and contractualism is the lack of integration of planning functions.

In New Zealand, central governments (both left and right) have been criticized for their failure to develop the top tier of resource management intended by the RMA (National Policy Statements) (Dixon, 2002). A similar criticism may be made of European and US SEA. Leading up to the creation of the SEA Directive, the need to include national or policy level SEA was recognized, but ultimately not included. As noted previously, for Sustainability and IA methodologies to work successfully, there has to be a high level of vertical and horizontal integration, in other words a higher level of coordination between government agencies both at the central and local level. This issue goes to the heart of my critique of neoliberalism and its adherence to free market principles, which I suggest works to undermine government functional relationships, by encouraging structures that have related environmental impacts, yet work relatively independently of each other, a problem more commonly known as the silo effect.

Adhering to free market principles and when combined with the cynicism of growth in the size of government based on rational choice theory, the specialization of government function is the end result, causing an over-emphasis on measurable outputs, but in certain respects also losing functionality. The silo effect analogy is one that is applied to governments when they fail to make the appropriate connections between policies and institutions. The underlying drivers of these reforms are aimed at matching organizational resources to ‘customer demand’ and thereby increasing efficiency, which are operationally dictated by a contractual relationship. These goals were in many ways achieved, but at the expense of severing or weakening institutional connectivity, both between national and local governments and intra-departmental relationships.

The result that occurred was that many government departments operated more independently of one another and the level of integration of services declined. As Van Gramberg (2003) observes

50 The Ministry for the Environment has recently created a “Whole of Government” unit under a Deputy Secretary to grapple with this issue.
“the integration of those services is more difficult and there are gaps in information flow and service provision” (p. 1). To date, few governments have escaped what could be termed the current government managerial paradigm (Larbi, 1999). This structure creates a framework that actively encourages short-term, uni-dimensional thinking. Paehlke (2003) captures this issue well:

Those in positions of economic power who reflect and worry, who spend their time thinking beyond the next institutional reckoning that they must face, will not likely survive the next board meeting or election. They have arrived where they are because they live in the economically measured moment better than anyone else. They know what needs to be done to make things (one dimensionally) better now, or maybe next week or next year. They are not expected to reflect on the long term or to multi-dimensionality (p. 148).

The physical impact of this fragmentation can be seen through the reduced capacity for councils and central governments alike to achieve Sustainable Development outcomes through strategic planning. This disavowal of strategic planning, combined with the free-market orientation during the 1980s and 1990s, became reflected in urban structure and most obviously in the arena of transport infrastructure and urban sprawl. In Auckland, despite the introduction of the RMA with its strategic planning tools and the devolution of local council processes, the political culture of the period resulted in under-resourced infrastructure, particularly stormwater, sewerage, and public transportation and an automobile-focused transport system (Mees & Dodson, 2001). This can be seen with the impacts of privatization of transport in Auckland. The transport model used in Auckland was based on the privatization agenda of the Thatcher government’s de-regulation, adopted in 1989. Privatization appears to be the main determinant of the decreasing patronage over that period. Between 1986 and 1991, users of public transport declined by over half, from 55,000 to 25,000 (Mees & Dodson, 2006). This is accompanied by what Mees and Dodson (2006) describe as “one of the most extreme automobile orientated transport policies pursued by any major city between the 1950s and 1980s” (p. 1). A similar process has occurred with housing. The practical upshot of this is that communities have been negatively affected by RMA-based processes as community development has not been guided by planners, territorial authorities or even the community itself; rather it is left to the narrow confines of developers, within the context of effects-based planning (Gunder & Mouat, 2002).
The Impacts of Neo-liberal Reform on Civil Society

The decline of ‘community’ was observed as early as the nineteenth century by post industrial revolution sociologist Emile Durkheim (1858–1917) (1964) who, when observing the urbanization of Europe, posited the shift from homogenous cultural groupings or ‘mechanical’ solidarity to social solidarity based on mutual interdependence (specialization) or ‘organic' solidarity. Similarly, Ferdinand Tönnies (1885-1936) (2001) made the distinction between the pre-modern Gemeinshaft (community) and the modern Gesellschaft (society) where social or familial bonds are replaced by instrumentally-based social relationships, for example, membership of a group of stockholders. Max Weber (1864-1920) (1930), also interested in industrialization, examined the development of the ‘disenchanted’ world where severed social bonds are replaced by systems and moral authority is displaced by an increasingly bureaucratized and ‘rationalized' existence (Yar, 2003). Similarly, Marx examined the social alienation caused by the dislocation of industrialism (Mészáros, 1975).

The term ‘civil society’ describes the membership of a complex web of activities or voluntary organizations such as religious organizations, labor unions or school and community-based groups (Boaz, 1999). A strong civil society underpins a well functioning democratic system by creating the conditions necessary to develop a more meaningful and trusting connection to others and thus governments. Barber (1998) frames this argument well:

> [c]ivil society is not an alternative to democratic government but rather, the free space in which democratic attitudes are cultivated and democratic behaviour [sic] is conditioned. It is not a synonym for the private market but an antidote to commercial selfishness and market incivility (p.6)

The concept of civil society is paid homage by ideologies of most persuasions. On the right, civil society is couched in terms of encouraging individual responsibility and translates into policies of state and tax reduction, resulting in governmental retreat and the privatization of public space and movement away from policies of redistribution. Traditionally, the reduction of inequalities and resource redistribution has been relegated to central government. In New Zealand, this responsibility has declined to the point of minimal state intervention and responsibility. This trend has come at the price of increasing inequalities, which have disproportionate impacts on those at the bottom of the socio-economic ladder. As Hucker (1997) observes:
This firmly held view, however, has provided a cloak for the implementation of policies that favour (sic) some at the expense of others, with the benefits accruing to the well-off and the powerful. In this way, existing inequalities were often reinforced and compounded. User-pays charges and the uniform annual general charges, for example, that separate payments from a rating base that reflects the higher and lower values of property, signify that a council is moving away from the principle of the ability to pay. Of course this is a form of redistribution, but those who lose are generally the poor (p. 57).

As the state has withdrawn from influencing many aspects of our lives through privatization, we have swapped state control with private or corporate encroachment. As education providers, policing and local government infrastructure services are privatized, they become rationalized economic units with little in the way of provision for the space that allows a conduit between citizen(ship) and governance to develop.

From a local government perspective, most responsibilities towards the social have traditionally been viewed as a central government domain. Just as central governments have withdrawn from high levels of commitment to social welfare, similarly, local governments have been left to fill the void. While there have been examples of social welfare related activities such as housing provision, the bulk of councils are unable to either fund or even desire to advocate policies that address social inequality. This indifference is reflected in the legal environment of local councils, as the RMA does not recognize the social side of Sustainable Development. When talking about the devolution of the RMA to the community level, the actual impact of the enactment of the RMA, Kelsey (1993) observes:

Those who believed the devolution sales pitch about empowerment and control were quickly disappointed. Once the formal agencies of the state had been dismantled, and the communities were thrown on their own skills and resources, it was inevitable that those who had the greatest ability to survive would prosper, and those who were in a structurally weak economic, cultural and gender position would suffer. Devolution not only allowed the state to avoid its responsibilities while retaining political power – it served to entrench even further the increasingly visible divisions within New Zealand society (1993, p. 81).

The result of ignoring social aspects is 19 percent of the population with low incomes are living in conditions of hardship. Similarly, 43 percent of children in sole-parent households are living in these conditions (United Nations Children’s Fund, 2007). The proportions are even worse when cross-tabulated by Maori and Pacific Island ethnicities (Ministry of Social Development, 2006, p. 64). The long-term result of being born into such conditions can be extremely negative, both from an individual and societal perspective. A recent report by the Paediatric Society of New Zealand, while acknowledging historical and macroeconomic factors, cogently argued that the income
inequality associated with the neoliberal reforms has negatively affected the health of those living in poverty (defined as less than 60% of median income). These impacts include a higher proportion of children living in crowded households and increases in infections associated with poverty, for example, skin infections (osteomyelitis), acute rheumatic fever, heart disease, and tuberculosis (Craig, Jackson, Han, & NZCYES Steering Committee, 2007). The report concludes that all of these impacts are a direct result of social inequality in New Zealand society.

A related issue has been labor market reform. Neo-liberal reform has caused the watering down of worker rights, orchestrated attacks on collective bargaining in the form of individual contractualism and anti-unionization, resulting in the casualization of labor. The result has been much more flexible working conditions (from an employer perspective) giving councils the benefit of saving money at the expense of a reduction in the commitment of employees as well as the loss in institutional memory and the ethos of public service (Pallot, 2001).

The devolution of local government is also an expression of the rational choice principle of resource allocation based on communities’ ability to pay. Allocative efficiency means that benefits of a particular activity should be contiguous with the community that pays. This position is advocated by Tiebout (1956) and later advocated by Buchannan (1995) who advocates that people should move between places that best suit their needs in terms of the services they require. As this will produce greater fit between the level of resources possessed by the individual and level of services provided, which in turn produces the greatest individual utility.

This is a problematic structure both for the individual, local authorities and more broadly, Sustainable Development. As individuals vote with their feet, this process leads to the reinforcement of social inequality. Those who cannot afford to live in richer areas move to areas that are more economically viable. The poor will congregate in poorer areas, leading to a reduction in local authority resources, which in turn leads to worse services, which tends to complete the circle, attracting even more people at the bottom of the socio-economic scale. In short, poverty attracts poverty (Baken, 2003). At the institutional level, the lack of resources leads to reduced capacity and therefore the ability to produce high quality planning instruments which in turn lead to poorer environmental outcomes (Ericksen, Berke, Crawford, & Dixon, 2003).

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51 See Easton (1999).
The issue of addressing social inequality within the context of SEA lacks credible commitment. The model of SEA explored above remains a reactive creature of statute. If the trend towards the adoption of neo-liberalism is becoming more pervasive, SEA therefore must reflect the political will of its context. Similar to the RMA, SEA remains focused on predominantly biophysical issues and arguably predominantly defaults to the neo-liberal model, thus reinforcing structural inequalities. These power differentials are related to the disengagement with governments by publics in many countries.

The Declining Trust in Governments

Research shows that public trust in office-holders and professionals of many sorts is low and declining (O’Neill, 2002). This is also reflected in the decline of voter participation (Vowles, 2006). This change in perception is curious as New Zealand local governments show little evidence of corruption. A recent report by corruption watchdog Transparency International, ranked New Zealand third lowest in the world, in front of only Finland and Denmark, for overall levels of corruption (Adwan et al., 2003). To address the question of how has New Zealand created this situation, we must examine the changes that have occurred in the evolution of local government over the last decade. Over this period, there have been three main changes: use of New Managerial Frameworks, the decline in social capital, and the pervasive adoption of Information Technology.

The implications of the decline in trust of public bodies are a concern as democratic and related public processes intrinsically rely on trust, for without the trust in these processes the movement towards Sustainable Development will be impeded. As noted in the previous section, the decline in the trust of governments is also related to the decline in trust between individuals and the strength of their relationships with others and group membership, or what Putnam (2000) refers to as social capital. Putnam defines social capital as “social networks and the associated norms of reciprocity” (p. 21). The decline in trust is also related to the level of supervision associated with New Managerialism and more broadly the surveillance society. As sociologist Nikluss Luhmann (1993) observes, guarantees are pointless unless they lead to a trusted source, and a regress of guarantees is no better unless it ends in a trusted source. Therefore, trust cannot presuppose or
require a watertight guarantee of others’ performance, and cannot rationally be withheld because we lack guarantees. Where we have guarantees or proofs, we do not need to trust, trust therefore becomes redundant.

New information technologies have seen unprecedented levels of publication of information regarding local government activities. Levels of accountability are higher than ever. If these were really the remedies for the lack of trust, surely we would be seeing some improvement by now. The reality is that voter turnout declines, the public suffers from ‘consultation fatigue’ and public participation in democratic processes decreases. While there is little doubt that this has led to a greater understanding and transparency of government processes, it should not be automatically assumed that publication of activities necessarily leads to a greater level of trust. The danger with new information technologies is that with much published material, there is little the general public can do to ascertain the verifiability of the data produced, which, in turn, lead to a greater level of confusion and therefore more distrust. For the public to trust local government, attention must be paid to full and clear enunciation of government practices and data collected, including simple explanations of methodologies and legal processes employed.

The new accountability culture aims at ever more perfect administrative control of institutional and professional life. They require detailed conformity to procedures and protocols, record keeping and provision of information in specified formats and success in reaching targets. Detailed instructions regulate and prescribe the work and performance of health trusts and schools, of universities and research councils, of the police force and of social workers. Beyond the public sector, increasingly detailed legislative and regulatory requirements weigh heavily on companies and the voluntary sector, and on self-employed professionals and tradesmen.

It is unclear that these instruments for control, regulation and monitoring have made any difference. Professionals have to work to ever more exacting standards of good practice and due process, to meet demands to record and report, and they are subject to regular ranking and restructuring. Many public sector professionals find that the new demands damage their real work. Teachers aim to teach their pupils; nurses to care for their patients; university lecturers to do research and to teach. Each profession has its proper aim, and this aim is not reducible to meeting set targets following prescribed procedures and requirements. If the new methods and requirements supported and did not obstruct the real purposes of each of these professions and
institutions, the accountability revolution might achieve its aims. Unfortunately, it often obstructs the proper aims of professional practice (O’Neill, 2002).

The revolution in accountability should be judged by the standards that it proposes. If it were working, we would expect to see indications that public trust is reviving. There is however little evidence to support this proposition. In the era in which the accountability revolution has made striking advances, in which increased demands for control and performance, scrutiny and audit have been imposed, and in which the performance of professionals and institutions has been more and more controlled, we find in fact growing reports of mistrust. The pursuit of ever more perfect accountability provides citizens and consumers with more information, more comparisons, more complaints systems; but it also builds a culture of suspicion, low morale and may ultimately lead to professional cynicism, and then we would have even more grounds for public mistrust. Power (1997) sums up this issue well:

Pockets of doubt and checking may be created and institutionalized but surely not as an entire principle of social organization? The more one thinks about it, the more apparent it is that the imperative ‘never trust, always check’ could not be a universalizable principle of social order: constant vigilance is somehow autodestructive (p. 2).

As noted above, the central and local government reforms, including such Acts as the RMA and the Local Government Act, were based on this new accountability framework that increases the level of consultation and accountability to the community. If the trend towards greater transparency and accountability leads to lower levels of trust in public institutions, it would beg the question of why we are doing it and what will the effects be. Perhaps the greater focus on creating ever more interventionist plans and strategies will lead to still greater levels of complexity which may in turn, ironically lead to even lower levels of public participation in the democratic process.

Rational Choice theory tends to paint human nature in a cynical self-serving light, ignoring such traits as altruism, empathy or public service, according to Eastern, managerialism:

[...] may diminish public-regarding values and behaviour in government, including values such as the trust that comes from serving others, the sense of obligation that that overrides personal interest, the professional commitment to do one’s best, the pride associated with working in an esteemed organization, and the stake one acquires from making a career in the public service. The accountability of contractualism sabotages the responsibility of managerialism (Eastern, 1999, pg. 90).
The 2002 LGA was a reflection of the second thread emerging from the post-war period, that of new social movements (NSMs). NSMs formed from a rejection of large-scale political groupings such as union-based movements and Marxist ideologies. Examples include the feminist movement, environmentalism, the sexual revolution and ethnic consciousness among others (Inglehart, 1977). Whether or not these movements do in fact constitute something truly new is disputable, for example, the feminist movement clearly goes further back than the post-war period with first wave feminism and the Women’s Christian Temperance Union dating back to the middle of the nineteenth century (DuBois & Dumenil, 2005). It should also be noted that the analysis and desire for improved civil society also predates the neo-liberal era.

Neo-liberalism has become globally pervasive, and as a consequence, income inequality has risen as well, particularly within OECD countries (Organization for Economic Co-operation and Development, 2006). The disengagement of Western publics with democratic processes reflects the growing socio-economic alienation by groups who are disenchanted with governments who are increasingly disinclined to steer economies and redistribute income. It is also well known that lower socio-economic groups have a lower democratic participation rate than wealthier classes (Tavits, 2004).

In T. H. Marshall’s work on citizenship (1964), he concluded that the development of democratic systems inevitably leads to some form of redistribution of wealth. In other words, when people are given the opportunity to vote, the system responds to their wants and needs. Similarly, Lenski (1983) argued that democratic systems redistribute power in favor of low socio-economic groups, who constitute a large proportion of societies. This leads to greater social equality as these groups exercise this newly acquired power in their own favor. During the post-war period, the poor were a strong political force as they made up a large proportion of political support bases. As the standard of living in Western countries has dramatically improved, this group has been reduced to a largely powerless minority whose votes in the real political world count for less and less (Christie & Warburton, 2001). As Dryzek (1996) argues, the rise of capitalism and liberal democracy were no coincidence. The advent of the capitalist system created a working class, which in turn demanded more rights as they had the most to gain from such a system. As standards of living improved and the working class declined in power this demand also declined, giving the democratic system less relevancy to many.
For the richer middle and upper socio-economic groups, a different type of apathy has occurred. As the neo-liberal era has come to mean normality for a greater percentage of people, governments have become less relevant to many key aspects of people’s lives. Educational establishments are increasingly privately funded and other government services are contacted out to the private sector. Political leadership has systematically given away their power as the left has all but conceded victory on most key aspects of policy. In addition, the Washington Consensus has led to more free trade, and globalization has in turn led to the development of supra-national decision-making systems such as the WTO (World Trade Organization), the World Bank and an increasingly complex web of international agreements, many of which undermine the power of governments. The perception by citizens becomes one of powerlessness to influence decisions. As Paehlke puts it:

There is a widespread perception that citizens, however well organized and active cannot alter outcomes at a global level. And, given that few governments are willing to enact policies that do anything other than “enhance national competiveness” more and more citizens are put off politics altogether presuming it to be a realm beyond their control. The result is deep cynicism, a decline in political activism and a disdain of all politicians (2003, p. 35).

This cynicism in turn leads to the conclusion, rightly or wrongly, that governments are powerless. The conclusion being, that governments are so unresponsive that they must be cut back, resulting in ever-reduced capacity to act. This failure to act is examined in the following section.

**Are Governments Capable of Addressing Sustainable Development?**

Underpinning environmental criticisms of governments is the assumption that the state is a powerful complex, consisting of politicians and bureaucrats able to command armies, regulate business, and affect social and economic change. As discussed in the above section, many states in their present form, particularly in the era of globalization and privatization, are loath to affect significant change and are committed to achieving the benefits of economic growth.

This commitment to growth forms a consensus, which underpins much of what constitutes the purpose of the modern state. This consensus places economic growth at the core of its policy
continuance and design process. While mostly conforming to the boundaries of the growth consensus, governments however consist of a broad array of partisan interests. These interests strive to achieve their particular agendas across the political spectrum, while still being united to a greater or lesser degree, in their commitment to the same underlying growth imperative. This bounded conflict results in an extremely limited range of alternatives available to contemporary political trajectories.

The limited range of policy options is related to a contest at a high level between major left and right wing parties as they try to claim the center ground. The contest facing Western governments effectively paralyzes them into a form of political sclerosis as only relatively minor shifts in policy can influence political margins. Within many Western countries, major parties differ only slightly in orientation, resulting in razor thin majorities or minority governments, effectively removing their ability to enact a significant legislative change. When combined with a host of structural checks and balances on the political process this challenges the notion of the powerful, omnipotent state. Even when individual politicians are committed to meaningful social, economic or environmental change, they are confounded by a weak, decentralized system and are often used as a scapegoat for ineffective policies. Politicians are held responsible for a great deal, yet paradoxically are capable of achieving very little, other than cosmetic change, as it is not in their power, or even interest, to do so.

The inability of governments to enact substantive legislation for change to Sustainable Development is also reflective of the current political structure and social-ideological nexus. Populaces are relatively unsophisticated in their choice of political discourse and their solutions to problems like the environment or poverty tend to reflect their often shallow, self-centered analyses, forcing politicians to advocate short-term ‘solutions’ to problems in little more than sound bites, turning often the most sophisticated political rhetoric into little more than demagoguery. Like industry, governments most often favor approaches to problems that coalesce at the end of causation chains, where they are most visible and the least divisive, a process that enquires only superficially into the causes of problems, focusing attention on only the most obvious symptoms.

It is useful at this juncture to place the charge of ineffectual governments in a broader context. In Jared Diamond’s *Collapse: How Societies Choose to Fail or Succeed* (2005), he gives an account
of various societies ranging from the Mayan empire to present day China. He argues that there five factors that contribute to the collapse of societies, these include: (1) Climate Change, (2) hostile neighbors, (3) trade, (4) environmental issues, and finally, (5) society’s response to the environmental problems it faces. While the first four issues may or may not prove to be critical, the last, he argues, always does. In essence, he argues that societies are able to choose to succeed or fail.

Diamond advances two explanations as to why societies choose to fail. The first being what he describes as “creeping normalcy” (p. 77), where environmental issues become incrementally worse over an extended period, and few are so badly affected that they are motivated enough to agitate for change until the damage is irreversible. The second feature of Diamond’s analysis of the causes of failure is the disproportionate power of elites, who he argues fail to act responsibly, reflecting their detachment from the populace and social, economic and environmental issues. This is especially so when the basis of their power is dependent on the irrational behavior of those who use natural resources unwisely. In this sense, our societies have not truly noticed the creeping destruction of our environment as the damage is being hidden away, the incremental destruction of the climate, loss of biodiversity, rates of imprisonment and resource consumption and disposal are accepted as normality as they are largely unseen by society. As societies become more urbanized, we have become increasingly insulated against the environmental impacts of our mall-orientated and compartmentalized selves.

In New Zealand, the Resource Management Act 1991 is a product of this mindset. In its application of effects-based planning, it, by definition, regulates only the results of unsustainable practices, rather than addressing the deeper causes of unsustainability. This is symptomatic of the tendency of governments to avoid taking preventative measures that involve structural policy change in favor of ex post facto nuisance abatement (Janicke, 1990).

The reluctance to act by governments may be demonstrated by the New Zealand government’s approach to Climate Change referred to throughout this thesis. In 2003, the New Zealand Labour government, in line with its commitments to the Kyoto Protocol, attempted to impose a methane tax on the agricultural sector. The tax was estimated to cost the average farmer approximately $300 (NZ) annually, with larger corporates paying up to $10,000 per year (Meister & Shakur, 2003). Also included was a levy on deer, sheep and goat, amounting to a fund of $8.4 million to be
invested into research on reducing the agriculture industry’s impact on Climate Change. The proposed tax was however, short-lived. Despite the fact that agriculture accounts for over 50 percent of greenhouse gas emissions, it was clear from the beginning that the government intended to shelter the agricultural industry from Kyoto, as it constitutes 7.5 percent of New Zealand’s GDP, approximately 15 billion (NZ) dollars (New Zealand Treasury, 2004). The industry constitutes a significant proportion of the New Zealand economy, and farmers form a powerful, and traditionally conservative voting bloc. From the government’s perspective, the methane tax was reasonable, as they had exempted farmers from Kyoto. If Kyoto had been applied to farmers, it would have been significantly higher than the methane tax. One estimate costs its introduction at over 10,000 dollars (NZ) annually per farmer (Yang, 2004). With opposition parties beating the flames, the reaction by farmers to the methane tax was to protest. The minority Labour Government at the time, possessing only a small coalition majority capitulated with the introduction of a watered down agreement to increase funding to a pre-existing research program on reducing the agricultural industry’s impact on Climate Change.

The limited ability of New Zealand governments may also be demonstrated in how the road lobby is treated. In line with the growth discourse, the New Zealand road lobby has successfully applied pressure on successive governments to increase the subsidization of roading projects. The state is effectively conferring subsidies as a service to powerful special interest groupings who are able to manipulate the political system, distorting government activities in favor of themselves over the long term interest of the public who are in turn manipulated into believing that there is no alternative (Wiener, unpublished article). In spite of the clear failures of roading-based policies, significant institutional and individual actors continue to advocate for continuing government subsidization of major roading projects. Institutional support in the form of Transit New Zealand and local councils, combined with organizations such as the Automobile Association, transport firms, retail centers and individuals coalesce into a powerful lobbying group, all supporting an unsustainable goal. Another powerful lobbying group are companies that provide direct foreign investment to countries.

In the era of free trade, governments have come under significant pressure to liberalize their economies by opening up their markets to foreign investment. It is argued by proponents of free trade that the benefits of such investment leads to greater employment, skill generation,
economies of scale advantages and the overall development of comparative advantage (Bagwell, 2003). However, the cost of attaining this investment is that many governments, desperate for the economic growth and revenue associated foreign investment have come under pressure to improve the operating environment, in particular to reduce company taxation (Chang, 2008). While the reduction of tax leads to a more efficient and enlarged economy, The question then becomes, are the benefits and costs of international tax competition? The issue here is that while free trade leads to higher economic growth, in many cases it also leads to the reduction of funding to governments, which in many cases leads to lower investment in social and environmental programs (Wilson & Wildasin, 2001). While this question goes beyond the focus of this research, the tax competition issue is a key one when examining the impacts of lower taxation policies in terms social welfare and environmental spending. The SSD shown in Chapter VI points towards the necessity of linking not only environmental policies to international agreements, but also taxation and social welfare, in an attempt to eliminate the free rider problem addressed in the following Chapter V.

The answer to the question posed at the beginning of this section of are governments capable of addressing sustainable development, is a qualified yes. Much of the infrastructure is already in place. By infrastructure I refer to models and means of taxation, physical infrastructure such as railways, as well as academic knowledge on how to manage areas such as fish or wildlife areas. In addition, New Zealand has a well-developed social welfare. The issue lies in the realm of ideology and the values held by New Zealanders in how they express their desires.

Lessons Learned

This Chapter traced the development of neo-liberalism and the reforms on which it was based in New Zealand at both the central and local government level. These reforms constituted a radical departure from previous governmental and planning systems, with their application of market-based instruments to achieve their ends. The neo-liberal era, I argue, is an extension of the process of industrialization, a process that has affected the interaction between social and institutional structures.
The insights gained with the exploration of the history leading up to the implementation of the neo-liberal agenda raises numerous questions. For instance, the question Emile Durkheim – a sociologist of the late nineteenth and early twentieth century, along with others, attempted to assess the impact of industrialization on the individual and society. This question is of relevance to both SEA and planning more broadly, as these systems both attempt to grapple with the related issue of the decline in civil society and the level of trust accorded governments. The notion of civil society in many respects underpins aspects of Sustainable Development as trust in others and institutions necessitate the development of effective policies.

The trend towards the withdrawal of governments from social welfare systems to one of citizen-entrepreneur is a symptom of un-sustainability. The Sustainability-orientated model of SEA discussed above, I argue includes the notion of 'social' Sustainability. While SEA is a creature of context, if social inequalities and civil society continue to decline and remain unaddressed within the SEA model, then SEA cannot be regarded as a Sustainability-orientated method of policy creation, at least within the confines of the SD model used in this research. As noted in Chapter II, given recent trends towards the market-based planning approach, SEA may find itself in conflict with this context, as a more interventionist friendly model. Consequently, its development may only be in small, incremental steps, as while ignoring environmental issues may be politically acceptable in the short term, in the long term, the reverse is true.
CHAPTER V: SUSTAINABLE DEVELOPMENT: PRINCIPLES, MODELS AND ISSUES

Introduction

The previous Chapter described the neo-liberal reforms of the last two decades and their influence on the effectiveness of local government planning and examined the social impacts of what I referred to as free-market social engineering. Free-market social engineering refers to the impact of free market discourses on individual and societal behavior, particularly in relation to planning for Sustainability. As noted above, the neo-classical worldview gives primacy to individual wants and desires, arguing that societies are best served by outcomes derived from market forces. The role of governments within this framework is largely to generate a positive trading environment through the creation of a robust system of private property-based trading rules, eliminating monopolies by exposing markets to competition and providing a minimal social safety net.

The construction of policy based on the neo-classical worldview claims global center stage and forms a dominant growth discourse. Within this discourse, by defining the core unit of analysis as the individual actor, neo-liberalism tends to disregard the linkage between micro and macro-social structures, thereby ignoring the dynamic where individual aims or behaviors may conflict with the aims or needs of broader society (Giddens, 2001). It is this dynamic that lies at the heart of the criticism of free-market social engineering by many Sustainable Development perspectives. It points to the failure of markets to develop substantive solutions to environmental issues. In Garrett Hardin’s influential work *The Tragedy of the Commons* (1968), he creates an imaginary vignette of a pasture which farmers use to feed their stock in order to make a living. As time passes, the farmers, being rational utility maximizers, wish to improve their situation. This inevitably leads to each farmer asking him or herself the question of: *what would happen if I added another cow to the herd?* Thus, placing greater pressure on the common is incentivized.
The incentive to increase the return on the pasture is high, and the negative return or impact of adding just one more unit of production is shared over the entire group of herders. On an individual level, the benefit to the herder outweighs the cost of a single cow's impact. Unfortunately, as all of the herders are rational utility maximizers, they all will arrive at the same conclusion. According to Hardin, therein lies the crux of the problem. As each individual is locked into a system that encourages him or her to increase the size of their flocks indefinitely, it will inevitably lead to environmental destruction. What Hardin is pointing towards, is that the environment is such an object. When commercial exploitation fails to recognize this limit, the ecosystem will be perhaps irrevocably damaged. What Hardin is suggesting, is that without some mechanism for recognizing the limits to growth, resources will more likely be damaged by unrestrained market forces.

This dynamic goes to the heart of the Sustainability dilemma. We have a social structure that encourages individuals to act in a self-interested way and pollute, and paradoxically, a collective incentive not to pollute, as society gains as a whole from a well functioning environment. The problem is compounded when these incentives are so widespread that contribution on an individual level amounts to little when compared to large scale or political action. The result is there are many incentives to pollute and few incentives to act in an environmentally sustainable manner.

Evidence exists that humanity faces acute problems relating to such issues as Climate Change (Intergovernmental Panel on Climate Change, 2001), species extinction (United Nations Environment Programme, 2006a), food production and water shortages (United Nations Environment Programme, 2002) and poverty (Secretary of State for International Development, 2000). The dilemma is that we continue to be committed to practices and values that many societies both idolize and yet know to be extremely negative.

Environmental Sustainability discourses address these destructive values. Historically and in the present, development has been based on the notion that in order to develop we must physically grow. The growth discourse has served its purpose. In many nations, the quality and length of lives has increased dramatically and extreme poverty has been all but eliminated. Clearly, this ideology has achieved an unprecedented standard of living, relieving billions from the violence
and degradation of poverty. It is also clear that this achievement has come at a heavy price, one that is rising with every increase in the wealth of countries.

It is in this context that the desirability of economic growth is strongly questioned in literature (Neumayer, 2003; Satterthwaite, 1999; Suzuki, 1998) and by wider environmental and social movements (Inglehart, 1977). Within these discourses, two main models of Sustainability may be identified – Weak and Strong Sustainability. In this Chapter, I will summarize the core arguments and differences between these two models. These differences center on the existence or not of ecological limits, the substitutability of natural and human-made capital, the role of economic growth and the growing impact of social inequality.

Taking an issues-orientated approach, Figure 18 outlines the core areas of contention within the Sustainability literature, but focuses on how these are addressed by the below discussion, as derived from the SD orientated literature. This framework expresses these issues in the form of a series of debates or opposites (oppositions 1 – 8), moving from the left of the image to right as they reflect the extremes of the Sustainability debate. It should also be noted that these positions reflect the wider debate and not just the positions of Weak and Strong Sustainability.
In this Chapter, I begin with a brief history of Sustainability, as it forms a context to the theoretical discussion. The above framework (Figure 18) traverses a broad range of environmental issues. These are not viewed in isolation. In the second half of this Chapter, these issues are distilled into four interrelated questions:

1. Resource scarcity – do resources limit humanity’s ability to grow?

2. Can economic growth be decoupled from environmental damage?

3. Can natural capital be substituted?

4. How should social factors be integrated with SEA?
Sustainability: Post-Materialism and the New Environmental Era

This section introduces the reader to a brief history of Sustainability, and the discourses within it, beginning with the post-war period where new social movements emerged to displace traditional political groupings. These movements have influenced the environmental discourses that have emerged since. I have identified two overlapping areas that provide a framework for this section. These are:

- The Post-Materialist Era (1945 – to present)
- The New Environmental Era (1960 - to present)

The post-material era runs from World War Two to the present. This timeline is selected as the standard of living in many Western nations improved dramatically due to the economic exuberance of the era spurred by the war, with its technological advancements (the digital age) and the rebuilding of Europe and Japan (Inglehart, 1977). As post-war economic conditions and per-capita wealth and standards of living improved, the pollution and waste associated with high economic growth and consumption also increased dramatically. The two-car family unit, became commonplace with the percentage of vehicle ownership climbing to unprecedented levels. The post-war exuberance was also reflected in the growth spurt or the ‘baby-boomer’ generation. As standards of living continued to improve, the growth spurt of the baby boomers tailed off, and the rate of natural population growth peaked in many Western countries towards the end of the twentieth century. The level of per capita wealth has however continued to increase, leading to greater consumption and environmentally polluting additions to an already over-stretched biophysical system.

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52 The term ‘Western’ is a nebulous concept which also encompasses some non-European derived countries. In this instance, I also include countries such as Japan and South Korea.
As signifiers of catastrophic events such as Chernobyl, and images of the grounding of the oil tanker the Exxon Valdez\textsuperscript{53} became embedded within the cultural landscape, environmental values became linked to a cluster of socio-economic changes. Along with higher levels of education, greater political knowledge, combined with the development of worldwide communication technologies, democratic participation has also became more sophisticated. As Inglehart observes:

\begin{quote}
[The essence of this process is the development of the skills needed to manipulate political abstractions and thereby to coordinate activities that are remote in space or time…Consequently, historical changes in the distribution of these skills have been a major factor in defining the politically relevant public (1977, p. 295).
\end{quote}

In 1962, a seminal event occurred with the publication of Rachel Carson's *Silent Spring* – an exposé of the impacts of widespread use of agricultural pesticides and their impact on American Bald Eagle populations. The Bald Eagle is a strong signifier of American national identity, and Carson's analysis sparked national and international controversy.

The effect galvanized the American public to demand of legislators greater regulation of pesticides as well as creating a broader recognition of environmental issues. The United States government responded by creating an agency responsible for environmental preservation. The USA National Environmental Policy Act of 1969 created the USA Environmental Protection Agency, and developed prototypical Strategic Environmental Assessment, as well as introducing standards for air and water quality. The impact of this work was not limited to the United States, and is credited as one of the foundations of the modern environmental movement (Brown, 2001).

At the international level, the rising profile of the environmental agenda which addressed the negative impacts of Western economic development prompted the first, large international conference on environmental issues. The 1972 Stockholm Earth Summit on the Human Environment was arranged as a response to the ‘bubbling up’ of concern by the public about the effects of industrialization on human and ecological wellbeing (Howell, 2002). The conference for the first time introduced the environment onto the international political stage as a limiting factor of the traditional model for economic development and the consumption of natural resources.

\textsuperscript{53} The Exxon Valdez tanker ran into a reef in Prince William Sound, Alaska, spilling 76,000 tons of crude oil. This was the largest ever oil spill in the USA, covering over 5,100 kilometers of pristine coastline with oil and killed more than 250,000 birds (WorldWatch Institute, http://www.worldwatch.org/features/timeline).
The Stockholm Conference identified the planning and management of human settlements for environmental quality as one of the key themes for deliberation (Centre for Housing Building and Planning United Nations, 1974), and was a watershed which “summed up the awakened conscience and marked the beginning of a truly ecological era” (Kiss & Shelton, 1997, p. 11). The conclusions and aims of the conference were articulated in The Stockholm Declaration, which first linked human rights to ecological Sustainability. These principles broadly outlined peoples’ freedom in terms of the environmental conditions in which they live.

These outcomes form the now commonly accepted term ‘Sustainable Development’. The term “sustainable” is rooted in the late nineteenth century term the “sustained yield” of forest practices which originated in Germany (Wheeler, 2000), but was given prominence by Meadows, Randers and Meadows (1972) who examined the implications of what they believed to be Western nations’ long-term unsustainable resource consumption.

Fifteen years later, a landmark publication emerged as one of the most far-reaching documents, Our Common Future (commonly known as the Brundtland Report), created the foundations for international policy based on the principles of Sustainable Development, defined as: “development that meets the needs of the present without compromising the ability of the future generations to their own needs” (World Commission on Environment and Development, 1987, p. 8). Following the Stockholm Declaration, the depletion of ozone emerged as an iconic and contentious issue in the early 1970s. Ozone depletion was first scientifically observed over Antarctica by a group of British scientist who were monitoring the atmosphere above Antarctica. After much research, chlorofluorocarbons (CFCs) were implicated as the cause of ozone depletion (the so called ‘ozone hole’).

After lengthy negotiations, the historic Montreal Protocol on Substances that Deplete the Ozone Layer was agreed to. The significance of the Montreal Protocol was that, not only was it a successful agreement, it was the first of its kind. The Protocol became the first truly international environmental agreement, where nations collectively acted to work together to solve an

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54 The ozone hole is not so much a hole, rather, an area where there is a lower percentage of ozone than one would normally expect there to be. CFCs are a group of inert, non-toxic, synthetic chemical compounds which were initially thought to be safe.
environmental issue (Morrisette, 1989). This demonstrates that collective actions are both possible and necessary for substantive progress towards Sustainable Development to occur.

Five years after the signing of the Montreal Protocol and the publication of Our Common Future, the United Nations General Assembly directed a report to be written on the progress being made towards Sustainable Development, and held the second Earth Summit in Rio in 1992. Happening over twelve days, the event was the biggest environmental conference ever, attracting over thirty thousand delegates. Building on the Brundtland Report and recognizing that governments needed to pay greater attention to policies for environmental implications, leaders and representatives of participating countries agreed to five major environmental treaties:

i. The Convention on Biological Diversity;

ii. The Framework Convention on Climate Change;

iii. Principles of Forest Management;

iv. The Rio Declaration on Environment and Development; and


Of particular note was the Framework Convention on Climate Change. This legally non-binding document recognized what was then termed as ‘the global warming hypothesis’. The Framework was a pre-cursor to the Kyoto Protocol and was aimed at reducing global warming by restricting greenhouse gas emissions. Aimed at industrialized countries only, the Protocol requires a 5 percent cut in greenhouse gases (GHGs) set at 1990 levels by 2012. The Protocol brings into effect a system of emissions trading where polluting countries can buy unused carbon credits from those countries with net negative emissions.\(^5\) The above agreements form the basis of many environmental practices as they are applied locally, and, when examined collectively create a context for what may be described as a new environmental era.

\(^5\) In 2005, the protocol came into force when Annex one countries – the 38 industrialized countries that agreed to targets for reducing emissions, plus Belarus, Turkey and now Kazakhstan, ratified the agreement which in order to come into force needed at least 55 percent of world emissions. While initially agreeing to the protocol, the United States has now pulled out of the treaty, effectively stalling the process, President Obama has signaled his intent to sign this Protocol.
Defining Sustainability

Defining Sustainability is a problematic issue that underpins the policy creation process, and therefore SEA. This section traverses the various theories of Sustainability and focuses in detail on the two main models used in this thesis – Weak and Strong Sustainability. The selection of models underpinning strategic planning instruments is critical as, depending on which models are adopted, significantly different outcomes may be predicted.

At present, the understanding of SD remains elusive and therefore it is difficult to present a clear picture of what SD and therefore what SEA, in fact entails, as Partidario and Moura observe, “the particular definition of Sustainability, and its practical implementation, is still a major handicap. It is still very hard to establish what is sustainable and how Sustainability is measured” (2000, p. 29). For example, Pearce, (2001) in her analysis found over 80 definitions. The most commonly cited definition is taken from the Brundtland Report, cited above. The Brundtland definition is by necessity broad, as it attempts to reconcile competing discourses in a democratic context, with the result being a definition so encompassing it becomes acceptable to everyone, yet embodies little meaning or allegiance to any particular perspective or model. The Brundtland reconciliation is a reflection of the complexity of the debate demonstrating a range of perspectives that are deeply divided over the question of what constitutes Sustainability and how it should be achieved. In the following paragraphs I examine a range of perspectives beginning with Eco-feminism, Deep Ecology and the spirituality based perspective.

A discourse that has demonstrated a strong relationship with the environment is eco-feminism. Eco-feminism identifies patriarchy as the principle barrier to human fulfillment, suggesting that environmental problems are a result of the dominance of “masculine modes of thought” (Hay, 2002, p. 72).

The term ‘deep ecology’ entered the environmental pantheon in the early 1970s and is associated with the writings of Arne Naess (1972) and gained prominence from the collaborative work of George Sessions and sociologist Bill Devall. The Deep Ecology discourse is a philosophical inquiry into examining the relationship of humans to the environment, positing eco-centrism as a desirable alternative to anthropocentrism. The position is one of the key sources of the intrinsic
worth discourse, arguing that humans and non-humans have values in themselves, irrespective of human instrumental values.

Few questions draw attention to the complexity of environmental thought more than those who adopt a religious or spiritual perspective. Many environmentalists reach their respective positions, often on a scientific basis and view religious or spiritual beliefs as quaint or even irrelevant. However, there is no denying that spirituality and religion permeate environmentalism. That is not to say that there has been no attempt to unite scientific and religious discourses. Fritjof Capra writes of the parallels between Eastern mysticism and modern physics, emphasizing the connectivity of all universal elements “with interdependence as a core understanding, an environmental ethic becomes a practice in recognizing and supporting relationships with all beings” (1992, p. 321). The notion of connectivity is not limited to spirituality-based perspectives, as it underpins many other theories of Sustainable Development. It was Darwin himself who coined the term ‘the web of life’ (Darwin, 2003), a theme which later formed a foundation of biology and was taken up by the environmental movement of Deep Ecology (Naess, 1972).

Taoist philosophies have also generated much interest. For Taoism, the key text is *Tao Te Ching* by Lao Tzu who wrote in the sixth century B.C. The term *Tao* is translated as ‘the way’ or the force that forms the universe. The Taoist school believes that the *Tao* is something that existed prior to the formation of the universe. *Tao* is the origin of *Yin Yang*, and *Yin Yang* is the origin of the universe. From this perspective, the universe is engaged in ceaseless motion and activity, where all is considered to be in a state of perpetual flux. The religion posits transcendence of right or wrong and concerns itself with tranquility of mind and improvement of temperament (Sponsel & Natadecha-Sponsel, 2001). The relationship with ecology comes from the belief that nature does not operate by any force but by the *Tao*. Humans therefore, instead of striving for ever-greater natural dominance, should embrace the notion of harmony with nature, so Taoism is named as the way of living that does not conflict with natural processes. Johnson (1991) explains the significance of this:

> What we must not do is depart from the natural rhythms and harmonies and balances of the world, rather we act in accordance with the nature of things. Such action does not go against the grain of things and causes its disruption. While such action does not, in that sense, do anything, it does what there is to be done (cited in Hay, 2002, p. 97).
Western environmentalism sees in this religion a perspective of respecting nature and of relinquishing control and dominance of natural things. Thus, it is seen in sharp contrast to the hedonic instrumentalism of other acquisitive Western modes of thought.

A further strand of environmental thought is green Marxism. Where classical Marxism diverged from capitalism, was its position on the existence and ownership of private property. While capitalists view private property as a human right, Marx saw the possession of private property as a core conflictive mechanism of the capitalist class structure and the root cause of social alienation as it denotes “the estrangement of individuals from themselves and others” (Abercrombie, Hill, & Turner, 1994, p. 12). While Marx viewed the capitalist mode of production as essentially exploitative, as a theory deeply rooted in economics, the human relationship with nature was largely identical to capitalist instrumentalism, in that nature consists of resources to be used by societies for the benefit of labor.

In the 1960s and 1970s, Marxist proponents viewed the anti-industrialism of the environmental movement as an essentially bourgeoisie ideology. Environmentalists argued for Sustainability on the basis of the imminent collapse of the world’s food production system. The Marxist response was that the world’s food crisis was not a production problem so much as one related to the distribution of resources or social inequality. Therefore, the best way to solve poverty and environmental issues was to pursue the socialist agenda. However, these arguments were unable to address the instrumentalism still present within the Marxist mode of thought. Here, Schnaiberg (1974) opened a new Marxist vein of inquiry in his analysis which combined the central aspects of Marxism with wider environmental aspects.

The essence of this critical approach is the identification of consumption as the central dynamic of the capitalist mode of production. This dynamic can be seen with the development of industrial organizations, where human labor becomes supplanted by capital equipment, which in turn requires ever-growing incursions into natural environments to expand production and market share and eventually profits, which in turn feeds back into itself fueling more growth. Thus, the modern industrial system requires maximal consumption of products and services in order to sustain itself. A process based on infinite exploitation of finite natural resources.

This process relies on an ever-increasing capacity to withdraw ecological resources that deplete and add polluting elements to the environment. The problem with such...a system
that it requires continuously increasing environmental additions and withdrawals is ultimately dependent on a finite planet, with a finite resource base and a finite capacity to absorb ecological additions (Schnaiberg & Gould, 1994, p. 202).

Using the treadmill of production as an analogy to capitalism, he explains capitalism as a never-ending process of constant capital accumulation with its reinvestment into further productivity. The operation of the treadmill is based on the following constructs:

1. Organizations exist as long as they make sufficient profit
2. Profit is generated by allocating organizational revenues to technological investment and labor
3. Each allocative decision has direct and indirect implications for the levels of withdrawals and additions to the ecosystem. Because of constraints in the social world, these ecological implications are usually secondary for managers, constrained by their decisions about costs and profits (Schnaiberg & Gould, 1994, p. 34).

Schnaiberg argues that Sustainable Development may only be achieved through heavy state intervention, by reducing economic growth and consumption through high levels of taxation and redistribution, thereby placing human inequality at the center of the Sustainability debate.

These theories and beliefs represent an expansive contribution to environmental thought, which I have only limited space to touch on. Other theories that could have been explored are for example, the Gaia Hypothesis (Lovelock, 1979), Holism (Smuts, 1991) or Leopold’s Land Ethic (Leopold, 1968) or Ecological Footprint Analysis (Wackernagel & Rees, 1996). I turn now to the Weak Sustainability model.

The Weak Sustainability (WS) Perspective

The WS model is derived from the dominant neo-classical school of economics and seeks to balance social, economic and environmental goals (Figure 19).
Weak Sustainability is arguably the most dominant Sustainability theory as it forms the most compatible and least radical out of all of the approaches. Weak Sustainability also is at the centre of the ARGS and it is largely derived from the economics of Robert Solow (1974; 1986) and John Hartwick (1978) who argue that all capital, natural or otherwise can be substituted for all others, hence it is often referred to as the ‘substitutability paradigm’ (Neumayer, 2003). Hence, Weak Sustainability may be defined as:

…total capital intact without regard to composition of that capital among the different kinds of capital. This would imply that the different kinds of capital are substitutes, at least within the boundaries of current levels of economic activity and resource endowment (Serigeldin & Steer, cited in Sadler, 1999, p. 22).

As Solow (1993) explains: “History tells us an important fact, namely, that goods and services can be substituted for one another. If you don’t eat one species of fish, you can eat another species of fish” (cited in Bahn & Gowdy, 2003, p. 258). It follows then that if such a substitution is possible, an economy may be considered sustainable as long as it creates enough human-made capital in order to compensate for the consumption of natural capital (Gowdy & O’Hara, 1997).
In this model, human-made capital refers to non-natural objects such as roads, airplanes or cell phones, as well as abstractions including such things as knowledge of art or classical music in other words, human-made capital is that which is a product of human imagination or ingenuity. Excluding solar energy, natural capital refers to the planet itself and the minerals, fauna and flora, water and soil that live and exist within its biosphere (see Table 23: Types of Capital).

Weak Sustainability defines a sustainable state as when there is no change in the overall level of capital, natural or otherwise, as the two are considered interchangeable (Figge, 2005). Intergenerational equity is thus achieved by the preservation of total capital stocks for the following generation. The model also places a great deal of faith in the adaptability of humans. Referring to unlimited human inventiveness, it is also described as the ‘promethean’ or resource optimism perspective (Dryzek, 1997). As such, weak sustainability assumes that technological development will outpace such things as food production for the world’s poor and will in time solve most if not all environmental issues, for example, switching to non carbon-emitting technology such as hydrogen-powered cars or wind or solar energy production as market scarcity or environmental impacts makes them more economic.

The Strong Sustainability (SS) Perspective

The above analysis may be summarized into the below System Conditions for the Strong Sustainability model (Table 22). These are also used as a basis for the SSD model developed in Chapters VI and VII.
Table 22: Strong Sustainability System Conditions

(i) Internalization of externalized costs (full cost accounting or green economics)
(ii) Differentiation of critical natural, human and economic capital
(iii) Inter and Intra-generational equity
(iv) Identification of capital assimilative capacity boundaries
(v) Stable state economic growth (energetic and resource economic de-coupling)

Daly’s *Toward a Steady State Economics* (1973) perhaps provides a starting point for SS. Daly’s Steady State model (1991) focuses on the notion of the carrying capacity, arguing that the environment does in fact limit human economic activities. It envisages a scenario where societies are able to live off planetary revenue, without causing a material reduction in natural capital stocks and sink processes (McIntosh & Edwards-Jones, 2000). Hence Strong Sustainability may be defined as:

> maintaining different subcomponents of capital intact separately. This assumes that natural and man-made capital are not substitutes but complements in most production functions. Thus, for natural capital, loss of forest in one area should be replaced by new forest of a similar type elsewhere, and receipts from depleting oil should be invested in sustainable energy production (Serigeldin & Steer, cited in Sadler, 1999, p. 22).

The argument that the environment has a limited sink or carrying capacity is posited by WS and SS alike, but is treated differently by both models. Within the WS perspective, it is argued that carrying capacity may be augmented by technology, whereas SS challenges the notion that technology has the ability to fully address environmental issues. Daly emphasizes quality rather than quantitative growth, where society reaches what may be described by way of a biological analogy, as a climax community.

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56 Ehrlich (2004) defines carrying capacity as “the ability of biological systems to provide resources for human needs” (p. 244). Herman Daly gives a more detailed explanation of carrying capacity for a renewable resource as the sustainable rate of use can be no greater than the rate of regeneration of its source. For non-renewable resources – the sustainable rate of use can be no greater than the rate at which a renewable resource, used sustainably, can be substituted for it. For pollution, emission can be no greater than the rate at which the pollutant can be recycled, absorbed or rendered harmless in its sink (Meadows, Randers, & Meadows, 2004, p. 54).
When an organism or group of organisms grow to maturity and occupy a niche limited by the supply of critical nutrients or elements, a climactic state exists. This state is not static but dynamic, since the organism is continually evolving in response to its environment, while this organism, like all others will eventually decay and die, it will prolong a wider state of dynamic equilibrium by developing homeostatic mechanisms. The achievement of homeostasis or dynamic steady state thus becomes the ultimate objective of organic growth (Watt, Molloy, Varshney, Weeks, & Wirosardjono, 1977).

Likening human societies to biotic communities Daly argues that Western societies have grown far beyond the ability of our global niche to supply critical nutrients and sink capacity. Just as biotic communities are limited by the law of minimum e.g. water or the productivity of soil, the Earth is limited too by Shelford’s extension of the law of minimum where, just as biotic communities need a minimum level of the least available substance, human societies also require resources and a minimum level of environmental services in the form of pollutant purification.

Daly argues that the neo-classical economic model employs a commitment to an unsustainable growth-based paradigm that ignores the implications of foundational laws of thermodynamics and is therefore beyond the ability of our biotic environment to support us without negative systemic disruptions.

Thermodynamics is the science devoted to the study of energy, its transformations, and its relation to the state of matter (Moran, 1988). The first law of thermodynamics states that matter or its energy equivalent cannot be created or destroyed, but only changed from one form to another (Rifkin & Howard, 1989). The first law measures the fraction of energy supplied to a device or process that it delivers in its output, also called the law of conservation of energy. The second law states that the entropy of the universe inevitably increases over time until a state of high entropy (equal dispersion of matter where energy cannot flow to a place of lower energy density), occurs. If the volume and energy of a system are constant, then every change to the system increases

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57 Leibig’s law of the minimum is where an organism’s growth is dependent on the level of essential material present, for example the amount of water or sunlight. This law applies only in a steady-state condition where energy and matter inflows are balanced and the element that limits does not change when moving from one material to another.

58 The law of the minimum was extended by Shelford (1913) who concluded that organisms also have a maximum tolerance for materials beyond which becomes toxic (for a more detailed discussion see Principles of Pollution Ecology at: http://zoology.muohio.edu/oris/ZOO462/notes/09_462.html).
entropy. If the volume or energy changes, then the entropy of the system can actually decrease, while the entropy of the universe does not decrease overall.

The second law of thermodynamics also states that energy is transformed from potential energy, for example, coal or nuclear materials, to more socially useful forms of kinetic energy, for example the combustion engine, a loss of organization or entropy will occur. Entropy is defined as the “degradation of matter resulting in a decrease in available energy” (Thompson, 1996, p. 290). In this process, energy is reduced from organized chemical forms (free energy), into randomized heat (bounded energy), which is less readily available for production, for example, uranium, is a relatively easily obtained source of electrical energy, whereas dispersed heat is not. Humankind’s current sources of energy are based on a process of continual withdrawals of finite resources (such as oil) and result in continued toxic additions (carbon dioxide, airborne particulates etc.) to the environment. The second law of thermodynamics thus highlights the problems of depletion, especially of food and inanimate energy sources. For this reason, these processes are said to involve withdrawals from the socio-economic potential of an ecosystem.

Based on these laws Daly argues that a ‘steady-state’ approach to the environment is required to achieve true Sustainability. The steady state decouples economic growth from material growth. Daly defines the steady-state as:

…an economy with constant stocks of people and artifacts, maintained at some desired, sufficient levels by low rates of maintenance “throughput”, that is by the lowest feasible flows of matter and energy from the first stage of production (depletion of low entropy materials from the environment) to the last stage of consumption (pollution of the environment with high-entropy wastes and exotic materials) (1991, p. 17).

Sustainability, according to Daly, can thus be operationalized in the following rules:

Output rule:

1. Waste outputs are within the natural absorptive capacities of the environment (that is, non-depletion of the sink services of natural capital)

Input rules:

1. For renewable inputs, harvest rates should not exceed regeneration rates (non-depletion of the resource services of natural capital)
2. For non-renewable inputs the rate of depletion should equal the rate at which renewable substitutes can be developed

3. If a renewable stock is consciously divested (that is, exploited non-renewably), it should be subject to the rule for non-renewables (Daly, 1999, pp. 52 – 53)

Daly introduces the concept of non-economic growth, which he defines as: “growth for which inclusive marginal costs are greater than inclusive marginal benefits, growth that makes us poorer and therefore makes all problems harder to solve” (Daly, 1999, p. 47).

Incorporating this biophysical aspect, the Strong Sustainability model is held in opposition to the WS model, as a number of components of SS are deemed incompatible with the WS model. Neumayer (2003) captures the difference between the two models well:

…it is fair to say the essence of SS is that it regards natural capital as fundamentally non-substitutable through other forms of capital. I therefore call SS the ‘non-substitutability’ paradigm” (p. 24).

Capital is most often understood as accumulated wealth in the form of investments in such things as factories or property. In reality, many types of other capital exist. The distinction between them is critical for developing an understanding for the two models (SS and WS respectively). Table 23 summarizes the four main types of capital.

Table 23: Types of Capital

<table>
<thead>
<tr>
<th>Natural capital</th>
<th>Human capital</th>
<th>Social capital</th>
<th>Manufactured capital</th>
</tr>
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<tbody>
<tr>
<td>Natural capital (also referred to as environmental or ecological capital) is any stock or flow of energy and matter that yields valuable goods and services. It falls into several categories: resources, some of which are renewable (timber, grain, fish and water), whilst others are not (fossil fuels); sinks which absorb, neutralise or recycle wastes; and processes, such as climate regulation. Natural capital is the basis not only of production but of life itself.</td>
<td>Human capital consists of health, knowledge, skills and motivation, all of which are required for productive work. Enhancing human capital (for instance, through investment in education and training) is central to a flourishing economy. Poverty is both morally indefensible, and socially inefficient in that it prevents millions of people from fulfilling their potential and becoming engaged in the creation of wealth.</td>
<td>Social capital is the value added to any activity or economic process by human relationships and cooperation. Social capital takes the form of structures or institutions which enable individuals to maintain and develop their human capital in partnership with others, and includes families, communities, businesses, trade unions, schools, and voluntary organisations.</td>
<td>Manufactured capital comprises material goods - tools, machines, buildings, and other forms of infrastructure - which contribute to the production process, but do not become embodied in its output.</td>
</tr>
</tbody>
</table>

Source: (Wilsdon, 1999, p. 2)

The point of departure which differentiates SS from WS is that SS regards capital as uniquely irreplaceable and therefore are not able to be substituted by market forces or technological
development. SS differs from WS by requiring that specific types of critical natural capital must be preserved without damage by pollution. Ayres offers an intermediate position between the two perspectives:

A compromise version of strong Sustainability focuses on ecosystems and environmental assets that are critical in the sense of providing unique and essential services (such as life support) or unique and irreplaceable non-use values. The ozone layer is one example of the first; songbirds or coral reefs might be an example of the second. Another way of formulating such a compromise is that a minimum amount of certain environmental assets should be maintained, based on the idea that these assets are partly complementary to economic assets and partly substitutable by the latter (1998, p. 8).

Thus framing the two models (Weak versus Strong) as opposing each other is perhaps misleading in the sense that the models in many ways are not so far apart in relation to how the market should function. Both models view the role of the market as a central mechanism in achieving SD. Both models recognize ecosystem services as critical and both models argue for maintaining total capital for future generations, depending on how it is constructed.

In this way, the WS perspective should be viewed more as a necessary step on the way to achieving true Sustainability. Weak Sustainability should thus be more accurately viewed as being complementary to SS. Environmental economics is an extension of the neoclassical paradigm in that it includes environmental issues in its analysis. In this regard, the seminal work by Pearce, Barbier and Markandya (1989), who developed the notion that maintaining the stock of natural capital is a condition of SS, is key. Significantly, these authors recognize the uncertainty associated with biophysical functions and the irreversible nature of some environmental impacts, and further recognizing, therefore, that some components of these systems can have no counterpart (Ozkaynak, Devine, & Rigby, 2004). However, as these services lack a shared unit of measurement, it becomes difficult to compare and understand their importance relative to each other. Therefore, some form of common metric must be created. Environmental economics serves this purpose.

Drawing from ecological economics, at the core of the SS model is the belief that often externalized environmental services or costs can be internalized. In this way, consumer choice via the market will signal the most Sustainable Developmental pattern. Services to the environment include the modulation of the earth’s climate and weather, the stabilization of the world’s hydrological cycle (the process that brings us fresh water), the moderation of droughts and floods,
the recycling of nutrients critical to our survival, the detoxification and disposal of wastes, replenishing soils, the pollination of plants including our crops, controlling pests and organisms that carry diseases and many more (Ehrlich, 2004).

The theory suggests that if consumers were subjected to the real cost of impinging on these services, for example motoring, driving a car would be significantly more expensive, and for many, driving would be prohibitive. It has been estimated that the real cost of motoring when such things as Climate Change are incorporated, could be as much as 200 percent higher (Fitz-Gibbon, 2004). As driving vehicles would become too costly for many people, it would lead to a greater reliance on public transport and therefore environmental problems associated with vehicle use would be reduced.

If the internalization of environmental costs mechanism was applied consistently to all environmental issues, environmental costs would be priced according to their actual environmental impact and economic growth would be altered in favor of Sustainable Development, and theoretically, there should be no limit to the rate or degree of expansion. By placing the financial onus on polluters (The Polluter Pays Principle), it is believed that this mechanism will contribute to Sustainable Development.

The Polluter Pays Principle

The Polluter Pays Principle is embedded within the SS model. The Polluter Pays Principle is a response to the issue of market failure, in its inability, as it is presently structured, to recognize many environmental issues. As above, there is an economic incentive to pollute and few to act in an environmentally cooperative manner.

In each case, the economic agent motivated by self-interest is tempted to be a free rider upon others who are subordinating self-interest to the group interest. The paradox is that all lose when all pursue their sole self-interest, and yet each has no guarantee that his or her restraint will be matched by the restraint of others. The essence of the free-rider problems is that private costs must be incurred for group benefits (p. 562).

The Polluter Pays Principle recognizes this problem and usually through a system of taxes disincentivizes polluting behavior, and if well designed, incentivizes non-polluting activities. The
central principle is that whoever introduces a polluting substance to the ecosystem should be responsible for repairing or paying for any damage that action causes. It is a mechanism unusually aimed at motivating industry, but applies equally to individuals in order to encourage behavior changes in favor of less polluting activities. The Polluter Pays Principle has a range of meanings which apply to different cases and situations.

An example is that the principle suggests that polluters should pay for the cost of pollution abatement, environmental recovery and the compensation for victims of damages if any, as a result of polluting activities (Moutondo, 1999). The Kyoto Protocol is an example which makes polluters pay for the amount of carbon dioxide or methane they emit into the atmosphere and allows polluting rights to be purchased. The Polluter Pays Principle is not a panacea for Sustainability; it is one important element that has to be incorporated into a range of principles in order to be effective.

The Polluter Pays Principle is problematic in the sense that care must be taken with its application as it may only be appropriate in a wealthier context. As will be argued below, in some cases, environmental conservation is a luxury which cannot be afforded by some. It usually comes after the basics have been achieved (i.e. shelter and food) and thus it is arguably a form of luxury available more to the well off.

The disproportionate impact of environmental protection standards may be seen in the way some products have internalized environmental services. In some cases, they have a green label stating that the product does not damage the environment during manufacturing and the company has an environmental or green accounting system such as the Triple Bottom Line or the like. These products are often more expensive as companies are able to charge a premium for the added value of environmental protection. Since these products are more expensive, they often attract people who are from a more professional or wealthier background. These products then become more of a fashion item. Examples include organic or insecticide free vegetables or high-end luxury vehicles coming with CFC-free air conditioners (Israngkura, 1996).

This process also works at an institutional level. In poorer areas of New Zealand, for example in the Far North district, local authorities cannot afford to have modern sewage disposal systems and rely on less than sustainable methods of disposal. It is unlikely that members of these
communities will respond well to higher charges of environmentally sustainable infrastructure in a positive way, when the social / economic impact will be negative. Thus, the poor are forced to buy cheaper products and services that that may be made in a less than an optimally sustainable way.

The result is that the cost of the Polluter Pays Principle will inevitably impact disproportionately on the poor as these costs will constitute a greater part of their total income. I am not disparaging the importance of the Polluter Pays Principle, but rather suggesting that the social / economic impact of this practice needs to be addressed before it is implemented. If a product or service is priced more expensively, it becomes essentially a tax burden born by the poor. When imposing the Polluter Pays Principle, authorities must recognize the need for a fiscally neutral cost structure that does not affect low socio-economic groups in a prejudicial way.

The SS perspective thus uses a combination of limits imposed on human societies by the biophysical rules suggested by Daly. These rules potentially form the basis of economic instruments which incorporate by proxy the true of environmental services.

I now turn to a comparison of the two models.

Comparing Weak and Strong Sustainability

These models relate to the SD Chapter framework with the Weak Sustainability model conforming to the left side of the framework and, with exceptions, the Strong Sustainability model being located on the right of the framework.

<table>
<thead>
<tr>
<th>Weak Sustainability</th>
<th>Strong Sustainability</th>
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<tbody>
<tr>
<td>Manufactured and human capital are substitutes for natural capital</td>
<td>Manufactured and human capital are complementary to natural capital; a constant stock of natural capital must be maintained</td>
</tr>
<tr>
<td>All economic objects are valued under the common metric of utility</td>
<td>Environmental services cannot be valued fully by the utility function</td>
</tr>
<tr>
<td>Decisions are based on discounting</td>
<td>Discounting is based on the values of many individuals based on variable timeframes. These timeframes may not reflect biophysical timeframes</td>
</tr>
</tbody>
</table>

Source: (Lebrun-Southcott, 2005)
The WS model is deeply rooted in neo-classical economic thinking, and so gels with the logic of neo-liberalism, which espouses the superiority of private over collective ownership. If this model was applied, it would lead to the privatization of many aspects of the biosphere. Weak Sustainability is one solution to the tragedy of the commons type problem (referred to at the beginning of this Chapter) and an argument that relies on the notion that the private ownership of environmental capital is the best means of ensuring environmental stewardship:

\[\text{over the long run, private ownership is the most effective protector of the environment – provided ownership is transferred and backed by courts that make people liable when their pollutants invade the person or property of others. This system of private ownership would protect the environment for the same reason that it protects other kinds of property: because it encourages good stewardship (Stroup & Shaw, 1989, p. 31).}\]

In the Weak Sustainability discourse, the modern self is constructed through a process whereby meaning is subsumed as a function of exchange. WS thus runs the risk of reducing the likelihood of achieving SD by encouraging the placement of the Marxist notion of ‘use value’ at the core of our wider value system. This value system reflects the dependence of Weak Sustainability on its own self-reinforcing or circular logic. If the question of valuing the environment is put to those who are taught that the environment is there to be consumed, then the answer has largely been pre-determined by the social context of instrumentalism.

These values are in turn reflected in economic models that rely on valuation methodologies such as hedonic pricing, the contingent valuation and travel cost methods, all models suffused with instrumentalist use values. The centrality of the democratic process within SEA explicitly relies on processes such as these. When SEA relies on these models it, by definition, takes on the ideological commitment to a market-driven model, in a context of neo-liberal thought, with its distrust of any solutions that smack of collectivity or non-priceable values or objects.

An elaboration of the differences between the two models may be further seen in answers to the following four questions.

\[59\] The American Heritage Dictionary (2002) defines the biosphere as: the part of the earth and its atmosphere in which living organisms exist or that is capable of supporting life this is thought to be to the depth of about two kilometers into the Earth’s lithosphere (the outer crust of rock) (http://dictionary.reference.com/).
Issues within Sustainable Development

(1) Does resource scarcity limit societies’ ability to grow?

From Figure 18, this question relates predominately to oppositions 1, 3, 5 and 7.

Within this question, two perspectives emerge: resource optimism (Weak Sustainability), and resource pessimism (Strong Sustainability). From the WS point of view, the assumption is made that technology has in the past solved our problems and will in future continue to solve them. It is underpinned by a faith in market mechanisms, which it is argued would eventually solve environmental issues through a process of privatization (Neumayer, 2003; Simon, 1981). I begin with the resource pessimists.

SS dates from the 18th century where the notion of limiting growth began with the work of Robert Malthus (1766 – 1834). His most famous work *Essay on Population* (1797) promoted the notion that human reasoning, political institutions and actions could be directly acted upon and understood through positive laws. Human flaws, vices and poverty could be attributed to fundamental laws of nature, and that nature was thus impervious to the impacts of institutional or political change. Malthus was interested in human welfare, particularly the alleviation of poverty and concerned himself with theorizing an optimal social and economic structure for its promotion. He concluded that the alleviation of poverty and human advancement is best served by harnessing the notion of human self-interest. Hence, his theories can be squarely located within the utilitarian discourse.

However, as his theories were based more on the reductionism of the enlightenment, his contribution shifted debate from a moral or economic discourse, to a biological one. By placing the human biological environment at the center of his theory, he cemented his place in the pantheon of the SS discourse.

Malthus was a mathematician and an early demographer, and was concerned with the impacts of population growth. In 1798, he pronounced that “population when unchecked goes on doubling itself every 25 years” (1992, p. 17), a measure of population growth still used in the present. As a
country theologian and academic, he also became interested in food production. Because of his observations of demographic trends, combined with a background in agriculture, he concluded that food production and population growth have a strong but curvilinear relationship. He argued that, while a population of a million people may double as easily as a population of a thousand, the same cannot be said of food production. He observed that as population growth fuels the demand for more food, more marginal land will be turned to food production. However, as these lands tend to be less productive than fertile land, the rate of productivity improvement will be reduced, hence his famous law of diminishing returns. Malthus believed that population could grow only until the lowest level of per capita food consumption was reached. Once reached, it would decline steeply - only to grow again and encounter absolute scarcity constraint afterwards again and again, in an apparently eternally vicious circle (Neumayer, 2003). Hence, food production would never keep pace with population growth, he thought. As it turns out, he was wrong (at least at the time of the writing of this research).

Malthus’s error was that he significantly underestimated technological advances that kept food production well ahead of population demand. Over the nineteenth and twentieth centuries, food productivity and the overall amount of land able to be used increased significantly due to technological improvement. Transport and roading technologies improved to the point where food could be produced and transported from places further afield from population centers. Malthus also underestimated the development of farming technology, which became far more energy intensive and productivity of even marginal land increased significantly. He also failed to predict the relationship between higher standards of living, reproductive technologies, the impact of Feminism and the resulting lower rates of child birth. Nevertheless, Malthus was a starting point for the limits to growth discourse that carried on well after his death in 1834.

A contemporary of Malthus and fellow utilitarian and limits to growth theorist, was John Stuart Mill (1806-1873). In System of Logic (1851), Mill outlined his philosophical position, where rational or economic man forms the basis of his understanding of human nature. The notion of economic Sustainability was firmly embedded in the theories of Mill who stressed that environment or nature should be protected from unfettered growth in order to preserve human welfare before diminishing returns occur (Goodland, 1995). With others, Mill was deeply concerned that natural resources would eventually run out. Consequently Mill predicted that “scarcity of natural resources would
lead to... retardation and eventual cessation of economic growth” (Barnett & Morse, 1963, p. 2). As standards of living continued to improve, belief in resource scarcity however, largely vanished in the following years. At the turn of the twentieth century, neo-classical economics took center stage and world growth continued in spite of the depression in the 1930s and two World Wars. This was not to say that there was nobody to question the exponential growth thesis, however these questions were largely displaced by the post-World War Two exuberance, as well as other political events taking center stage, particularly the Cold War, and wars in Asia. Even during this period, the world’s economy continued apace and standards of living improved markedly.

Following World War Two, the world enjoyed unprecedented peace, economic growth and wealth creation. In addition, the world’s level of consumption and consequent level of pollution also increased. As standards of living and the resulting pollution levels made themselves apparent, this spurred a greater understanding of the relationships between these phenomena. Old questions resurfaced as to the Sustainability of this new wealth. With much fanfare, the concerns raised by Malthus and Mill about the availability of natural resources emerged again when the Club of Rome published its findings. In Limits to Growth Meadows, Randers and Meadows (1972) forecasted growth in the human population and industrial production in the global system over the following century. A model of system dynamics was created to simulate investments in supply of food and the resource production needed to keep pace with the needs of a fast developing world. The model also simulated the generation of persistent pollutants and the ability of the environment to absorb and degrade pollutants to their constituent elements, or a harmless state (sink capacity).

The model was used to study futures with widely different estimates of the total food supply, total resource base, as well as the ability of technology to improve production and efficiency. The simulations led the authors to conclude the world system could not support present rates of economic and population growth much beyond the year 2100, even with significant advances in technology. The researchers then used the model to study the most likely pattern of accommodation with the limits in our global system. Two scenarios were created. One possible pattern when graphed is an S-shaped growth scenario. In this projection, the global population and industrial output would gradually slow down over several decades and reach a level that could be sustained indefinitely. Scenario 2 is overshoot. In this scenario, the limiting effects of food and resources would not be felt immediately (or would be ignored), and population would grow past a
sustainable level. A downward correction would then occur due to inadequate food production, declining resources and a worsening environment. Criticism at the time of publication questioned its conclusions by suggesting that data used in the simulation lacked empirical validity:

The treatment of empirical relations in World Dynamics can be summarised (sic) as measurement without data... The model contains 43 variables connected by 22 non-linear (and several linear) relationships. Not a single relationship or variable is drawn from actual data or empirical studies [italics in original] (Nordhaus, 1973, p. 1157).

Twenty years later, these authors revised their work and reached essentially the same conclusion (Meadows, Randers, & Meadows, 2004). This time the work did not receive anywhere near the same level of attention. The WS discourse was by this time well entrenched, a position that rejects the notion that extrapolation based on history could not be a reliable predictor of future development, without taking into account future technological development and resource pricing mechanisms.

An attempt to take into account such future developments and proponent of the WS position is Simon (1981), who argues that environmental issues either have been solved or will be solved through the free market, further investment of technology. Simon who is a Promethean places his faith in human inventiveness, that is, the technological optimist perspective. Simon argues that, as our ability to create is limitless, resources must also be limitless. His argument is based on an examination of the history of sources of energy use, in particular wood, coal, oil and nuclear power. His argument is that, as resources become scarcer, we will simply invent other methods of exploiting the environment. In his words:

Our economic activities generally create more than they destroy. Hence we should encourage freedom and enterprise rather than fettering opportunity and throttling down the rate of progress. Productive people should walk tall with pride and get on with their jobs, rather than skulk around with a guilty conscience at befouling our environment (Simon, 1981, p. 271).

The argument is also applied to resource consumption. Myers and Simon (1994) argue that price is a reflection of supply, and therefore if resources were becoming scarcer, it would be reflected in price levels. In their analysis, they examined the price of chrome, copper, nickel, tin and tungsten, which were predicted by Meadows, Randers and Meadows’ (2004) World Dynamics model, to run out. From their observations, they concluded that the price of metals studied was lower than ever, and therefore a reflection of the greater overall availability of metals for exploitation. They argue that price is representative of availability therefore these resources are more available now than at
any other time in human history. Consequently, there is no scarcity. Simon also cites a further example of the price of wheat, which he examines between the period of 1801 and 1985. A similar conclusion is reached, that of a steadily decreasing price over time. He argues that historically, food production, through improved technology has increased and therefore as we make further advances, there is no reason why this trend should not continue indefinitely.

Simon also applies the same argument to the question of population growth. He claims that population growth is a spur to economic development and growth. He argues that countries with high population growth rates tend to have correspondingly higher economic growth. Thus he claims to refute Malthus’s theory of population growth. Essentially Malthus argued for a law of diminishing returns where more people consuming more resources results in less fixed available stocks of goods and services. A greater amount of workers laboring with the same fixed current stock of capital suggests that there will be less output per worker. However, if resources are not fixed, if people in fact create more resources, then diminishing returns cannot occur. Simon and Myers argue that instead of diminishing returns, they argue that returns, in fact, increase.

They argue that population growth has speeded up the development process rather than hindered it. The most extraordinary aspect of the resource-creation process is that temporary or expected shortages, whether due to population growth, income growth, or other causes, tend to leave us better off than if the shortages had never arisen, because of the continuing benefit of the intellectual and physical capital created to meet the shortage.

Finally, in the face of considerable scientific evidence, Simon turns his attention to global warming, concluding that global warming is “…simply another transient concern, barely worthy of consideration 10 years from now” (Myers & Simon, 1994, p. 55). As is the case with Climate Change deniers, he suggests that scientists are divided on the subject, which is true in part (see de Freitas, 2002; Lomborg, 2001; Strauss, 1997) and downplays the effects, suggesting that they are minimal or even beneficial in some parts of the planet. As noted above, he bases his argument on demand spurring technological development. While it true that when oil prices increase, markets respond through lower demand. It is also true that oil prices have increased significantly since the 1970s. However, the main influences of oil prices relate more closely to the geopolitical situation. The oil shocks of the 1970s were unrelated to the overall amount of oil available in the ground and were mostly determined by the political turmoil that sparked the price
rises. The 1979 Iranian revolution caused a supply upheaval, thereby causing widespread panic, leading to large price hikes. A similar situation exists with the present (2009) war in Iraq. These factors obscure the resource supply and technology relationship rendering this argument fruitless.

Simon’s work is in many ways quite refreshing as it does draw attention to some of the successes and improvements in the way we treat the environment. Recent evidence shows that the Montreal Protocol signed in 1987 has been effective in reducing CFCs into the atmosphere and reducing the size of the ozone hole (Töpfer, 2000). Air quality has improved in some areas. DDT has been banned and the Kyoto Protocol, albeit in a limited form without the United States, will most likely go ahead. While the above instruments support Simon’s substitution thesis, all of these are measures of the legislative kind, suggesting that at least in some cases, steps such as these are needed. His basic thesis, that the wisdom of the market will appropriately value environmental services rests on the logic that the fact that some environmental success have occurred in today’s free-market environment is evidence of market factors making themselves felt. He ignores the fact that most of the successful initiatives have been brought about by a painful process of market regulation.

It is also true that commodities are in general cheaper than ever before and are unlikely to run out in the near future, at least in richer Western countries. The prices for most raw materials are at a 28-year low (Hawken, Lovins, & Lovins, 1999). However, the question remains of, does price truly reflect supply? There is no doubt that commodities are at present cheap and abundant, not because there is an everlasting supply, but because of a number of other reasons. Cheaper transport costs, and therefore labor, globalization of trade, as well as the success of new extractive technologies have all contributed to making resources easier to obtain and therefore cheaper. These technologies are often not faced with the problem of factoring into the cost equation the stripped rainforest, or the mountain of toxic tailings spilling residues into the rivers causing large scale effects. Again, these are examples of market failure and provide a justification for SS models to be incorporated into economies.

In Myers and Simon’s analysis of the history of resources use and substitution, they further argue that the above logic used in their rejection of the limits to growth theory also applies to resource substitution. From historical examples, they argue that man’s ingenuity is capable of putting to use previously unrecognized materials or inventing synthetics capable of doing the same job. In
addition, the notion that the Earth has only a limited supply of resources may be more flexible than previously thought. As the demand for more products and resources has increased, so too has our mining technology which has developed to the point where the extraction of resources is possible at a greater level of difficulty. For example, in the 1970s, oil exploration in the North Sea was considered far too difficult as sea conditions and water depth made its extraction uneconomic. As the 1970s oil shocks affected prices, previously uneconomic fields become profitable. It is therefore conceivable, that the same process will occur with mining. At present, most mining occurs to a maximum depth of two kilometers. It is also conceivable that, if resources become scarcer, economic demand would spur the development of new technologies designed to meet the new conditions. The Earth’s crust is on average 40 kilometers deep and the Lithosphere over 80 (Natural Environment Research Council, 2004). The bulk of this remains unexplored. Even at these depths, there seems little reason that resources will run out in the near future.

When applied to food production, the debate becomes more complex. It is unknown whether there are limits to food production. It appears that Malthus miscalculated when he thought that increases in food productivity would cease. He underestimated the impact of new technologies and the productivity gains made from essentially man’s ability to harness greater levels of energy and introduce it into the productive system. In addition, the food quandary has turned from not whether there is enough food in the world (as clearly there is), to one of distribution. While many problems remain, for example, the collapse of fish stocks, it appears that given the right amount of energy and other inputs, most land can be turned to food production and hydroponic systems reduce the need for land inputs.

A further protagonist of resource optimism is Amory Lovins. For the last three decades, Lovins’ work has provided the most influential support for the conventional technological-fix paradigm. His widely acclaimed work *Natural Capitalism: Creating the Next Industrial Revolution* (Hawken, Lovins, & Lovins, 1999), presents Lovins’ general position. In this work, they affirm the point of view that most pressing environmental problems can be resolved through the introduction of superior technology. Essentially, he focuses resource efficiency, the introduction of the so-called hydrogen powered economy and encourages a far greater emphasis on recycling technology through new types of design and service industries.
At the heart of work is the claim that humanity can continue to consume the goods and services that we have all become accustomed too. It is possible to retain air-conditioned houses, long distance commuting and international travel and so on, as improved technology will allow the continuation of Western world lifestyles, enabled by a dramatic reduction in demands for resources and reduced per unit environmental impact. These changes, they argue, will lead to not only environmental salvation but also to an improved material standard of living.

To date, there is clear evidence to suggest that efficiencies are possible, and the recycling of products after use can be improved to the point where there is little solid waste remaining to enter the environment based on the thermodynamic axiom of constancy of matter and energy. However, it remains to be seen what limits exist (if any) to resource efficiency. Clearly there have been gains in material efficiency and in the following section there is mixed evidence for the decoupling of economic growth from resource consumption, with efficiency gains being more than offset by the total amount of resources consumed and solid waste and other pollutants produced.

While the logic of SS is that if we live in a finite context, resources must also be finite, and eventually they will run out. This appears on the surface a truism, yet there may be other factors that come in to play that may mitigate these issues. The WS or technological optimism perspective in fact recognizes that resources are limited, but argues that, while resources may indeed become scarce, other materials are just as likely to become useful to humans.

The answer to the question of whether or not scarcity limits the abilities of societies to grow therefore has yet to be fully answered as the feedback mechanism for such things as Climate Change and solid waste disposal are only now beginning to make themselves felt. It is also far from conclusive that our resource base will either run out or stretch out indefinitely.

The real question is, given the level of population and economic growth, is it possible to design systems to cope with the level of pollution generated by a further three billion people, as well as the industry supporting them at a level approaching a Western standard of living?

Evidence exists that environmental systems are already over-stretched and will suffer further decay as more environmental pressure is exerted. As the recent Stern Review (2006) notes, the feedback mechanism is a social one, in the form of human suffering and issues relating to poverty.
The new limits paradigm suggests that instead of resources running out, our economic output must be identical to the environmental ‘footprint’ of such activities. As the planet is finite, it makes sense that our economic ‘size’ must be limited by the same biospheric limitations as the Earth (Daly, 1973, 1991; Daly & Townsend, 1993; Hay, 2002). In addition, it is clear that a combination of market-based instruments and legislative frameworks that incorporate sink capacity as a governing factor is needed. Another way of looking at the question of limitations to growth is the question of whether or not growth may be decoupled from its environmental impacts.

(2) Can economic growth be decoupled from environmental damage?

From Figure 18, this question relates predominately to oppositions 1, 5, 6, 7 and 8.

Sustainable economic growth is accepted as a crucial aspect of most theories of Sustainability. As noted above, some theorists go as far as to argue that Sustainable Development can occur only after a certain level of per capita wealth is achieved and that improved economic growth can be correlated to improved environmental outcomes, at least at the level of developing or transitional economies.

It appears that a reasonable standard of living must be achieved before societies are able to fully embrace Sustainable Development. Indeed, the model created in this thesis is aimed at a developed world context. However, as more nations embrace the growth discourse and more knowledge of the impacts of industrial development are known, the unfettered growth paradigm is increasingly being challenged and nations are seeking ways to de-couple environmental damage from economic growth. This section summarizes the key issues facing this question.

The proposition has been set forth that economic growth is in general, good for the environment (Simon, 1981; Andreoni & Levinson, 1998; Borghesi, 1999; Grossman & Kruger, 1994). Market orientation principles are a much vaunted solution to environmental Sustainability. Proponents of
this position argue that, due to economic growth, there have been significant efficiency gains in many environmental areas in North America and Europe. The term ‘eco-efficiency’ is defined as:

the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the Earth’s estimated carrying capacity (World Business Council for Sustainable Development cited in (Taylor, van Berkel, & Bossilkov, 2006, p. 3).

The key metric being the delivery of goods and services with reduced energetic inputs or resources consumed per unit of consumption. The empirical evidence for the assertion of environmental decoupling has been recently articulated, and is based on economic models which correlate pollution to economic growth. This analysis refers to the work of Nobel Prize winning economist Simon Kuznets (1955), who was interested in the relationship between economic growth and Sustainability, known as the Environmental Kuznets Curve (EKC). Kuznets hypothesized that in the early stages of development, economies’ distribution of income will be extreme, and may be associated with low levels of pollution. As economic growth occurs, economies move towards greater industrial intensity which is accompanied by high levels of pollution. As economies transition to post-industrialism, pollution levels decline, and when presented graphically, an EK curve may be observed. The same process may be observed with poverty. As economies move from rural, low-wage employment to high-wage, post-industrial or service-orientated economies, initially there will be a displacement of workers and distortions in the types of skills needed to run a modern economy. This will be accompanied by urbanization, which creates situations of poverty and low wages. Investment is thus incentivized by companies being attracted by low wages and working conditions. As more investment occurs, economic growth increases, which in turn leads to higher living standards, greater tax revenue and improved education and health. As living standards improve because of post-materialistic demand, so to will environmental conditions, as they create the resources necessary for ecological protection and citizen participation, hence Kuznets theorized an inverted U-shaped curve (Figure 20). There are three main assumptions that underlie the EKC:

1. Economic growth is associated with a shift towards services, which are likely to cause the least environmental damage
2. Economic growth is accompanied with an increased use of high-technology, which tends to be more environmentally friendly
3. Economic growth enables governments to increase their expenditure on environmental protection (Ferguson, Haas, Raynard, & Zadek, 1995, p. 7)

**Figure 20: Stylized Environmental Kuznets Curve**

![Environmental Kuznets Curve Diagram](image)

Source: (adapted from Andreoni & Levinson, 1998)

Kuznets’ hypothesis was used by Grossman and Krueger (1994) to analyze water pollutants between 1979 and 1990, and air pollutants from 1977 to 1988, in multiple locations in 66 countries. Although they found considerable variation among different pollutants, they concluded there was a detectable inverted U-relationship between a country’s income and the levels of most of the pollutants they examined. They found that relatively low, and high levels of income were associated with lower levels of pollution. Their conclusion was that pollution tends to be highest at intermediate income levels, thus supporting the Kuznets hypothesis.

From this evidence, they conclude that initially poorer economies lack the industrial activity to cause significant environmental degradation. As economic development begins to occur, pollution increases. As development progresses, it attracts yet more investment and becomes more economically viable for high-polluting industrial production, as countries at this stage of development often have poor environmental standards. As these industries develop, the standard of living also improves, along with education levels and as these industries create environmental impacts, environmental awareness of pollution impacts starts to occur. Thus, because of industrialization, pollution becomes bad enough to spur collective action to improve control
mechanisms. At the same time, income levels rise enough for residents to afford to pay for it. Because of this process, there is an inevitable demand to shift toward low-polluting industries and products (the shift to post-industrialism), beyond that point, pollution falls as income continues to grow (Andreoni & Levinson, 1998). To that end, as Beckerman (1992), writes: “in the end the best – and probably the only – way to attain a decent environment in most countries is to become rich” (cited in Andreoni & Levinson, 1998, p. 67). As countries and industries develop in their environmental sophistication, the abatement of pollution is more likely to occur. Economic growth also makes pollution abatement easier and cheaper as it is subject economies of scale efficiency gains.

Thus, Stokey (1998) argues that below a threshold level of economic activity, dirtier technology tends to be used. With economic growth, pollution increases linearly with income until the threshold is passed and cleaner technologies can be used. A further explanation for improved environmental standards, suggests that the creation of pollution involves externalities that are not traditionally recognized by classical economic theories and that the internalization of externalities requires the advanced legislation of first-world economies, legislation that requires a sophisticated populace and more advanced legal systems.

A similar conclusion was found by Common (1995) who suggests that growth in GDP results in the higher living standards and quality of life. Common correlates the Human Development Index (HDI) to GDP. The HDI is a composite of measure of human progress carried out by the United Nations Development Program. The index takes into account income, longevity, educational achievement and literacy rates. These variables are aggregated into a score of between 0 (the highest) and 1 the lowest. For each country the scores are added, then averaged and then subtracted from one. Commons carried out a rank correlation between aggregate HDI scores and the GDP of 160 countries. He concluded that GDP has a correlate of 0.91 - a high correlation score. The conclusion reached is that, as economies grow, the production of goods and services produces a high level of personal consumption and a desire for a better quality of life. This quality of life in turn generates the sophisticated infrastructure needed to improve environmental standards.

The EKC analysis appears to have empirical support. During the 1960s, it would be taken for granted by political elites that one of fundamental tasks of leadership was economic growth.
Economic growth was, and remains today, a means of establishing political legitimacy among the general populace and socio-economic elites. More recently, these assumptions have become less tenable. Inglehart (1977) claims that public goals have shifted away from a purely economic focus to include a far more personal and individualistic definition of living standards. The values of Western publics have been shifting from an overwhelming emphasis on material wellbeing and physical security toward greater emphasis on the quality of life. Value changes appear to be linked to a cluster of socio-economic developments relating to increased levels of participation in the decision making process. Trends such as rising levels of education, shifts in occupational structure and the development of increasingly broad and effective mass communication networks have facilitated the ability of populaces to determine the direction of future outcomes, as Inglehart states:

[w]e are interested in these changes insofar as they contribute to the process of cognitive mobilization. The essence of this process is the development of the skills needed to manipulate political abstractions and thereby to coordinate activities that are remote in space or time…Consequently, historical changes in the distribution of these skills have been a major factor in defining the politically relevant public (1977, p. 295).

The data obtained from the above research shows that the benefits of economic growth have encouraged improved environmental regulation. It is not however clear that economic growth per se spurs environmental improvement. Rather, it is more accurate to say that the combination of increasing wealth and improvement in scientific and general environmental knowledge, human rights and legal systems such SEA and the RMA have all contributed to improved environmental outcomes. Grossman and Krueger (1994) thus argue, “there is no reason to believe the process is an automatic one… there is nothing inevitable about the relationships that have been observed in the past” (cited in Mariano & Boyce, 1998, p. 148). They further argue that induced policies such as more stringent environmental standards provide the strongest link between wealth and environmental outcomes, thus echoing the original conclusion by Kuznets (1955).

The relationship between wealth and environmental awareness is also supported by the historical improvement of environmental law. As the world’s richest country, the United States was an early leader in the development of environmental regulation in the 1970s, and other OECD countries such as Australia and New Zealand have well developed legal systems of environmental regulation. Most recently, the European Union has taken leadership in this area with, amongst others, reforms such as the Kyoto Protocol and impact assessment related directives.
The environmental successes that have occurred have been won by long and protracted battles with growth oriented government and corporate entities. Environmental regulation is often met with derision from business and the public alike. For example, the decision to ban DDT met with stiff resistance by the farming community in the United States (Carson, 1962; Graham, 1970). The Montréal Protocol was one of the success stories of the environmental movement which was imposed upon a reluctant world. In New Zealand, the creation of forestry reserves on the West Coast of the South Island was a long battle, again a regulatory platform and the list goes on. These battles have been won in countries where environmental consciousness is linked to the social, legal and economic capacity to challenge the growth paradigm. Clearly, there is evidence to support the fact that populaces have demanded and achieved higher levels of environmental protection, which supports the EKG hypothesis. I now turn to those who dispute the EKG hypothesis.

From my reading of the EKG hypothesis, there appears some evidence to support Kuznets’ conclusions. Nations need at least a minimum level of wealth to support improved environmental planning infrastructure. Nations also require a populace that is wealthy and educated enough to understand and participate in the democratic principles espoused by such instruments as SEA and other planning processes. Complex planning processes also require an economic base that can be taxed in order to provide the resources needed to run sophisticated legal and governmental structures in a transparent manner. If the local populace is unable to read or have access to the internet for example, it is less likely that they will be able to be consulted on a particular subject in a comprehensive or meaningful way, nor will they be likely to have access to adequate legal structures for the above purposes. In addition, a poorer nation will be less likely to posses the research capability to understand the impacts of development on natural processes and will be more likely to be seduced by the promise of economic development for its own sake.

Pittel (2002) argues that deducing relief from economic growth is questionable as a U-shaped curve has yet to be found for carbon and solid waste emissions in first world countries. Commenting on the methodology of Grossman and Krueger, Pittel suggests that coming to conclusions derived from data on some pollutants, drawn from a select few monitoring stations in a non-representative sample of cities over a relatively short period of time, is insufficient to detect the true relationship between pollution and economic growth.
The EKC analysis for first world countries is also undermined by theories relating to the export of polluting industries to less developed nations (Paehlke, 2003). Dryzek (1997) argues that freer trade and differential environmental preferences may result in the export of some pollution problems from developed countries to less-developed countries as these countries tend to have less stringent legal systems or standards.

The question remains, though, is there any evidence to support environmental decoupling? The European Environment Agency concludes there is evidence to support the decoupling hypothesis: “[d]irect material use and total material requirements have been decoupling from economic growth in relative terms since they kept constant or only increased slightly over the last decades” (Moll, Bringezu, & Schütz, 2003, p. 9). The report concludes that while market efficiencies have made gains in resource use, in absolute terms however, the overall level of resource use has increased. In addition, the report also notes that the European Union is increasingly reliant on the importation of foreign goods, thus shifting the impacts of production onto other countries.

There appears to be evidence supporting the conclusion that growth in the size of industries allows economies of scale gains to be made for pollution abatement. As Andreoni and Levinson (1998) note, the logic is problematic. Imagine the technology for sweeping a floor. The inputs to abatement are, first, a floor with a layer of dust one centimeter thick and, second, a person providing an hour of sweeping. Now consider two centimeters of dust and two hours of sweeping over the same floor. Assuming the person can sweep just as fast in both cases, doubling the amount of dust will clean up twice as much dust, implying increasing returns to scale. As the dust gets thicker and heavier the sweeper may no longer be able to cover the same floor space in an hour, but his rate of sweeping would have to be cut in half before increasing returns switches over to decreasing returns.

Thus to suggest that the environment is improving in Western countries due to economic growth appears premature and is not supported by the most recent data. The high living standards that are reputed to have led to higher environmental standards have also come at the cost of greater ecological damage and the production of unprecedented levels of pollution. Europe for example, is beginning to rival the United States with its carbon emissions (World Resources Institute, 2002). As the Stern review has shown, we are introducing globally warming pollutants into the atmosphere at an unprecedented rate.
To answer the question at the beginning of this section of whether economic growth may de-coupled from environmental damage, the conclusion is there appears to be only limited evidence in support of the decoupling hypothesis. Proponents of the substitutability paradigm convincingly argue that resources are simply not running out and that this is reflected in the price and availability of resources. Those who follow the non-substitutability argument, also convincingly suggest that the full impact of economic growth has yet to be felt and the rising costs of disposal have yet to be fully calculated. In addition, the impacts of the rising standard of living in countries such as China and India are only now making themselves felt. When these countries approach a Western standard of living this area of research will have be re-visited.

Finally, Kuznets curve supporters concluded that it was not the free market in itself that achieved substantive environmental outcomes, rather that wealth generates the collective cultural capital, particularly education and political knowledge in a democratic environment that gives publics the ability and opportunity to demand of governments that they act. The implication of this finding is that wealth generation is the most effective means of achieving Sustainable Development. The further implication is that governments, via democratic participation, are the most effective means to apply these demands.

(3) Can natural capital be substituted by artefact?

From Figure 18, this question relates predominately to oppositions 1, 3 and 5.

The key difference between the WS and SS models are their respective positions on whether or not capital, natural and human-made, can be substituted for each other. The WS paradigm is built on the neo-classical assumption of unlimited substitutability of natural capital. This implies that natural capital can be safely consumed without concern for the future as long as another form of capital is built up (inter-generational equity). This is largely based on two main assumptions (1) that natural resources are more or less unlimited and, (2) that technological progress can overcome resource constraints (Neumayer, 2003). Solow (1986) argues that our economic system
can enjoy an inexhaustible stock of resources and consumption indefinitely if it was able to invest wisely all of the rents from those resources. The SS perspective opposes this proposition arguing that some natural capital and processes are inherently non-substitutable.

Proponents of the SS paradigm contest the notion that technology can replace environmental services (Daly, 1973, 1991, 1999; Goodland, 1995; Goodland & Ledec, 1987; Pearce, 2001; Pearce, Markandya, & Barbier, 1989). Chakrabarti (2001) for example, argues that “natural resources cannot be totally substituted by man-made capital, is now an accepted truth.” Others argue that substitutability is simply a matter of creating the right economic incentives to create the appropriate technology (Bretschger & Smulders, 2002). It is useful to examine this issue by looking at an extreme case. If one were to look at this problem from the reverse perspective of creating an ecosystem from an entirely barren planet, sometimes referred to as ‘terra-forming’, to borrow from science fiction literature (Asimov, 1983). In this scenario, a completely barren planet is imagined, and a biosphere is created purely from human capital. In this extreme example, it is difficult to even imagine the technology and energetic requirements needed to create a fully functioning ecosphere. Such a system would require vast machines capable of extracting toxins from the controlled atmosphere, highly complex control systems for monitoring the temperature of the planet the weather systems, material decomposition, water filtration and so on.

One attempt to construct a biosphere on a small scale is the Biosphere II experiment (the first biosphere being the Earth). In 1991, a Texas oil billionaire, Edward P. Bass funded a $150 million mini-world project intended to mimic the Biospheric processes of the Earth. Built in the Arizona Desert, the Biosphere II is a massive 200,000 cubic meter glass structure, constructed to house eight ‘biospherians’. The structure was built to better understand the Earth’s biological systems, as well as to provide clues as to how a habitat might be constructed for space exploration.

The experiment was a dramatic failure. After only a few weeks into the project, it became obvious that the structure was a highly unstable ecosystem and unable to maintain itself as it failed to generate enough oxygen for its inhabitants and produced toxic levels of CO₂ (carbon dioxide). It was also unable to generate enough food, and so extra supplies and oxygen had to be brought into the complex. The experiment was deemed a failure, but with some useful lessons. The experiment highlighted the difficulties of trying to artificially recreate the Earth’s natural systems. The experiment demonstrated the gulf between current human knowledge and a full
understanding of the extreme complexity of the Earth, a complexity that we have in fact barely scratched the surface. According to Harvey, the Earth’s -

...adaptive systems...are so immensely complex that we have barely begun to understand the spatial component. Furthermore, in bridging the scaling chasm we need to understand how the complex biosphere has emerged from natural selection and other forces operating at small scales, and the degree to which the evolutionary process operates to maintain this critical support system (Harvey, 2002, para. 2).

As the Biosphere II experiment shows, we remain heavily dependent on natural environmental systems. Even in this high-technology example, the Biospherians were still heavily dependent on non-substitutable natural systems, such as air purification, solid waste disposal and food production.

A further argument supporting the non-substitutability of natural capital is Figge (2005), who, by way of analogy, uses the example of a fishing fleet to differentiate between the Strong and Weak Sustainability. Figge envisages a scenario where fish stocks are gradually being depleted through over-fishing, yet the fish catch remains stable through the introduction of more fishing boats and improved sonar technology. Being a ‘tragedy of the commons’ scenario, fish stocks decline, leaving a fleet of boats with a severely depleted resource. In this scenario, clearly a fishing boat cannot substitute for the loss of fish. More fishing boats will never make up for the fact that there are no fish left. Obviously human capital (boats and associated processing plant), are dependent on the existence of the resource. Fish possess characteristics that are unique, and are therefore irreplaceable.

Costanza et al (1997) estimate the value of the ecological systems and the Earth’s natural capital stocks to be conservatively between (US) $16 and $54 trillion, which is 180 percent of global GDP (in 1997). What their research highlights is the enormous scale of the environment’s contribution when measured in dollar terms. This estimate is of use as, when one tries to cost the replacement of these services, the conclusion reached would have to be that any attempt at doing so would have a significant, if not impossible to sustain, impact on the world’s economy. As Costanza et al conclude:

[i]f ecosystem services were actually paid for, in terms of their value contribution to the global economy, the global price system would be very different from what it is today. The price of commodities using ecosystem services directly or indirectly would be much greater. The
structure of factor payments, including wages, interest rates and profits would change dramatically (p. 259).

The weakness of a non-differentiating capital valuation system may be seen in a further scenario. According to the WS model, improved living conditions in a city can be a substitute for the loss of a forest. From a human instrumental perspective, this may be true. Environmental degradation may take decades or even centuries, with little or no perceptive difference. This time-scale may be beyond the perception of many individuals and the effects may have little no direct impact. Perhaps an elderly member of the previous generation who has lived in the area for many years may remember a forested area, yet a younger person, growing up or moving into the same, now urban area, will not.

In this scenario, a spatial context may shape a person's perception and attitude to the environment. If s/he grows up in an urban context, where everyday life and recreation occurs in a human-made environment, there will be little or no recollection or perhaps even a desire, or even worse a fear of, the natural environment. As a consequence, that person is unlikely to be overly concerned about the loss of habitat. That person will grow up in a context where living in an artificial environment is the norm, and may even prefer it to an unspoiled landscape.

From the perspective of the modern urban inhabitant, the consumption of the environment compared to the benefits of the modern city may not be perceived as a huge loss, and consequently may support the notion of city living compensating for habitat loss. The point being that this form of environmental valuation is based on normative human values, which are often dislocated from the reality of environmental destruction. This builds on the notion of the urbanized and distanciated construction of what Giddens refers to as the 'disembedded self'. For actors whose experiences are constructed in this context, habitat and species destruction will be less likely to be observed, and Climate Change will come well after more immediate concerns such as house prices or the cost of health. Thus, the substitution of natural capital by artifact masks the real environmental damage being done. It is thus erroneous to correlate human wellbeing with improved urban contexts and assume that this is an accurate representation of the state of the environment.

Perhaps in the extremely distant future, where human technology has evolved to the point that it eclipses the present, it is possible to conceive of an artificial system. However, given the short-
term nature of the problems facing the current generation, it would seem to be embracing irrationality to wait for a point in time where that level of engineering is possible. It would seem illogical therefore to try to recreate a system of such gargantuan proportions and barely understood processes, when a fully functioning system that has evolved over billions of years is already in existence. Why reinvent a wheel when a fully functioning model is available to learn from. It also seems that humanity has far more to gain by preserving and observing a highly complex system, a system of such complexity that it goes far beyond our ability to comprehend and replicate.

In the SS model, the nature of natural and human capital, instead of having no fundamental difference, is one of mutual dependence. To return to the example of the fishing fleet, instead of boats and capital being substitutable, they are rather, in a relationship where the fishing fleet is dependent on the survival of the other. This fundamental difference goes to the heart of the SD debate – in other words, how should the environment be valued?

In the above scenario, we might perceive ourselves to be better off, in cities, but we are still clearly affecting the world around us. It is hard to imagine a world so wonderful that we need to sacrifice the present one to experience it.

(4) How may social factors be integrated with SEA?

This section examines the relationship between social inequality, within a context of globalization and unsustainable development. As discussed in Chapter IV and discussed below, social inequality is becoming a more discernable feature of many Western countries. Income inequality appears to be related to the weakened ability or disinclination of governments to address poverty and the corresponding wealth concentration. Policies of this type are often related to the ceding of power by governments to market interests, reduced collective bargaining, and increased privatization leading to reduced political engagement (voting). As markets gain dominance, externalities are generated, leading to unsustainable resource consumption and polluting environmental additions. This process is augmented by lower social cohesion which arguably
feeds into acts of consumption, which undermines or even, in extreme cases, replaces social relationships. Figure 21 shows this dynamic.

**Figure 21: The Relationship Between Neo-liberalism and Un-Sustainability**

<table>
<thead>
<tr>
<th>Neoliberal agenda</th>
<th>Income inequality</th>
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<tbody>
<tr>
<td>Capital monopoly</td>
<td>Erosion of state</td>
</tr>
<tr>
<td>E.g. the media</td>
<td>Political disengagement</td>
</tr>
<tr>
<td>De-unionization</td>
<td>Increasing violent crime</td>
</tr>
<tr>
<td>Reduced wealth transfers</td>
<td>De-stabilization of ‘local’</td>
</tr>
<tr>
<td>Privatization</td>
<td>Destabilization of collective interest</td>
</tr>
<tr>
<td>Market externalities</td>
<td>Unsustainability</td>
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</table>

Social issues strongly influenced the idea of Sustainable Development. At the UN summits in Stockholm (1972) and Rio de Janeiro (1992) and the most recent Johannesburg summit in 2002 have punctuated 40 years of development thinking. These summits highlight the rising prominence of the social agenda in Sustainable Development.

In the Stockholm Declaration, economic development was a key aspect, tempered by environmental considerations, and their corresponding social implications. Twenty years later, the social implications of economic activity were recognized as distinct from the environmental agenda at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, in 1992. The term ‘Sustainable Development’, formulated in the run up to the Summit, encapsulates this distinction in Agenda 21. Agenda 21 identifies the interactions between the social and environmental aspects of development. One of four documents produced at the Rio Earth summit, Agenda 21 centers on social issues of development; “Human beings are at the center of concerns for Sustainable Development. They are entitled to a healthy and productive life in harmony with nature.”

In adopting Agenda 21, a plan for worldwide Sustainable Development,

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member states recognized a host of social implications of economic development. Principles such
as:

Promoting sustainable human settlement development\footnote{http://www.un.org/esa/sustdev/agenda21chapter7.htm} recognizes the imbalance
between human settlements with heavy resource demands, and those in need of more resources\footnote{http://www.un.org/esa/sustdev/agenda21text.htm}.

Recognizing and strengthening the role of indigenous people and their communities\footnote{http://www.un.org/esa/sustdev/agenda21chapter26.htm} discusses the way indigenous people live their lives in terms of their geography, as well
as their human relationships.

Strengthening the role of farmers\footnote{http://www.un.org/esa/sustdev/agenda21chapter3} looks at the social aspects of farming, not just
economic, for example, subsistence agriculture integrated into rural communities.

Combating poverty\footnote{http://www.un.org/esa/sustdev/agenda21chapter26.htm} examines poverty alleviation with a specific focus on the social
effects of economic development and increased consumption, such as changing family
patterns, work obligations and community functions. In addition, it takes a broad view of
employment and its various meanings across diverse contexts.

Agenda 21 enlarges Sustainability by recognizing that social aspects form a key supporting leg of
SD. The above issues, amalgamated into a broader definition of Sustainable Development, are
also integrated with international trade, casting social considerations of Sustainability in terms of
global economic development: “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.”\footnote{http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm (UN posting of Agenda 21)}.

Sustainability therefore, is achieved through a more open trading system ensuring fairer
distribution of wealth, according to Agenda 21. Social factors, as realized through international
and domestic trade, are key to ongoing Sustainable Development. Sustainably managing the
social implications of trade and consumption now form the focus of Sustainable Development following through from Agenda 21 and on to the Johannesburg summit.

The emphasis on Sustainability at the Johannesburg summit evolved further the agenda of focusing on development that does not reflect the established patterns of consumption of late modernity. Johannesburg builds on the work of previous summits, amalgamating the concern for human wellbeing, as realized through trade, and also the negative implications of trade on the human environment. Although the notion of Sustainable Development has strong biophysical underpinnings related to the moral principle of saving the environment for future generations, the same reasoning applies to the present generations. As the Brundtland commission stated: “[e]ven the narrow notion of physical Sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation” (World Commission on Environment and Development, 1987, p. 43). The notion of equity is largely about fairness and is derived from the concept of social justice, representing an ethical perspective that people should have an equal right to basic needs and that the rewards and burdens of development should be spread evenly over social groupings (Beder, 2000).

Many governments are increasingly using a targeted approach, of which New Zealand is an exemplar. This has a range of implications. The creation of targeted social welfare support interacts in complex ways involving the incentivization to work as a rationale. It has been argued that high levels of social welfare lead to welfare dependence and associated ills (Corak, 2006). In addition, social welfare may also be linked to social groupings such as ethnicity or religious groupings; it may lead to the undermining of bridging social capital between the majority and welfare recipients.

The WS model claims to address the notion of intergenerational equity (through the maintenance of total capital stock). This model uses the term intergenerational equity to mean that present and future generations having at least the same level of environmental health and standard of living that the previous generation enjoyed. In addition, as human development can be correlated to GDP, equity is best served through greater wealth creation (trickle-down theory).

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SS differentiates itself by recognizing that it seems inconsistent to talk of equal rights of future generations, without speaking of the rights of the present generations. The absence of focus on this aspect demonstrates the ideological linkage between WS and neo-liberalism, in that WS mentions little of the discrepancy between comparing the rights between generations and the rights within generations.

Social inequality is highest in countries where the neo-liberal model has been embraced to a high degree. The drive towards economic liberalization since the end of the Cold War encompasses the process of globalization and free trade. The so-called Washington Consensus has to a large extent taken hold of highly influential organizations which propagate its agenda such as the World Trade Organization, the World Bank. The WS model is thus an extension of the policies of the Washington Consensus. In New Zealand, the impacts of such policies may be seen in terms of income inequality. Table 25, using a gini coefficient, shows a significant widening of income inequality in New Zealand between the years 1986 to 2004.

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<tbody>
<tr>
<td>Gini coefficient</td>
<td>27.0</td>
<td>29.0</td>
<td>31.6</td>
<td>33.1</td>
<td>33.8</td>
<td>33.9</td>
<td>33.5</td>
</tr>
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</table>

Source: (Table 3 from Ministry of Social Development, 2007, p. 7)

When compared internationally, New Zealand’s rate of relative child poverty is amongst the highest in OECD countries. Figure 22 gives the percentage of Children (0-17 Years) in households with equivalent income of less than 50 percent of the median. It shows that just under 15 percent of New Zealand children live in households with income less than 50 percent of the median income or just under 17,000 children (Statistics New Zealand, 2004). The table also highlights even higher rates for the United Kingdom and the United States; countries that are amongst the wealthiest in the world. Figure 22 also demonstrates an inverse relationship to Washington Consensus policies, and poverty. Countries that have not adopted Washington Consensus policies, such as Denmark, Finland and Norway have less than 5 percent child poverty rates, whilst maintaining high rates of living standards.
Further evidence in support of policies that reduce social inequalities may be seen with how countries fare on the Human Development Index (HDI). The HDI is an aggregate indicator of environmental stewardship, tracking natural resource use, pollution and societal and institutional capacity to respond to environmental issues (Esty, Levy, Srebotnjak, & de Sherbinin, 2005). It is striking to observe that the countries that have the highest social equality are also the best performers on this scale. With the exception of Uruguay and Canada, the top seven countries, beginning with Finland are all European nations that have a greater commitment to social equality.
The HDI also examines the gini coefficient of social inequality of these countries. Almost without exception the HDI shows a relationship between social inequality and Sustainable Development (Watkins et al., 2006).

As observed above, poverty is related to the decline in civic engagement. As the number of voters declines, it is often within the low socio-economic status groups, and where voter turnout is low, governments tend to allocate less resources to social welfare. The implication is that poverty, and inequality and its associated problems show a greater likelihood to occur under conditions of declining voter turnout (Vowles, 2003).

Gould (2006) argues that neo-liberalism has come to dominate policy, to the exclusion of social objectives. This process works in tandem with governments who for various ideological or other reasons are willing to create favorable conditions in order to chase more foreign investment. Gould goes further, arguing that the level of foreign investment, particularly in nations like New Zealand where foreign ownership is especially high, may in fact be, not a solution to poverty, but rather causes poverty and social inequality. As governments pander to the interests of foreign capital, they become more likely to be put under pressure to lower company costs (taxation) and therefore cut social welfare and may face pressure to weaken the strength of unions. In Gould’s words:

…investors have sought not only to establish the primacy of the market as the determinant of policy but to drive home the necessary corollary – that all costs that do not contribute directly to supposed market efficiency, competiveness and profitability should be externalized and borne by someone else. The effect of this has been to drive down those costs since no one, other than the hard-pressed taxpayer, can be found to bear them (p. 24).

The decline in voter engagement can thus be attributed in part to the surrender of governmental power to the forces of globalization and multi-national corporate (MNC) power and the ensuing

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MNCs may be defined as entities that:

- Control economic activities in two or more countries
- Maximize the comparative advantage between countries, profiting from differences in factor endowments, wage rates, market conditions and political and fiscal regimes
- Have geographical flexibility, that is an ability to shift resources and operations between different locations on a global scale
wealth and power concentration. MNCs are associated with the growing internationalization of production, moving around the globe to where factors of production are the least costly. An example is the production of motor vehicles where cars are manufactured and assembled in a variety of locations around the globe. In 2000, there were approximately 60,000 MNCs, compared with 7,300 by the end of the 1970s (Kohler, 2003), with global sales in 2006 of 15.6 trillion (US), accounting for over 70 percent of world trade and over half of global GDP (Held & McGrew, 2002). The airline industry provides an illuminating example of the tendency of MNCs towards oligopoly. Following de-regulation in the US in the 1970s, by 1986, six airlines controlled 85 percent of the industry. With code-sharing, this means effectively the industry is dominated by only three (Du Boff & Herman, 2001). Steger (2003) notes that of the 100 economies in the world, 51 are corporates. A similar process is occurring with the media. In New Zealand, four companies dominate the New Zealand market, all of which are foreign owned. Fairfax Holdings controlled over 72 percent of the country’s newspaper circulation and owns all daily newspapers except The Herald (Rosenberg, 2004). As Chomsky observes, the concentration of media capital is directly aligned to the free trade agenda, with editorial content reflecting these economic drivers (1997).

Supporters of transnationals argue that direct foreign investment stimulates development, encourages innovation and expands taxation bases allowing greater social investment. However other critics suggest that these companies possess too much power over governments hungry for foreign investment, encourage lower working conditions and damage the environment. As corporate power increases, governments are perceived to be the instruments of capital, they are seen less as institutions that are working in the best interest of society. As C. Wright Mills observed in 1959, modern societies are dominated by a select group or elite group who have access to institutions and dominate industries in positions of leadership. This is not a conspiracy, rather a social structure that places decision-making in the hands of people of a similar background, particularly the corporate sector. As societies have become increasingly dominated by elites, these interests are perceived as being given greater centrality and therefore

- Operate with a level of financial, component and operational flows between different segments of the MNC greater than the flows within a particular country
- Have significant economic and social effects at a global level (Cohen & Kennedy, 2000, cited in el-Ojeli & Hayden, 2006, p. 64)
undermining the democratic process as governments cede ever greater amounts of control to internationalized interests.

From these tensions, it is clear that the social dimensions of SD have not been given equal priority. The OECD (2001) argues that the focus of SD has changed markedly over time. During the 1980s, there was a strong biophysical / environmental focus. This changed in the mid 1990s, when a shift occurred with a swing towards economic Sustainability. What these foci have in common is the lack of appropriate attention to social Sustainability. From this it may be argued that social Sustainability must be re-prioritized, into a central pillar in its own right and not to be subsumed under the umbrella of economics. Where SEA plays a part in this, is the extension of social Sustainability principles into the arena of assessment of policies related to such diverse areas as direct foreign investment, social welfare and income inequality.

The decay of civil society and increasing inequalities are symptomatic of many countries that have been subject to the policies derived from the Washington Consensus. Strong Sustainability recognizes that certain biophysical functions are irreplaceable and cannot be substituted by artifact and therefore they should be recognized as such. A similar argument applies to poverty. As I have shown, it is unlikely that poverty will be fully addressed by making others richer (trickle-down theory). In an unequal society, while on average may be better off, groups that fall under the median are still living in deprived conditions and, if present trends continue, will grow ever further under that line.

To return to the question of this section of how social Sustainability may be integrated with SEA and economic development; for SEA to address this phenomenon, a way forward must be found to address the issue of market failure and the resulting poverty. As noted above, solutions to poverty exist. Models that achieve this exist within Scandinavian countries with their policies of wealth distribution. If SEA is to succeed in its program to achieve Sustainable Development, wealth distribution should become a central means of achieving this end. SEA must therefore be applied to evaluate not only new policies, but also existing ones that favor inequitable wealth distribution.

The above analysis, as summarized by the chapter framework (Figure 18) demonstrates both the complexity and interrelatedness of environmental, social and economic issues. Economic growth
is related to reduced biodiversity, technological change is related to consumption and globalization is related to issues of poverty. SEA, therefore, faces the problem of high complexity and uncertainty in an environment of discursive conflict over how issues are both framed and their solutions. The response by many institutions is to break these issues down in their constituent components (PPPs or strategies). This however runs the risk of dis-integration and the potential to favor one system component over another, for example, the economic over the biophysical or social. In addition, the evaluation of new PPPs also risks ignoring pre-existing system components (laws, taxation policies or market frameworks), which actively and passively resist change. As the above sections show, many of these issues are capacity issues. As the Kuznets hypothesis has shown, as standards of living improve, the potential for improved environmental standards may also improve - the term 'may' is stressed here. As humanity stands on the brink of the world’s worst Climate Change induced species extinction, SEA remains in its infancy in both the level of application and ability to address these interrelated and highly complex issues. The challenge therefore, is to build capacity in all three components in a balanced way. If a degree of success may be discerned from the Kuznets Hypothesis literature, the logic of political persuasion or environmentalism lays in augmenting the capacity of social systems to better engage politically. It follows that SEA must seek to build these social capacities further, which is what the SSD model attempts to do.

Lessons Learned

In the last three decades, a debate has emerged between economic environmental valuation techniques that convert environmental services into dollar terms from the perspective of their human use-value, versus theories of environment limitations (Weak versus Strong Sustainability). These environmental valuation methodologies, while useful for creating a market mechanism for recognizing impacts, are based on an intrinsically anthropocentric perspective. Reliance on the perception of use-value is a weak means of recognizing the relationship between human activities and the important functions that the environment carries out on our behalf. The WS perspective is characterized as a non-capital differentiating model. This Chapter has shown that the assumption of non capital differentiation appears doubtful in some critical areas. Namely, that some forms of
capital e.g. pollution sinks and unique flora and flora may not be substitutable. In addition, this argument is further undermined by the lack of knowledge about natural systems. To suggest that these systems are replaceable in the face of such a large knowledge gap strongly undermines the credibility of this argument.

A related argument is the level of environmental decoupling which is occurring. While there appears to be some evidence to suggest a relationship (at least initially) between environmental protection and wealth creation, the evidence remains unconvincing. The conclusion then becomes a question of why economic growth at the expense of the environment is given such credence.

The relationship between the broader area of SD and Social Sustainability raises a question pertaining to the purpose and economic structure of societies. As shown above, the impact of neoliberalism has created disempowered governments and an increasingly politically disinterested populace. The indifference of social groupings to government actions reflects the growing power / wealth disparity in countries where neoliberalism has had the greatest effect. In turn, the effect of this is to create a form of pseudo democracy where decisions are disproportionately influenced by power coalitions, undermining the notion of local democracy. The implication for SEA is that democratic engagement may be spurred by focusing greater attention on factors leading to social inequality and reducing power / wealth concentrations. How this is achieved is outlined in the following chapter that introduces the Strategic Sustainability Development model.
CHAPTER VI: STRATEGIC SUSTAINABILITY DEVELOPMENT: AN ALTERNATIVE MODEL OF SEA

Introduction

This chapter provides the core contribution of this thesis – a modification of the present Sustainability orientated SEA to one that advocates Strong Sustainability (SS) as its core model. The new model is referred to as Strategic Sustainability Development (SSD). SSD is intended to challenge commonly held notions of human instrumentality, in which nature is in many aspects socially constructed as an object of only use-value (Inglehart, 1995).

Aristotle wrote that the avarice of mankind is insatiable (Durning, 1999), and it is this that Sustainable Development orientated literature, and arguably SEA is intended to mitigate, as discussed in Chapter V. Because of the complexity associated with the world’s fetish with unsustainable consumption and the ensuing environmental damage it causes, the long term nature of the solutions are equally complex and demanding, requiring often unpopular decisions to be made. It is for this reason that the more unpalatable implications of SS are unacceptable to the broader community and governments alike. Because of the democratic structure of both SEA and its political context, policies aimed at achieving SD default to the democratic and ideologically dominant position of its social context, a position that fails in many cases to meet the criteria of even Weak Sustainability. How SEA responds to this challenge remains a critical problem faced by Impact Assessment practitioners, politicians and the broader public.

For the reasons discussed in Chapter III and in light of the socio-political context set out in Chapter IV, a new model of SEA is needed to implement Strong Sustainable Development. This model moves beyond practices that focus on integrating policy, with SD one that re-orientates planning for Sustainability as the core policy objective. In the initial description of the model that
follows, a single iteration of the process is given. In reality, the process is considered ongoing. This reflects the incremental nature of the planning process, as well as the ongoing technological, social, environmental and political change. It also commits its planning processes to a far longer planning horizon than is commonly occurring. In the case documented in Chapter II, the strategy plans fifty years ahead. This represents an unusually long planning horizon, one that the author has adopted as a template for SSD.

This Chapter begins by introducing the new SSD model and systematically explains the key aspects of what I offer as a second generation SEA (see Figure 23). The Chapter reflects the structure of the model, which begins with an Environmental Briefing Statement (EBS) which maps out the intended process. The Chapter is further divided into Phases I – V, which are depicted in the outer boundary of the model, proceeding in an anti-clockwise direction. Phases I – V are in turn each divided into 16 color-coded aspects.

### Strategic Sustainability Development Outlined

As explained in Chapter III, SEA is located within the context of Sustainability and it engages with broad range of disciplinary and political and developmental contexts. Consequently, within the context of this research, a number of caveats must be stated. The proposed model assumes a largely Western standard of living and a democratic process. This first caveat is done for two reasons. First, it is mainly first world and developing nations such as China and India that produce the greatest amount of environmental damage. While there are exceptions such as the South African SEA process (Partidario, 2003) and developmental SEA carried out by the World Bank,SEA is predominately a first world phenomenon and is carried out in mainly Western democratic countries, particularly Europe.

Second, as these nations have already virtually eliminated absolute poverty and achieved a high standard of living, they are wealthy enough to afford complex environmental and democratic

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70 For example the World Bank has used SEA for the Ethiopian Road Sector Development Program and the Nepal Medium-Sized Hydropower Development Strategy (Kjorven & Lindjem, 2002).
processes that models such as SEA explicitly require. With exceptions, the level of sophistication in both planning law and populace requires a high standard of living, education, information connectivity as well as strong legal frameworks to conform to the requirements of the generic (democratic) model presented in Chapter III. As Kjorven and Lindhjem (2002) observe: “some of the poorest countries may still see SEA as yet another potentially constraining and resource demanding burden on their economic growth and industrialization process” (p. 21). SEA, when carried out in the manner described above, is neither inexpensive, simple or short term. If SD is to be achieved, it requires long term commitment and a stable government structure. Given these conditions and the intense pressure to improve the standard of living of their citizens through often environmentally destructive economic development, newly industrializing countries are thus less likely to focus on implementing processes aimed at SD. This is an understandable position as conventional economic wisdom suggests that poverty and population growth are most likely to be overcome by further economic development and the consequent wealth creation. A review of literature reveals that it is only when these conditions are to some degree alleviated, can a country begin to move towards Sustainable Development. Thus, while I refer to conditions experienced by developing countries, in the context of this research, I focus predominately on the first world, particularly New Zealand.

However, even in the most advanced countries in the world, to date, SEA has made only minimal progress towards achieving Sustainable Development. This lack of progress is a result of the inertia of the various political contexts in which the movement towards Sustainability exists. As noted above, it also reflects ideological and methodological disputes over what constitutes Sustainability, and even whether it is required or not (Lomborg, 2001; Simon, 1981), as well as what strategies are needed for its achievement.

These cleavages reflect the social / economic developmental trajectory that has been in place for a great length of time, arguably since as early as humans have discovered extractive technology and the ability to harness resources on a large scale. SEA is a political and legal, social construct and therefore it reflects the ideological and economic context in which it exits. While the environment features strongly in many surveys relating to issues that the public finds important and clearly environmental laws, agreements and practices have evolved to an unprecedented sophistication, there remains a core denial of the implications of Sustainability in relation to
present ideals of economic growth and consumption culture. I further argue that economic structures remain largely unchallenged in their function of control over nature, viewing it primarily in instrumental or human use-value terms.

This view is gradually changing. Since the 1960s, a great deal of attention has focused on the environment within this social / economic trajectory. Not a day goes by without an environmental issue being reported by the news media somewhere in the world. When governments carry out studies of asking their citizens what matters to them, the environment is often high on the list. People clearly care about the environment (Morgan, 2006). However, people are also inundated with media messages that teach us that consumption and materialism equate to a higher standard of happiness and quality of life. In part, this is true. Indeed, it is not so long ago that the standard of living in Western countries was quite low and survival was more central to people’s lives. Such things as a poor understanding of diseases, low quality housing, health and malnutrition, all contributed to the pressing need to raise the standard of living. Since the industrial revolution, the standard of living has risen steadily over time largely because of the expansion of industrial capitalism. This has been underpinned by the ideology of acquisition and consumption, which has become strongly embedded in our cultural milieu; it is this culture that SSD aims to modify.

Before unveiling the model, it is necessary to discuss what SSD Assessment is, and how it begins. As explained in Chapter I, while building on elements of Eggenberger and Partidario’s (2000) definition, I define SSD assessment to mean:

A systematic and ongoing process for implementing and evaluating a publicly accountable, decision-aiding process that aims for the achievement of Sustainable Development as the central goal in policy, plan or programmatic decisions.

In this model, greater centrality is given to a model of Strong Sustainability, which is used as a template for nudging social structures onto a more viable developmental trajectory. A further proposed characteristic is that SEA should not be used purely as a response to proposed policy, but should lead policy development. In addition, by situating Sustainable Development at its core, the model moves beyond the above identified evaluative mode of analysis. The SSD model (Figure 23) is best understood as a process that makes links, not only local, sectoral and national PPPs, but also makes explicit reference to international agreements. While space does not permit
an exploration of SEA of international agreements e.g. free trade agreements, the author wishes to highlight the aspect (located in the top left hand quadrant) of the SSD model which stresses the importance of making reference to global SD orientated frameworks (referred to in the model as National and International Level PPPs).

Making reference to international agreements is especially relevant in light of the conclusions made in Chapter IV. Chapter IV examined the ability of national level governments to act towards SD goals, and concluded that many conditions were already in place to make significant inroads. However, in Chapter V it was also acknowledged that, like individuals, governments are subject to a macro-level free rider problem in relation to free trade and direct foreign investment. The point being made is that the free rider problem applies to governments in many areas, not only in the environmental sphere. Therefore creating an international system where areas such as taxation and environmental policy could be linked, is considered as a potential piece of the solution to Sustainable Development and is acknowledged in the SSD model.
Figure 23: Strategic Sustainability Development

BEGIN FIRST ITERATION

1. Trigger SEA Process. Write brief (EBS) using SS criteria for PPPs
2. Define Strong Sustainability model
3. Baseline level of Internalization of environmental externalities
4. Define Sectoral Ecological limits
5. Identify key unsustainable sectors and links between them
6. Describe candidate PPPs and possible impacts
7. Begin institutional review process
8. Describe synergies between other PPPs e.g. the RLTS
9. Design indicators & targets, describe impacts, and mitigation
10. Technical analysis
11. Draft report of PPPs
12. Political Go - No / Go
13. Evaluate against Strong Sustainability. Set time frame for next iteration
14. Public hearings and write final report
15. Review SSD Assessment report and make formal decision
16. Implementation

Parallel Processes

PHASE I: Scoping and Testing Assumptions
PHASE II: SEA Framework
PHASE III: Candidate Policies, Plans & Programs
PHASE IV: Indicating Sustainability
PHASE V: Consultation
NATIONAL AND INTERNATIONAL LEVEL PPPs
Parallel Processes

The above model has also had to take into account the existence of three processes occurring within SSD. These operate in parallel within the model and are referred to as:

(a) the technical process (beginning aspect 7)

(b) the organizational / institutional process (beginning aspect 10)

(c) the consultation and public participation process (beginning aspect with Environmental Briefing Statement)

These parallel processes are depicted as beginning at a specific point in the model (i.e. aspect), however, they are so named because they add a level of complexity to most other aspects. For example, the technical process, while depicted as beginning at aspect 10 is arguably sustained throughout the entire process. I have however located the technical analysis process to begin formally after the creation of candidate PPPs. Similarly, the organizational analysis is related to capacity and for similar reasons I have placed it following the creation of candidate PPPs. Similarly, the consultation phase could be located at almost every phase allowing public input.

Finally, underpinning the SSD process are the five Strong Sustainability System Conditions identified in Chapter V (Table 22, p. 186). For ease of reference, they are repeated here:

(i) Internalization of externalized costs (full cost accounting or green economics)

(ii) Differentiation of critical natural, human and economic capital

(iii) Inter and Intra-generational equity

(iv) Identification of capital assimilative capacity boundaries

(v) Stable state economic growth (energetic, resource and economic de-coupling)

These System Conditions underpin most aspects of the SSD model, particularly in Phases I and II and will be referred to during the explanation of each aspects when pertinent.
Within phases I – V, each of the above aspects (1-16) are discussed individually below, beginning with the triggering point for the SSD model, and following on from this, the Environmental Briefing Statement.

**Aspect 1: Triggering Strategic Sustainability Development Assessment**

Aspect 1 addresses the question of “when should an SSD process be initiated?”

Within presently existing models of policy-level SEA, when a PPP is initiated, a given SEA will evaluate a proposal for impacts and alternatives. Just as in the case of EIA where projects are assessed for any likely significant environmental affects, a similar test may occur for SEA. At the national level, the Netherlands’ E (environment) - test is an exemplar of this process. In this system, new legislation is evaluated for its environmental consequences of the draft legislation. The E-test forms part of a wider assessment of newly introduced legislation and includes a review of the enforceability of the legislation, its feasibility and impacts on business. This forms a Cabinet submission which describes the expected impacts of the new law and how it will effect Sustainable Development.

Aspect 1 addresses the criticism of the Dutch system. With only approximately 5 percent of new legislation being subjected to SEA. van Ruiten in his presentation to the 2002 IAIA conference in The Hague concluded that this system was limited in its ability to have an impact on decision-making. He found that -

> Overall, we should conclude that the environmental test has limited effects on the decision making process or the quality of the cooperation between the environmental departments and other departments. Although the results of the test were added to the explanatory notes, they had little relevance to policy preparation and decision-making. No rules or regulations have changed significantly due to the results of the E-test (2002, p. 1).

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71 This section of the Environment Test is divided into four parts: (1) for energy consumption and mobility (2) for the consumption and stocks of raw materials (3) for waste streams and atmospheric, soil and surface water emissions (4) for use of available physical space (Verheem & Tonk, 1998, p. 4).
A similar criticism of SEA is made by Partidario (2002), who concludes that once new legislation is under preparation, it leaves little room for alternatives to be considered. This creates what van Ruiten calls the “paradox of timing” (p. 1), where if a policy is subjected to SEA too late in the process, it is likely to have a lessened impact. The reverse is also true; when an SEA begins with too little information or definition, the lack of a concrete proposal makes it difficult to assess for its impacts. While processes such as the Dutch system are an excellent first step (i.e. the mandatory subjection of PPPs to an IA process), this clearly does not go far enough. Defining a trigger point therefore becomes more complex, moving beyond simply the point at which legislation is tabled.

Defining a trigger-point for the creation of strategic level PPPs using this approach is therefore problematic. By reacting to a proposed initiative, the process falls into the trap of what I referred to earlier as an evaluative mode, one that risks precluding alternatives that, had the process begun earlier, might have otherwise have been included, and thereby reducing its strategic value. By assessing only the impacts of pre-existing policy proposals, I argue that we remain in an end-of-pipe mindset, even though many of these solutions may in themselves be highly complex and strategic. For example, carrying out an SEA of a large roading project may have significant benefits, but it has arguably already failed to pose the deeper question of what sort of transport system best serves Sustainable Development. As new roading projects are often created on the basis of an unsustainable paradigm, alternatives to their construction have already been foreclosed as the policies become essentially extensions of the logic of previously constructed infrastructure or housing markets.

Triggering the proposed process at the beginning point of new legislation by itself is thus rejected as a suitable method for creating SD. If there is a starting point, it is when environmental issues become central to thinking on policy direction. The entry point for SSD differs from earlier versions of SEA in the sense that triggering the model is less contingent on traditional policy triggering mechanisms that evaluate proposed PPPs. Rather, it relies on the public and governments alike reaching an environmental ‘tipping point’. This is where the public and governments have reached the point where environmental issues are so undeniable that they have come to the forefront of thinking on policy direction. It is only when this level of environmental awareness has reached a critical mass, that societies will be able to accelerate their progress towards achieving SD. Recent events such as Hurricane Katrina, the melting polar ice-caps and credible environmentally
orientated reports such as the Stern Review (2006) have sparked a renewed focus on environmental issues, particularly Climate Change. It is one of the key findings of this research, that we have reached such an environmental tipping point.

The trigger point for SSD, therefore, needs not react to specific legislative proposals; rather, I see this process as the creation of an ongoing series of long term iterations on the long journey towards SD. Stated differently, SSD is a process created for the specific aim of creating a policy for the enablement of Sustainable Development. This process should be based on relevant environmental issues, for example, those identified in the following Table 26. This issue is partly about the most logical sequence of the process used to create policy. As noted in Chapter II, the ARGs was driven by issues promoted by local councils and then adapted to incorporate Sustainability. The SSD model brings issues of Sustainability to the forefront by using Sustainability as a beginning point.

The fluid nature of the beginning process explains why the model effectively begins with a public release of intended PPP work, rather than being triggered by new legislation. Once the initial idea is public, the real beginning of the process begins with the preparation of a brief for the SSD assessment. This brief incorporates SS criteria against which present developmental trajectories are tested. Such an Environmental Briefing Statement (EBS) is explained as follows.

The EBS is intended as the initial scoping step designed to map out a framework or process which states the intent of a proposal and the principles and models underpinning the future process. This scoping step is further broken down into stages 1.1 – 1.4, outlined in Table 26, and discussed below.
Table 26: Stages of Environmental Briefing Statement (EBS) Process

<table>
<thead>
<tr>
<th>Stage 1.1</th>
<th>Creation of Sustainable Development statement</th>
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<tr>
<td>Stage 1.2</td>
<td>Areas of environmental limits includes the sub-sections of issues a - f in the adjacent cell, which constitute critical environmental issues</td>
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<tr>
<td>Stage 1.3</td>
<td>Outline of and timeframe of process</td>
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<tr>
<td>Stage 1.4</td>
<td>Definition of responsibility</td>
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<tr>
<td>Stage 1.1</td>
<td>Critical Environmental Issues a - f</td>
</tr>
<tr>
<td></td>
<td>a. Air quality and Climate Change</td>
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<td></td>
<td>b. Biodiversity and habitat maintenance</td>
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<td></td>
<td>c. Stabilizing population</td>
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<td></td>
<td>d. Social wellbeing (including economic health and eliminating poverty and health related issues)</td>
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<tr>
<td></td>
<td>e. Eliminating persistent additives</td>
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<tr>
<td></td>
<td>f. Consumption and disposal of resources</td>
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</table>

**Stage 1.1 Sustainable Development orientated statement**

Stage 1 of the EBS begins with a succinct statement recognizing that we are living unsustainably, for example:

This process begins with the recognition that our nation / city / area is living beyond its environmental means. We are consuming too many resources, polluting our skies and many species are becoming extinct. This strategy / process / plan aims to address these issues.
**Stage 1.2 Areas of environmental limits:**

Stage 1.2 of the EBS lists the key areas of urgent attention (issues 1.2a – 1.2e), including targets that conform to SD in terms of SS. The basis of this aspect of the EBS has been examined in Chapter VI, particularly ideas underpinning SS. This recognizes the inter-sectoral intent of the model, linking critical areas of production, consumption and preservation of natural and human capital, including social equity.

Issues 1.2a to 1.2e form the basis for a series of headings representing broad categories of Sustainability related issues, intended to summarize the diversity and complexity of the present SD problem. They have been selected based on areas of critical importance defined by Sustainability orientated literature. For reasons of space, this list is hardly exhaustive; however, most SD related issues may be addressed through these headings. Particular emphasis is placed on limits to growth, maintaining sink capacity and addressing the social implications of the present unsustainable mode of production and addressing poverty.

Issues such as poverty, as well as climate change are global issues and require national as well as international efforts to achieve their alleviation. Consequently, the SSD model makes explicit links to a potential area of application of IA, that of global impact assessment. While this goes beyond the focus of this research, the development of global IA engages with the issue of environmental free-riding nations and polluters. SSD advocates a strong linkage to internationally agreed environmental conventions and integration with institutions such as the WTO and the World Bank.

The following list of issues therefore takes its lead from many of the propositions outlined in the various Earth Summits and Sustainability literature. This list is not exhaustive, and other areas could be included such as sustainable food production, erosion and desertification, genetic modification of organisms, animal rights, the use and storage of nuclear energy waste, environmental racism, use and access to clean water and others.

These following areas illustrate the ‘shape’ of this part of the EBS, and are intended as generic areas. In addition, it is anticipated that these areas form the basis of binding national strategies, requiring councils to develop policies for implementation. The key mechanism for this would be to
embed the principles of Sustainable Development in constitutional law, requiring lower level laws to take it into consideration.

**Critical Environmental Issue (a) Air quality and Climate Change**

Literature on air quality and Climate Change concludes that these areas underpin most other critical environmental areas identified and therefore require attention. While health impacts of vehicles are attributed to a diverse range of contaminants from combustion engines, fine particulates represent the dominant cause of premature mortality. In addition, contaminants such as oil and petrol are sources for a range of toxic contamination. Exhausts from vehicles are deposited alongside roads which then are dissolved by rainfall which contaminates soil and water systems (Kjellstrom & Hill, 2002).

Climate Change is a critical aspect of the EBS, as reliance on fossil fuels underpins many PPPs, and yet is not well addressed by most nations in their attempts to deal with this issue, including New Zealand. The planetary carbon carrying capacity has long been exceeded, resulting in already measurable impacts. The United Nations Environment Program (UNEP) estimates that the cost of global Climate Change related natural disasters are increasing dramatically. In the US 2005 hurricane season, Climate Change cost insurers approximately (US) $60 billion (2005), as well as the lost lives associated with these impacts. The EBS would acknowledge this issue, linking it to national and international strategies.

**Critical Environmental Issue (b) Biodiversity and habitat maintenance**

At the Rio Earth Summit in 1992, country leaders and representatives agreed to a wide ranging strategy for achieving Sustainable Development. A key agreement was the Convention on Biological Diversity. The Convention has three primary goals: (1) conserving biological diversity (2) sustainably using its components and (3) the equitably sharing the benefits gained from using genetic resources (Ministry for the Environment, 2006).
Critical Environmental Issue (c) Stabilizing population

Over the last two hundred years, our population has grown from approximately one billion to nearly seven billion. Over this time, total world production has grown by a factor of over 6000 percent. Annually we mine more than half a trillion tons of material, within months almost all of which will be turned to waste (Gardner & Pugh, 2008). Figures such as these suggest that the more our populations grow, the more we pollute. Population growth is fueled by our biophysical programming to procreate. It is reinforced by cultural and religious mores and its control is viewed by many with trepidation or ethical opposition. Population growth is viewed positively by many governments who seek to raise their status by managing larger populations. Population growth is incentivized by providing a larger revenue stream or taxation base to implement policy. A similar incentive operates at the local government level, where through economies of scale, efficiencies may be gained by public services spreading costs more widely over a larger population (Alesina & Wacziarg, 1998). Governments are also linked to industries that benefit from larger populations. As companies’ markets expand, they lead to more consumption and growth and more tax being paid. These incentives combine to act against efforts to curb population growth.

Drawing from the discussion on the Sustainability of population growth in Chapter V, this section of the brief should begin to outline the problems associated with population growth as well as the potential Sustainability gains to be made from its limitation.

This section also recognizes the SS targets by beginning a process for creating policies that include a sustainable population target i.e. zero or negative population growth, based on the capacity of the Earth to sustain food production and resource and energy consumption.

Critical Environmental Issue (d) Social wellbeing (including economic health and eliminating poverty and health related issues)

Rawls’ theory of justice is used as philosophical or moral basis to support the idea that humans should have equal access to resources whether natural or otherwise. Rawls’ ‘maxmin’ theory argues that justice is associated with the non-equal resource distribution bias towards the least advantaged (Pearce, 1988). SS seeks to incorporate the goal of achieving a reasonable quality of life for all inhabitants of the planet. The eradication of poverty is therefore a key focus of the EBS.
Poverty may be absolute or relative. A family may be relatively speaking living in poverty in the United States but many still own a car, a television and an air conditioning unit. Yet when compared to a family living in Africa in a state of absolute poverty i.e. unable to meet basic nutritional requirements, they are quite well off. The implication of the concept of need raises the questions of: (a) to what level of wealth is sustainable, and (b) how much wealth is needed to support a sophisticated system of environmental regulation involving an educated and informed populace, who has full access to democratic / consultative structures.

As noted in Chapter VI, a high level of social inequality (exclusion) is also related to the disengagement of publics and distrust of governments, which in turn is linked to governmental inability to create robust collective solutions to social and environmental issues. As noted earlier, it is no coincidence that the most sustainable countries in the world are also the most equal (Esty, Levy, Srebotnjak, & de Sherbinin, 2005). Therefore, a key plank of addressing Sustainability is the reduction of extreme wealth ratios, through the introduction of different types of taxation than presently used, at least in New Zealand. As discussed in Chapter V, environmental externalities permeate across national boundaries, and pure market forces cannot address these impacts. By shifting the tax burden from individuals to polluters, this would arguably achieve two things. First, by reducing tax in low tax or neo-liberalist countries such as the US or New Zealand, the burden would impact the poor in a more equitable manner, allowing greater financial support to be funneled to those who need it most and second, by taxing environmental bads, the polluter pays principle would become a behavioral driver for change.

**Critical Environmental Issue (e) Eliminating persistent chemicals**

The sustainable management of persistent chemicals is a topic addressed in Chapter nineteen of Agenda 21, which recognizes that chemical pollution is a key environmental issue. The Stockholm Convention also recognized the need to regulate the use of persistent organic pollutants. UNEP defines persistent organic pollutants as “chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife” (2006, para 1). Examples of damaging and widespread persistent chemicals include: dieldrin, DDT, polychlorinated biphenyls,
pentachlorophenol, dioxins, organic mercury compounds, lead compounds, organic tin compounds and many others (United Nations Environment Programme, 2003b).

Most recently, at the 2002 Johannesburg World Summit on Sustainable Development, it was agreed by parties that chemicals should be produced in such a way that they minimize their impacts on the environment and human health by 2020. In 2006, the Strategic Approach to International Chemicals Management was adopted at the International Conference on Chemicals Management in Dubai.

The existence of persistent chemicals is considered highly problematic by UNEP and in many parts of the world; chemicals have a major impact on human and environmental processes.

**Critical Environmental Issue (f) Consumption and disposal of resources**

The level of known and unknown resources makes predicting the Sustainability of resource extraction complex. As noted above, the suggestion that resources are finite and therefore will run out eventually belies the complexity of this debate. Which resource is defined as valueless one day may become useful the next. As technology improves, the definition of use value also evolves. Similarly, as economic demands change the value of resources, their extraction may become economic and they become resources.

As noted above, societies are becoming increasingly polarized, raising questions pertaining to the efficacy of trickle-down theory benefiting all equally (Edney, 2005). In 1992, Chapter Two of Agenda 21 (Changing Consumption Patterns) became a beginning point for questioning patterns of consumption. In this section, changing consumption patterns should be raised as a key aspect of reducing unsustainable resource extraction and solid waste disposal. Consumption is also related to notions of civil society, where social relations are increasingly mediated by material acquisition.
Stage 1.3 Outline of timeframe and process

This section of the EBS gives an outline of the SSD model and proposed future process. This section also provides an outline of the core assumptions of the Strong Sustainability perspective. The key aspect of this is a consistently understood and applied model of Sustainable Development. This includes mapping out an intended outline of the process to be engaged in. It is essential that a timeframe be established in order to gauge how successful the process is. Reference should be made to the monitoring outputs or milestones in comparison to SS desired outputs.

The EBS includes a timeframe for the provision of a regular, five-yearly review. This appraisal consists of subjecting the process to public and peer review, examining such things as operational issues, for example, funding or knowledge / skill gaps. It will review the creation of more nuanced or appropriate indicators such as The Genuine Progress Indicator (a feature of Aspect 16). It will identify any organizational barriers to implementation, such as legal issues or contravention of any aspect of pre-existing PPPs and any jurisdictional issues. This stage will also embark on a social impact assessment to assess the impacts of proposals on social groupings. The review will also be cognizant of any international and national level agreements or laws that may have an impact on proposed PPPs.

Finally, the process will begin to track the monitoring activity in relation to the collated baseline outlined in Aspect 3.

Stage 1.4 Definition of responsibility

This Stage of the EBS marks the beginning of a process that analyzes the effectiveness of critical power structures and functions of decision-making bodies. This process relates to the later analysis of institutional actors and their capacity to achieve SD goals. This is the beginning point of an analysis of the capacity of actors to effectively carry out SSD. Without the institutional capacity to develop PPPs based on SSD, the goals of the model are likely to be diluted.
As noted earlier in this thesis (see The Application of Agency Theory, p. 130), the ‘agencyfication’ of institutional functions (the silo effect) has been identified as a problematic emerging from neo-liberal institutional reform. This stage marks the beginning of a process aimed at addressing this issue. It is interesting to note the recent blurring of lines between public and private ownership, where public institutions fully or partially own previously publicly owned utilities, such as the ARC ownership of Ports of Auckland being used to finance public infrastructure projects. A further example is Meridian Energy, a state-owned power utility in Christchurch. The point of emphasis is that the successful management of these companies proves that the line between state and the private sector is porous and should not be considered inviolate when it comes to creating structures that are needed to create sustainable activities such as establishing effective public transport. The silo effect is not simply within one institution; it may fall between private and public functions that would perhaps work more effectively if they were linked together, a notion similar to the Blairite notion of ‘joined up’ government.

In addition, this aspect draws from the above institutional analysis by attempting to focus responsibility for the implementation of the outcome of the SSD process. This aspect aims to provide clear lines of responsibility and expose potential areas of institutional inertia. It is envisaged that responsibility may not have to rest entirely with government or the private sector, but could be a combination of the above actors, as well as lay public members.

An example may be seen in Capitalism 3.0 A Guide to Reclaiming the Commons (2006), where Barnes argues for an alternative form of responsibility, one that is neither market derived or located in the public sector. Recognizing that there are many examples of the Tragedy of the Commons type issues (Hardin, 1968), for example, fisheries, fresh water or Climate Change, Barnes argues for a management system that provides an alternative to the free market or governments. To govern these commons, trusts would be set up to manage access, and revenue generated would be returned to the public as a form of collective ownership. As individuals would effectively be owners and receive a stake in the profits, there would be an incentive to maintain interest in the management. Models of this type could be applied to many environmental issues addressing not only the biophysical but also creating a method that addresses biophysical and social issues.

I now turn to Phase 1 of the SSD model.
PHASE I – Scoping and Testing Assumptions

This section begins the process of delivering on the Environmental Briefing Statement. It consists of Aspects 2 – 4 and forms a baseline on which a foundation for the policy creation process may be built by scoping and testing assumptions.

Aspect 2: Define SS Model

Aspect 2 expands on the SD model defined in the EBS, elaborating on how the model applies to the context of the SSD. That is, how it takes the System Conditions identified at the beginning of the Chapter and applies them to the generic areas (a – f) outlined in the EBS. This is intended as an analysis focusing on the environmental context, for example the Auckland region.

Aspect 3: Baseline Level of Internalization of Environmental Externalities

This Aspect represents an application of System Condition (i) - the internalization of externalized costs or full cost accounting (see Table 22: Strong Sustainability System Conditions, p. 186).

Since the market-orientated, democratic system is the dominant model for local, national and international political structures, its effect on SSD needs to be stated. That is, as Hawken (1995) notes, “markets are superb at setting prices, but incapable of recognizing costs” (p. 75). What is clear from Hawken’s analysis is that costs exist whether they are recognized or not, it is only where they fall where they become problematic (1995). As explained in Chapter V, as costs often
go unrecognized by the present market system, a process of internalization of externalized costs is advocated (the polluter pays system).

In addition, since we are responding to the transition from WS to SS, a type of baseline data is required, one that analyses key externalized environmental costs. It is not until these costs have been identified, that progression towards Sustainability will occur. External costs are defined as:

The costs to which prices have yet to be attached, resource supplies, waste, health effects and the like, are called externalities. Full cost accounting is a process which takes externalities into account along with all the customary factors (Hawken, 1995, p. 71).

In many countries, lightly regulated, market-based systems are often unable to account for an optimal scale of development (in environmental terms). These markets externalize a large proportion of their environmental impacts (Bartelmus, 1999). This problem highlights the necessity of establishing a direct linkage between the market and its environmental. This details the types of costs associated with landfills, using the Full Cost accounting (FCA) system.

In order to make use of this data, a framework for its implementation must be used in order to determine the overall objectives of the proposal. The SS model determines the level a polluting activity may operate. To this end, a model of Strong Sustainability is articulated, and criteria given for its achievement and evaluation.

In this Aspect, three criteria for establishing indicators and targets are identified:

- Level of internalization of externalized costs
- Distance from carrying capacity
- Level of decoupling of economic growth from carrying capacity

I argue that a key aspect of baseline data that must be developed is the level of market recognition of externalized costs of environmental pollution. An example is an estimate of the true cost of vehicles in terms of their external impact.

This aspect is also linked to System Condition V (Stable State economic, energetic de-coupling), by creating the market conditions needed to put into practice the polluter pays principle (as
defined in Chapter V), and encourage the means of production to move towards more environmentally sustainable practices.

As part of this Aspect, the SSD process will also include the establishment of a long-term monitoring unit to create baseline data. This will allow the assessment of progress towards the goals established by the SS model and the SSD process itself. This information feeds into the review process outlined in stage 1.3 of the Environmental Briefing Statement.

It is envisaged that this unit will provide publicly available information to any interested parties, including local authorities, encouraging consistency between the types, structure and supporting applications.

**Aspect 4: Define Sectoral Ecological Limits**

Aspect Four of the SSD model explores the identification of ecological limits, and represents the application of System Conditions II, III, IV and V.

An ecological limit is the feedback mechanism that demonstrates where a key environmental area needs urgent attention, one that has been over-loaded by present development practices. This Aspect elaborates on Stage 1.2 of the Environmental Briefing Statement which identifies critical environmental areas requiring attention, and refers to ecological carrying capacity. In many respects, this forms the basis of the SSD model.

The application of System Condition II (Differentiation of critical natural, human and economic capital) is a process that identifies critical areas of natural and human capital. At the core of this differentiation is the acknowledgement of the findings of Chapter V, which examined the difficulty treating capital as interchangeable, and therefore a different process of valuation must be placed in each category. For example, education levels or human health should not be treated in the same way as a factory or an ecological area.

The application of System Condition III (social equity) refers to the fair treatment of members of societies in the sense that they are given an equal opportunity and ability to engage with wider
society as well as equality of opportunity to experience and use the environment to the at least the same level as their ancestors. The intra-generational aspect is of relevance to the various economic and governmental sectors as structural conditions create the processes leading to unequal treatment of people. For example, those born into poverty are more likely to continue to experience poverty themselves and without intervention are less likely to be fully engaged with wider society. The feedback loop to the rest of society is the cost of crime, violence, large prison populations and ill health. Solving poverty is also linked to the issue of population. If poverty can be eliminated, much of the world’s population growth would also decline.

In this model, similar to fishing quota and carbon trading, procreation rights would be controlled through a system of tradable rights where people are able to buy and sell their rights to bear children. While many would feel outraged by the level of control of civil liberty, Daly (1991, 1999) feels this sacrifice is needed to achieve lasting Sustainability. He argues that this system would favor both ends of the socio-economic spectrum. The poor, he argues, would benefit from the extra income generated by selling procreation rights and the extra wealth generated by not raising children. The wealthy would benefit more broadly from a greater level of social wellbeing as a result of a reduction in issues relating to poverty and teenage pregnancy.

By creating a system that forces the affluent to purchase (extra) procreation rights, society would benefit. There are arguments which suggest that populations would benefit from children being born into wealthier households with lower levels of exposure to physical violence, crime and drug addiction as well as the difficulties associated with solo parenthood (Donohue & Levitt, 2001). While population growth in most Western countries is beginning to trend downwards through the introduction of legalized abortions, reliable birth control and people choosing to delay or not to have children at all, in the developing world, particularly India, Africa and parts of Asia, populations are continuing to grow at an alarming rate. Present demographic models predict that population growth will cease in 2050, at around the eight billion mark (United Nations Department of Economic Affairs Population Division, 2005). If the population will stabilize anyway, why should we go to the effort of limiting its growth? The answer is that our population is already too high to live sustainably at our current level of consumption, as Porrit (2005) observes:

Cut it which way you will, growing populations necessitate growing economies to provide more food, more houses, more services, more teachers, more doctors and more jobs. Growth-bound economists and politically correct environmentalists conspire to keep the issue
of population growth off the agenda, obscuring the incontrovertible reality that every extra human being makes it just a little bit harder to find ways of living within the Earth’s limited carrying capacity (p. 78).

In this case, the ecological limit refers to limiting the rate of population growth to replacement levels only.

The intergenerational aspect refers to policy objectives, based on carrying capacity (System Condition IV). These should also form the basis on which monitoring and review take place. An example of carrying capacity in terms of Climate Change is reducing GHG equivalents by 95 percent, in accordance with the recommendation by the Intergovernmental Panel on Climate Change (2001).

System Condition V (stable state economic growth) refers to the decoupling of energy and resource consumption from economic growth. It also refers to limiting population growth to reduce the level of resources consumed. The limiting of population growth by itself will not stop the growth of consumption as it is more a function of per capita wealth, which is why limiting population should be linked to decoupling initiatives.

**PHASE II – SEA Framework**

This phase consists of stages 5 and 6. Its purpose is to begin the process of preliminary plan creation.

**Aspect 5: Identify Key Unsustainable Sectors and Links between them**

This Aspect builds on the previous Aspect 4 and turns to an analysis of the interaction between sectors. It also represents the application of System Conditions II, III, IV and V.
By sectors I refer to areas such as the transport sector, manufacturing or agricultural sectors. In this case, a sectoral approach is needed to identify the key sources of polluting activities in order to develop policies or strategies that target these groups.

When developing policies aimed at achieving Sustainable Development, the various industries are functionally linked together. Therefore, it follows that a policy or strategy applied to one group will have implications for others. For example, developing a Sustainability strategy would be impossible without involvement of the transport, energy, and tourism sectors.

This aspect also relates to the structural / capacity analysis carried out in the below Aspect 7, which examines the organizational process and its ability to formulate and maintain effective means of achieving Sustainable Development. Aspect 5 also recognizes System Condition iii, which seeks environmental equity between generations. This is achieved by recognizing assimilative capacity boundaries, for example, the tourism industry of whale watching in Kaikoura (North Canterbury) has behavioral impacts on whale. The industry has taken collective responsibility for this impact by limiting tourist and boat numbers. This has the advantage of augmenting environmental consciousness by bringing to the fore environmental strategies which informally educate and encourage greater attachment to areas of environmental value (Curtin, 2003), albeit in a sanitized context.

The above type of action may be augmented by identifying any managerial / leadership requirements needed to implement sustainable development strategies and the facilitation of relationships between sectors. It offers support to sectors to take responsibility for the impacts of their industry by formulating SD orientated strategies.

Aspect 5 is also related to the Stable State in that it seeks to de-couple energetic and resource needs by identifying means of reducing resource outputs and energy consumption.

Aspect 6: Describe Candidate PPPs and Possible Impacts between them
The purpose of Aspect 6 is to create alternatives to the option of “business as usual”. The approach here is to identify policies and strategies that move beyond pro-growth planning.

In this section, candidate plans based on the SS model are presented for analysis. These plans should address the Critical Environmental Areas identified in the Environmental Briefing Statement and should consist of objectives related to unsustainable sectors identified in Aspect 5, and their carrying capacity thresholds.

Identifying candidate plans is a standard SEA practice. It includes analyzing the impacts of alternative strategies to proposals. Where the difference lies is the framework for judging the efficacy of the alternative proposal. In this case, economic growth is de-emphasized and replaced with Sustainable Development as the core aim.

SSD differs from the generic SEA construction of candidate PPPs by placing Sustainable Development at the center, or as a beginning point. It directly challenges the growth paradigm by, as the model given in Chapter VI shows, the economy is a sub-set of the biosphere and is subject to thermodynamic laws. Therefore, it is not the central concern of Sustainability. These physical axioms provide a more reliable and more importantly unavoidable basis on which to develop spatial planning PPPs. PPPs are therefore developed based on SS principles shown above.

PHASE III – Candidate Policy, Plans and Programs

This phase consists of stages 7 to 10. Its purpose is to build on the preliminary plan creation process and subject them to a greater level of analysis. It looks to the institutional context of the proposed PPPs.

Aspect 7: Begin Institutional Review Process

The institutional review stage marks the beginning of the first of the three parallel processes noted above. The issues of institutional capacity and capability are critical as they relate ultimately to the
ability of institutions to deliver effective planning outcomes. If an organization is ill-matched to its policies, plans or programs, then even the most effective of these will deliver a substandard outcome. Thus in order to deliver planning goals, some form of assessment must be made of the ability of the organization to deliver on its PPPs.

Capability is comprised of the commitment by an organization and its senior planning officers to its broader goals, and the capacity to affect a planning outcome. Capacity thus refers to resources, skills, institutional knowledge and experience, located within an enabling legal framework.

The importance of this step is demonstrated by the experience of the implementation of SEA. As noted in Chapter III, the Critique of the SEA Process and its Social Context section, limited timeframes and modest levels of monitoring occur in many SEAs (Fisher & Stoughton, 2002). This is both a methodological issue as well as a capacity issue. Without appropriate monitoring of impacts, many impacts may go unnoticed, causing damage and potentially greater cost. A New Zealand example is the experience of the implementation of the Resource Management Act 1991 and the Local Government Act 2002. As noted in Chapter IV, in the interest of transparency and efficiency, the local government restructuring in the 1990s separated policy development and implementation functions. While creating resource efficiency, it also led to a separation of key channels of information and decision-making, an effect more commonly known as the ‘silo effect’. The silo effect led to poor policy and implementation RMA outcomes. In addition, the pressure for councils to be more efficient in turn led to higher levels of staff stress, high staff turnover rates and therefore the loss of institutional memory. This in turn led to a reduced level of skill of planners who may have a lower level of understanding of the purpose of the RMA thereby a lower level of skill in achieving outcomes.

A further effect of the managerialism as a result of the demand for greater transparency, was that resources went into more observable aspects of plan making e.g. the speed of the consents process in order to meet performance measures.

The pressure to meet time deadlines also impacted on the research and consultation aspects of plan preparation so research and consultation was either truncated or eliminated and therefore plans were not well constructed in terms of the intended consequences. The issue here is that the
inexperience of some staff means they are at times likely to accept unreasonable deadlines given by councillors and councillors have unrealistic expectations on what staff are capable of.

The RMA has a rational-adaptive model which focuses on the collection and interpretation of facts through research and the views through consultation with stakeholders. Councils require the capacity to undertake such research for plan making and the consultation process. Poor research leads to poor issue identification and a weak factual basis for plan making. The institutional review process seeks to address capacity issues before they are encountered and impact on the PPP preparation process.

This Aspect also assesses the need for public sector organizations to assess their capacity to implement SSD assessment process. This Aspect includes an analysis of institutional functional linkages, or a means of creating a framework aimed at overcoming the institutional silo effect.

Although there appears a broad consensus over the need to enhance capacity in local and central governments, there appears little consensus on how it is defined and evaluated. There does appear to be agreement that an organization’s success is as much dependent on its context as well as on its own internal processes.

Building capacity, capacity itself, and effectiveness of the organization are all related, but they are not synonymous. Here capacity refers to “an organization’s ability to achieve its mission effectively and to sustain itself over the long term. Capacity also refers to the skills and capabilities of individuals” (Linnell, 2003, p. 33, citing Philbin, 1996). Capacity building in a narrow sense refers to:

- the process of enhancing individual skills, or strengthening the competence of a particular organization or set of organizations. In the broader sense, it refers to the process of nurturing relatively stable patterns of social relations (Ohiorhenuan & Wunker, 1995, p. 3).

The United Nations Development Programme advocates a functional approach to capacity building. They identify three functional capacities:

1. The capacity to define a long-term vision that would lead to sustainable development
2. The capacity to formulate sound policies, and design programs to support the long-term strategy
3. The capacity to implement and manage effectively the various programs and projects (1993, p. 32)

In a local government context, Fookes (2005) argues that capability should be considered in two parts: capacity and commitment.

1. Capacity: the degree of resources, expertise, and time available to each council, hapu, [72] and iwi, [73] group or individual to fulfill various functions

2. Commitment: the willingness of participants to avoid adverse environmental effects, and to show responsibility towards the environment (p. 1)

In the context of Sustainability-orientated planning and local government, capacity building is an internal process, directly related to Sustainable Development in the sense that it means building capacities to deliver national and local PPPs, towards desired goals (Farazmand, 2004). It also refers to the ability of an organization to construct a choice of options with the ability to anticipate and develop the future by creating an anticipatory capability in public management. This is often related to the cultural aspect of institutional development in the sense that building a culture of innovation is critical to the achievement of goals that go beyond the ‘business as usual’ mindset.

In this way, this Aspect of SSD relates to strategic human resource (SHR) management. SHR is a critical aspect of managing an organization successfully. It encompasses a long-term commitment to skill and experience retention. Skilled and experienced planners may be categorized as specialists and generalists. Specialists possess key knowledge areas and are required to carry out technical functions of the organization. Generalists are well-rounded, highly developed individuals who possess the necessary knowledge to provide leadership and engage with a broader vision or the organization. This is a Sustainability related aspect. Quality planning requires the skills of specialists and generalist planners to analyze the complexities of PPPs. As the planning horizons may extend over decades (as it does in the ARGS), it is essential that skilled

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72 Hapu - Sub-tribe or collection of whanau (family) units. Translated by the English-Māori Word Translator run by the University of Otago at: [http://translator.kedri.info/](http://translator.kedri.info/).

73 Iwi - Tribe. Translated by the English-Māori Word Translator run by the University of Otago ([http://translator.kedri.info/](http://translator.kedri.info/)). The term iwi is commonly accepted to mean tribe, however this is not a complete translation as this assumes a grouping based on kinship. The term may also mean grouping or people who live in a tribal area or boundary (rohe). This is an important distinction when considering settlement funding allocation models in relation to urban or non-traditional social groupings that are not recognized in the settlement process, representing approximately 25 percent of Māori. For a discussion, see Lee (1999).
and experienced planners are retained. Therefore, this Aspect touches on the retention of quality planning staff as an important aspect of Sustainability orientated planning, an aspect of the accountability culture referred to earlier.

Developing structural linkages between authority functions is critical to overcoming the silo effect. The silo effect is so-named from the farm silo – a tall, windowless, airtight, cylindrical structure often used to store animal fodder. In this analogy, if two people are placed in two adjacent silos, communication between the two is highly constrained. The silo effect is a phrase that is used in business and organizational communities to describe a lack of communication and common goals between sections of an organization or governments. Referring to New Zealand's experience with the New Public Management reforms Bhatta (2003) observes that 'agencyfication' “caused silos to develop (due to the policy-operations split and the consequent lack of coordination among institutions in many cases)” (p. 8).

Many examples of the silo effect may be observed. In New Zealand, energy and vehicle importation policies are not well linked together. The consequence of not relating energy policy to fleet characteristics such as vehicle efficiency, overall vehicle numbers, engine size, efficiency and age, is that New Zealand has an extremely high dependence on low quality and inefficient cars (Ministry of Transport, 1998). As a result, New Zealand has the highest per capita vehicle ownership rate in the world (Fisher et al., 2002), and when combined with weak standards for vehicle carbon emissions, leads to a poisonous brew that eventually finds its way into our waterways, the ocean and the atmosphere. This is just one example of market failure (lateral non-integration).

Consequently, SSD advocates an analysis of internal organizational function that examines institutional capacity to meet the demands of candidate PPPs. Capacity building in the private sector is often couched in terms of value added activity or aspects of the business that give strategic advantage to a business and thus allow the company to acquire greater market share and profitability. Fookes, (2005, citing Imparta)\(^4\) defines “capability building” as “an approach to accelerating the development and application of new skills deep into the organization” (p. 2). This process consists of five steps:

1. Aligning Processes
2. Capability Diagnostic
3. Accelerated Learning
4. Reinforcement
5. Maintaining Momentum

Step one references the necessity for functions or organizations to affect coordination. Step 2 (Capability Diagnostic) identifies opportunities for the creation of greater coordination, later used for performance benchmarking. Step three involves the principle of learning by doing or experiential learning to acquire new skills, supported by a mentoring program. In the fourth step, newly acquired skills are applied to the work, which reinforces newly acquired concepts. The final stage maintains momentum and incentivizes the application of newly acquired knowledge and skills (Fookes, 2005).

Aspect 8: Describe Synergies Between Other PPPs

This aspect examines the relationships between existing laws and strategies to determine the potential for synergies or contradiction.

From Table 20 in Chapter III (p. 111), Eggenberger and Partidario (2000) gave five principles for integrating Sustainability. Included in this is the “integration of ‘Sustainable Development’ as an overall guiding principle in planning” (p. 204). In addition, they advocate the integration of sector strategies and regulations.

At this stage of the SSD, it is important to link plans together, to consider their relationships and where there is a synergy occurring. Examples of related strategies and plans include the Regional Land Transport Strategy and the Auckland Isthmus Operative District Plan.

The identification of greater synergy will allow a greater level of compatibility between planning processes. For example, the present relationship between the RMA and the Local Government
Act; the former aimed at sustainable management, the latter aimed Sustainable Development, representing a degree of discontinuity. The RMA is aimed at achieving sustainable management, while the LGA via Long Term Council Community Plans aims to achieve sustainable development. These intents are potentially quite different in outcome and yet are intended to gel together. Similarly, the aim of the Auckland Regional Growth Strategy in this respect is “to develop a vision of Sustainability”. These differing definitions of purpose undermine the ability of these plans to deliver their objectives.

Aspect 9: Design Indicators and Targets. Describe Impacts and Mitigation

This Aspect builds on previous Aspects by achieving three goals: (i) set out environmental, social and economic targets, (ii) describe their impacts and develop alternatives and (iii), develop indicators. Indicators are understood to mean usually quantitative representations of complex systems, intended to indicate progress towards specified social, environmental or economic targets.

In this section, indicators are related to the System Condition of Stable State economic development which measures economic growth in relation to the level of resource and energy consumption, over time. For example demand in energy or emission production is lower than that of its economic driver i.e. GDP, over a given time period (Organization for Economic Co-operation and Development, 2002). Other indicators relate to the differentiated capital components identified in the EBS as well as Aspects 4 and 5. One methodology for doing this is the Pressure State Response (PSR) model (Figure 24). This model attempts to quantify the status of an issue of concern and the social or individual response to the problem (Michalos, 2006).
As the title suggests, the PSR model links pressures, states and responses by institutions, individuals or governments. A ‘pressure’ is an underlying factor, for example, poverty or the growth of populations in an area. A ‘state’ is the condition of the environment as a result of pressures. For example, population growth will lead to a demand for more resources. Poverty may lead to deforestation. The condition of the environment is a critical aspect to be measured as it provides the baseline for further action, hence the need for regular state of the environment reporting. A ‘response’ refers to the actions taken by either individuals, governments or collective society designed to alleviate the above pressures and states (Pintér, Zahedi, & Cressman, 2000). As Therivel and Brown (1999) argue, governments or local authorities are less likely to be able to control pressures, but are able to generate effective responses. SSD is a conduit for those responses (Figure 25).
The PSR model is used as a basis for identifying currently underlying environmental impacts of activities. The example of population growth used above is one such pressure facing Auckland’s development. The ‘state’ could refer to many impacts of population for example, resource consumption or Climate Change. An indicator of population could be energy use or carbon output or solid waste produced per capita. The response in this case refers to the final output of the SSD model, a PPP aimed at Sustainable Development.

In addition to this description, baseline data should include indicators that describe external factors that often lie unaccounted for in economic modeling. Traditionally, SEA seeks the mitigation of impacts of proposed PPPs. Mitigation is more accurately represented as a hierarchy, ranging from avoidance to compensation (Figure 26).
While SSD favors prevention or avoidance of environmental issues as the most effective means of achieving SD, the mitigation hierarchy recognizes that, in many cases, local authorities and central governments do not possess the power to effectively address the deeper causes of unsustainable development and therefore mitigation is a critical component of any impact assessment.

Aspect 10: Technical Analysis

This Aspect assesses whether a proposal PPP is within the technical ability of authorities to deliver.

This section involves a peer review of a proposal, subjecting the document to analysis by relevant planning professionals. It looks at subjecting it to financial feasibility, for example cost-benefit analysis or financial timelines. This encourages a greater commitment to long-term planning if long-term financial documents or plans are formally linked to the PPP creation process. It also provides an opportunity for the public to look at a preliminary document for discussion in order to integrate their collective analysis. Table 27 summarizes potential technical barriers to a proposed PPP.

75 Levitt-Therivel website at http://www.levett-therivel.fsworld.co.uk/
Table 27: Technical Barriers to SSD Process

- Contravention of the law, for example, democratic rights, as well as international agreements e.g. free trade agreements
- PPPs are beyond the legal mandate of the organization to provide
- Plans may clash with other pre-existing strategies
- Contravenes existing institutional rules or procedures
- Major knowledge gaps (scientific uncertainty)
- Poorly researched supporting data or conclusions
- Topographical or spatial reasons (e.g. physical barriers to infrastructural development)
- Identifying the potential for opposition or legal challenges from other institutional actors or private groups
- Identifies other unforeseen implications e.g. disproportionate impacts on social groupings
- Mismatch between infrastructural development timetables for implementation
- Cross-jurisdictional conflicts
- External barriers to public consultation
- Contributes to social exclusion
- Violates resource consumption axioms
- Encourages unsustainable polluting activities

Other technical reasons include the legality of a proposal which has a reverse, or unanticipated impact on a new community which, as a result of planning goals, coalesces around an existing (undesired) usage. An example of unanticipated results pertaining to local authority rules is the position that an Auckland company Living Earth, found itself in as a result of urban intensification. As major supplier to rural and domestic markets, Living Earth turns over 70,000 tonnes of garden, industrial, food and abattoir waste into compost.76

Living Earth is situated in a previously industrial area of Penrose, near Mount Wellington. This area has been rezoned into a mixed usage area, mainly for housing and economic development (business incubation). Due to the ARGS, Living Earth has become increasingly surrounded by housing.

The processing of bio-waste is odorous. When located in an industrial area, the processing of compost is not problematic. When housing is developed around a pre-existing, unpleasant usage, eventually the residents will voice their unhappiness as they did in the case of Living Earth. This is one example of a technical reason or process for identifying flaws in the design of a PPP.

**Phase IV – Indicating Sustainability**

This phase consists of stages 11 – 13. In this Phase, a draft PPP is created, evaluated against SS criteria and analyzed for political acceptability.

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**Aspect 11: Draft Report of PPPs**

This Aspect is a standard aspect of the generic model of SEA given in Chapter III (Figure 1, p. 20). It is expected that this Aspect will identify likely consequences or effects that could be addressed through mitigation measures. This Aspect introduces comparisons of risk and uncertainty through an approach that compares alternative policies for the PPP.

A draft SEA report is a key aspect of consultation, as publics require a concrete report to read and fully comprehend what is intended. This report should be written in the language of the layman, free from the technical jargon of local government and the planning profession. This should be disseminated out to the public as widely as possible for comment and the public should be given adequate time to digest the information and to provide feedback to the relevant authorities. In addition, it should be peer reviewed by an expert knowledge group, offering feedback. It is envisaged that this group would not comment on the political acceptability, but focus their attention on technical constancy with the SS model.
In turn, authorities are obliged to give adequate consideration of comments, feeding them back into a revised report (see Chapter II for a discussion of the meaning of consultation in the New Zealand legal context).

**Aspect 12: Political Go – No / Go**

The need for public sector organizations to assess their capacity for the SSD Assessment process lies in the consequences of change during the Washington Consensus era (Chapter IV). Smith (2005) observes of the British system that: “[t]he contemporary political system is best characterized as differentiated, disaggregated, and fragmented. Different parts of government focus on different policy issues and have different interests” (p. 212). This institutional specialization led many to argue that, due to these reforms, governments have been ‘hollowed out’, losing their ability to effectively deal with social and environmental issues (Memon, Davies, & Fookes, 2007).

The approach taken by New Public Management is to separate aspects of large and complex problems that societies are faced with into smaller, sub-problems, which are addressed on a more specialized level. This process is controlled via a series of value outputs defined and subjected to the evaluation of a superior in the hierarchy. This process becomes an operational paradigm deemed ‘rational’ as it is subject to a goal orientation, bounded by economic optimality. This rationalism is embedded in modern structures and administrative processes, as well as the language and mindset of the occupants of the hierarchy (Connor & Dovers, 2002; Dryzek, 1997) and is underpinned by a discourse of economic growth and personal consumption.

A similar assertion may be made of New Zealand’s political structures, including local government. It is the sub-routinization or fragmentation of government that some authors identify as a key factor explaining the weakness of the modern state and its inability to address the structural causes of unsustainable Development (Daly & Cobb, 1989; Janicke, 1990; Schnaiberg & Gould, 1994).
To many, capacity building rests on the skills and resources of an organization. While these are important components, they are not by any means the most critical. The most critical aspect is commitment to an organizational or ideological goal. If individuals or functions within an organization are not consistently devoted to a shared outcome, the desired goal is less likely to eventuate. Stated differently, if few of an organization’s arrows are not pointing roughly in the same direction, they are effectively resisting the overall direction the organization wishes to go. By embarking on a divergent path, the organization must energetically compensate for this movement or be pulled further off course. Over time, this divergence can increase to a large degree. In a public situation, this divergence is difficult to achieve as democratic institutions reflect the social and ideological divisions within society (the left / right divide).

These ideological divisions, as well as the commitment to the growth paradigm demarcate the acceptability of potential PPPs. This section examines the political reality of a PPP. Assessing the political reality of a proposal is critical because if a PPP of no matter what quality is proposed, does not have the support needed, it will simply not be created.

By political acceptability, I refer to the attitudes of decision-makers in relation to particular issues. Decision-makers can be individuals in positions of power, groups of people in coalitions (political parties), funding providers, civil servants and even members of the public who can be decision-makers in the context of participatory decision-making processes or referenda.

There is a range of reasons for carrying out an analysis of political acceptability. As noted above, political acceptability ultimately determines the feasibility if a project. This may come down to the level of perceived risk involved, whether financial, political or related to capability to deliver and ultimately public acceptability.
Table 28: Political Reasons for Policy Failure

- Internal clashes between core functions and semi-privatized organizations
- The level of financing required is prohibitive e.g. to implement infrastructural development, plan changes, research and legal costs
- Low level of institutional memory
- Beyond the scope of the institution to address i.e. PPPs that are most effectively carried out at the central government level
- The level of skills needed are beyond the institution to provide
- Require the buy-in of other private e.g. transport providers or public organizations over which the primary institutional actor has no mandate to influence
- Cross-jurisdictional conflicts
- Contrary to the cultural / managerial fit of the organization

Public acceptability and political acceptability are not synonymous. In some circumstances, decision-makers are forced to make decisions that are not popular with voters, for example rates increases for infrastructure development. The analysis of political acceptability highlights the different level of emphasis placed on different types of risk. An investor has the incentive of minimizing risks to revenue, while a politician must consider the potential risk of a declining voter support base and therefore future re-election. A further reason for carrying out an acceptability analysis is the timeframe of PPPs. Investment in large-scale infrastructure projects often extend beyond the political re-election horizon and therefore ensuring a high level of political support going beyond the election cycle is crucial for success.

The influence of public acceptability is critical, if not the determining factor for determining political feasibility. A range of factors influences the extent of public opinion on decision-making. At a basic level, the degree of democracy involved in the policy creation process is critical. As a generalization, the lower the level of democratic input, the lower the influence the public will have on decisions (Danish Environmental Protection Agency, 2002).

The fragility of support for parties is related to the distance of policy divergence from the political centre. In the lead up to an election, it is unlikely an unpopular proposition will be tabled. Similarly, where political leaders are attracting only a moderate or a low level of support, it is also unlikely they will introduce unpopular PPPs.
The Danish Environmental Protection Agency (2002) gives a framework for assessing the stability and level of political acceptance. In their analysis, political acceptability is comprised of two dimensions: (1) the level of political acceptability and (2) the stability of political acceptability (Figure 27).

### Figure 27: Four Scenarios of Political Acceptability

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Level of Political Acceptability</th>
<th>Stability of Political Acceptability</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>Positive attitudes prevail but they rest on fragile assumptions</td>
<td>Low Stability</td>
</tr>
<tr>
<td>2)</td>
<td>Positive attitudes prevail and they rest on solid assumptions</td>
<td>Low Stability</td>
</tr>
<tr>
<td>3)</td>
<td>Negative attitudes prevail but they rest on fragile assumptions</td>
<td>Low Stability</td>
</tr>
<tr>
<td>4)</td>
<td>Negative attitudes prevail and they rest on solid assumptions</td>
<td>Low Stability</td>
</tr>
</tbody>
</table>

The vertical axis examines the level of political support by individual actors to a specific proposal. The horizontal axis looks at the stability of attitudes based on the robustness of assumptions made by individual actors. Figure 27 shows four scenarios. Box 1 shows a high level of political support, but rests on unsound assumptions, suggesting that a proposal is not well grounded. Box 2 shows an ideal scenario, similar to Box 1 with high acceptability, but is grounded on assumptions that are more robust. Box 3 is the scenario where negative attitudes predominate and assumptions made are weak, in other words, a proposal is negatively perceived but there is potential to change these attitudes as opposition rests on dubious assumptions. Box 4 is one with little acceptance, and assumptions made are strong.

In this analysis, clearly a PPP would want to be placed as near as possible to box 2 with high acceptability and stability. If the analysis illustrates that assumptions made and political acceptance is weak, there is reason to believe that the potential success of a proposal is weak.
This suggests that further policy analysis is required or even revisiting the proposal may be necessary.

This Aspect is viewed as a separate section in the SSD process.

Aspect 13: Evaluate Against SS and Set Timeframe for Next Iteration

This Aspect begins the first round of internal evaluations of the SSD process. It identifies the need for monitoring and evaluating the outcomes expected of the SSD process.

This aspect is a critical one, one that has, in many cases, been paid less attention than is warranted. Fisher and Stoughton (2002) in their research conclude that most SEAs are carried out within a very limited period and resources, usually over a period of less than two years. They further note that teams rarely spend more than a few months conducting actual assessment work. This frequently leads to poorly developed mitigation and monitoring plans, which in turn leads to imperfect monitoring and mitigation measures. They further note that assessment time horizons are too short and are often restricted to only the expected life of the program. This runs the risk of missing long-term impacts of PPPs.

Short-term mitigation is emphasized, as opposed to establishing more foundational value or behavioral changes, for example, using market or price or economic disincentives/incentives to modify economic practices. Little thought is given to these potential approaches which need to be brought about in the long term. For example, planning for water or energy sectors may take decades to introduce fully and the impacts may go even further out. While this may be related to the economic capacity of planning authorities, post-PPP impact assessment of the long-term impacts need to be addressed. Humanity is having a profound effect on our environment. These impacts will last, in some cases, thousands of years. For example, the impacts of nuclear technology may well be felt into the next millennia. Additions from events such as the Chernobyl disaster and the effects of depleted uranium shells may also have similar ecological timeframes.

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77 Depleted uranium (DU) shells are bullets made from uranium which are highly dense. These projectiles have two primary ways of causing damage. They are primarily designed to penetrate armored vehicles such as tanks and armored personnel carriers and...
Similarly, much solid waste is ‘disposed’ by way of landfills, in which some plastics take centuries to break down. Similarly global warming could potentially last for centuries. Other impacts, such as genetic modification, could be potentially permanent additions to the environment in the form of modified strains of animals and human beings, and so on. Similarly, the life-cycle of some plants and animals can last into the centuries and ecosystems such as forests live indefinitely, as does humanity. It is not unusual for cities to have existed for thousands of years, for example, Matera in Italy has existed since between five and seven thousand B.C.79 Similarly Jerusalem enjoys a long history dating back to biblical times and beyond. As our effects on our surroundings and therefore ourselves have long-term implications, it is appropriate for societies to plan for the long term. Holdren, Gretchen, Ehrlich and Ehrlich (1995) suggest that in their definition, a long timeframe is a key aspect.

[a] sustainable process or condition is one that can be maintained indefinitely without progressive diminution of valued qualities inside or outside the system in which the process operates or the condition prevails (para. 2).

The notion of long-term development is a central feature of the Brundtland definition which talks about needs of future generations. The definition does not put a time limit on these definitions, nor does it mention how many generations, implying a continuous state of Sustainability.

Similarly, Tonn (2004) argues that in order to achieve truly sustainable outcomes societies need a planning horizon of a thousand or more years. There are some examples of long term, global plans such as the Kyoto Protocol, The Montreal Protocol on substances that deplete the ozone layer, the nonproliferation of nuclear weapons and the UN Convention on the Law of the Sea. However, these plans, with their narrow focus, are unable to deal with the complexity of issues and tend not to be able to capitalize on the synergies that need to occur between them as they are second, they spread radiation particles into the body and the atmosphere which remain almost indefinitely. DU shells were used in Afghanistan and in the Gulf war. They remain a problem in these areas causing radiation related health impacts (Katsuma, 2003).

78 It is difficult to attach the term ‘Sustainability’ to landfill practices; even the state of the art modern sanitary landfill has impacts (leachate as well as other social effects). While the modern landfill prevents contaminants from entering the ecosystem, it does so at the expense of slowing down the process of degradation by blocking sunlight, water and air. In this environment, even organics such as fruit or paper products can take decades to break down. This applies more so to plastics.

developed in isolation from each other. A further problem is that even these plans have a relatively short timeframe.

Short-term planning horizons mask the big picture problems occurring in the long term, for example, the impacts of oil depletion. If substitutes are not developed in short order, most countries will be subject to a major redefinition of how we manage our populations. Previously, societies have existed in an era of cheap energy and abundant oil supplies. We have become dependent on oil for many crucial aspects, from vehicle fuel which underpins almost every aspect of production and export, to food production in the form of fertilizers. Similar things can be said of the world’s oceans and forests as well as the situating of entire populations, which may have to be moved due to the effects of global warming such as those people in Bangladesh or Pacific Atolls. Energy is a key issue, as it is often assumed that technological breakthroughs will solve these problems. As noted previously, the assumption that un-tested or non-existent technology will solve our problems is no basis for planning and solving these important problems.

The issue here is what sort of planning process would a 1000-year time horizon entail. On a global scale, it is suggestive of a governmental structure that is yet to exist. A planning process of this magnitude suggests a body capable of global government i.e. a world government of some description.

The implication for SEA is that, higher layers of SEA have yet to come into existence fully i.e. national and international-level SEA.

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**PHASE V – Public Consultation**

Phase V consists of stages 14 – 16 and begins the formal consultation phase.

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**Aspect 14: Public Hearings and Write Final Report**
This Aspect is where the PPP is prepared as a draft and further opportunity is given to the public and interested parties to engage with the political process. This Aspect systematically records inputs and should be approached from the perspective of active engagement and an open mind on behalf of the decision-makers. Having completed this process, the final report is drafted to incorporate the further public input. To this end a series of key headings are suggested in Table 29. In this table, a column is also dedicated to supplementary processes supporting the document.

<table>
<thead>
<tr>
<th>Headings</th>
<th>Supplementary Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of contents</td>
<td></td>
</tr>
<tr>
<td>Methodology</td>
<td>Including methodological issues e.g. lack of or imitations of data</td>
</tr>
<tr>
<td>Purpose of strategy</td>
<td></td>
</tr>
<tr>
<td>Context of Strategy and Issue(s) Identification</td>
<td></td>
</tr>
<tr>
<td>Baseline data</td>
<td></td>
</tr>
<tr>
<td>Environmental Briefing Statement</td>
<td></td>
</tr>
<tr>
<td>Consultation Process</td>
<td>Ensures information is clear and easily understood and available</td>
</tr>
<tr>
<td>Defining Model of SSD</td>
<td>Supplementary Research</td>
</tr>
<tr>
<td>Desired Regional Outcomes and Indicators</td>
<td></td>
</tr>
<tr>
<td>Analysis of alternatives</td>
<td>Supplementary Research. Includes a description of how alternatives were identified. This should also ensure the assessment is available early enough to influence the decision</td>
</tr>
<tr>
<td>Relationship with other PPPs</td>
<td>Including international relationships</td>
</tr>
<tr>
<td>Institutional analysis (capability assessment)</td>
<td></td>
</tr>
<tr>
<td>Technical analysis</td>
<td></td>
</tr>
<tr>
<td>Policies</td>
<td>Risks and uncertainties</td>
</tr>
<tr>
<td>Evaluation of Process</td>
<td>Results of peer review</td>
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<tr>
<td>Implementation</td>
<td></td>
</tr>
<tr>
<td>Monitoring Regime</td>
<td>Periodic review document</td>
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</table>

Aspect 15: Review SSD Assessment Report and Make Formal Decision

Aspect 15 reviews the report and process of the SSD to date. Based on the political and institutional acceptability and capability reviewed in Aspects 10 and 12 and combined with the
peer review of Aspect 13, it makes the final decision of whether or not to go ahead with the project.

There exists a substantial body of work related to participatory approaches emerging in the last decade. The theoretical basis lies in the Frankfurt School of Critical Theory and most recently with Habermas’s notion of discursive ethics (Habermas, 1987). Habermas views rationality as a social construct influenced by human experience of the social milieu as well as humans’ ecological context. It makes few assumptions except for accepting the potentiality for a reasoned discourse of recognizing others’ as actors able to make a reasoned contribution. This leads to an uncovering of assumptions of hidden norms that underpin the decision-making process (Banuri et al., 2001). Despite this interest in new participatory democracy, there appears to be little consistent in approaches to evaluating the success or failure of such a framework. Differing models of social wellbeing exist as well as differing views on civil society. Under the post-modern banner, the common good cannot be objectively described but may arise from a more pluralistic of open discussion of what is deemed to be ‘good’.

Incorporating citizens into the decision-making process is a complex and time-consuming event. Its role is to inform and educate, as well as to integrate the values of citizens into the process thereby improving the quality of the outcome and gaining trust and reducing potential conflict among actors. While the focus of this research is not on the decision-making process, following Habermas, a process that supports the exposure of hidden assumptions and analysis of ideological belief systems is supported. Within the SSD model, public participation is strongly encouraged at all points of the process.

There are a broad range of decision-making processes. While SSD is not a decision-making process per se, it does feed into it. Therefore, a degree of compatibility is needed. A common decision-making process is Scenario Analysis (SA). SA analyzes possible future proposals by examining their alternatives (scenarios). It aids decision-making as all of the implications are examined for their impacts. In this way, SSD is a form of SA.

A similar process may be applied to Cost-Benefit analysis where various scenarios are modeled according to their differing design features. Related to CB analysis are hedonic pricing methods,
travel cost analysis. Broadly, there are two types of decision-making: quantitative and qualitative processes. Quantitative methods include:

- Analytical-Hierarchy Process
- Multi-criteria Evaluation
- Borda Count
- Sensitivity Analysis
- Systems analysis

Qualitative methods include:

- Brain Storming
- Cross-Impact Analysis
- The Delphi Method
- The Other-Guy’s-Shoes Heurism
- Simulation and Gaming Analysis
- Triple or Quadruple Bottom Line Reporting

An analysis of the various decision-making models goes beyond the focus of this research, however, it is envisaged that decision-making should be based on the SS System Conditions given at the beginning of this chapter.

**Aspect 16: Implementation**

Strategies aimed at achieving Sustainable Development have no value unless proceeded by an implementation plan that achieves substantive action. In a sense, the preceding Aspects are a way of setting up the process so implementation has greater likelihood of success. This section
addresses how SSD engages with pre-existing planning instruments. In a New Zealand context, the SSD process is intended to sit above such instruments as the Regional Policy Statement (RPS). The RPS gives statutory legitimacy to the SSD process by requiring such instruments to give effect to its intentions through lower tier instruments such as District Plans. In the RMA context, the Policy Statement outlines policies and gives a concept plan, similar to the ARGs Growth Concept Map, shown in Chapter II (Figure 8, p. 48). The implementation phase also differentiates between national government level and Regional government level policy initiatives, for example, at the national level; policies regarding limiting the importation of vehicles (see Table 6, p. 326). At the regional level, reviewing new roading projects in light of the new environmental approach.

The implementation of SSD is to a degree based on the results of the institutional analysis which determines the capacity of the organization to achieve its ends. It relies on strengthening the ties between local and central governments and organizations or institutions at these levels. It further relies on central governments adopting a more proactive stance by creating cohesive policies that are more strongly linked to lower tier PPPs.

As noted in Stage 1.4 of the Environmental Briefing Statement, greater cohesion between the public and government systems may also potentially be achieved through the greater use of citizen stewardship of natural resources. The Strong Sustainability System Condition of greater use of full cost accounting or the Polluter Pays principle may not be the full solution, requiring greater oversight by non-interested parties (the public). The potential for systems such as these is yet to be fully explored and is a source of potential future research.

Implementation also involves the monitoring and evaluation of both the application of the SSD model, as well as the external environmental conditions. While the monitoring of the SSD output is related to the goals established in Aspect 3 (internalization of environmental externalities) and Aspect 9, which relates to establishing targets, which is in turn evaluated against the SS framework (Aspect 13). In this Aspect, a broader metric is established. While full cost accounting (Aspect 3) is a critical component, a broader level of analysis is needed to give a full picture of the progress being made. In most countries there is a tendency to view progress in terms of economic development, using GDP (Gross Domestic Production) as an general indicator of environmental
and human health. This claim is however losing ground as more sophisticated indicators are becoming more commonplace.

The main criticism of GDP as an indicator of health, either economic or otherwise, is that it fails to distinguish between factors that contribute to sustainable and unsustainable development. GDP is simply a gross register of all transactions in an economy within a given time period (usually one year). Talberth (2008) argues that while GDP is an accurate measure of economic growth, it fails to adequately capture other elements of Sustainability for example societal welfare, saying very little about quality of life. Despite these flaws, GDP remains the catchall method of measuring the health of economies, nations and communities. GDP however makes no distinction between those transactions that add to human and environmental well being and those that do not. In this way, the resources spent on such things as the indirect costs of crime, accidents, pollution are simply treated in the same way and positively added to the total. The creation of toxic chemicals are treated as an economic gain and are accounted for again when they are released into the environment and governments or communities spend resources to clean them up. Thus pollution has a doubly negative value by being effectively counted twice, while people giving up their time to improve environmental services or amenities or do volunteer work are not counted in any way.

GDP ignores all transactions that occur outside the monetary realm. Externals such as pollution, unpaid work for example, housework and child rearing and volunteer work, caring for elders and ecosystem services all go unrecognized by this model. Talberth, Cobb and Slatery (2007) argue that these types of activities constitute conservatively 44 percent of world GDP, yet go unrecognized by its accounting systems.

A number of candidate systems are emerging that attempt to rectify these issues. Examples include Full Cost Accounting (noted in Aspect 3), triple or quadruple bottom line reporting, the environmental footprint analysis, the use of food miles, the Human Poverty Index, The Human Development Index and others. Other systems include the Happy Planet Index, the Living Planet Index, Gross National Happiness and the Physical quality of life Index.

In response to the development of the above issues, the use of a more nuanced instrument is advocated. The Genuine Progress Indicator (GPI) is one model that attempts to distinguish between factors that add to wellbeing and those that do not.
The GPI is a composite index that categorizes factors into positives and negatives, measuring such things as income distribution, housework, volunteering and higher education, the impacts of crime, pollution, defense expenditure and public infrastructure.\(^8^1\)

When applied to economies GDP typically shows an upward direction. This is taken as a representation of positive development. When the GPI is graphed, it shows a less optimistic depiction of the progress societies are making. For example, when Talberth, Cobb and Slatery (2007) use the GPI to compare GDP to the GPI, they find that in contrast to a growing GDP figure, social and environmental wellbeing in the US remains static. The use of the GPI challenges the assumption of GDP as an adequate measure of human and environmental wellbeing. Consequently, the use of this composite indicator is advocated in Aspect 3.

In addition, as noted at the beginning of this Chapter, SSD is envisaged as part of a wider, fully embedded system of policy creation where Sustainable Development has International legal and national constitutional status. In New Zealand, a template exists for this in the form of the Treaty of Waitangi. In New Zealand law, reference to the Treaty is standard and the implications of this reference are articulated on many levels of government ranging from treaty settlements to indigenous consultation processes. Sustainable Development could be embedded in a similar way. However its expression is formally linked by the SSD model into the planning process through the creation of a series of binding national strategies relating to the Critical Environmental Areas developed in the Environmental Briefing Statement. Focus is given to national strategies requiring national governments and councils to address these issues, requiring vertical and horizontal logic continuity. A centralized system of national strategies would provide local authorities a more standardized template on which to base policies, rather than fully repeating the policy creation process.

In Chapter II, it was argued that the lengthening of institutional distance between those affected by decisions and those making decisions was essentially undemocratic. The creation of international and national level impact assessment on one level falls in to this trap. On another, if the right structures are created that a) focus attention on augmenting local level democratic processes and

\(^8^1\) For a full explanation of the Genuine Progress Indicator see Redefining Progress the nature of Economics at: http://www.rprogress.org/Sustainability_indicators/genuine_progress_indicator.htm.
b) create policies aimed at addressing social disenfranchisement are enacted and c) the creation of international structures capable of managing the influence of trans-national companies, this criticism will be mitigated to a degree.

**Lessons Learned**

This Chapter provided the core contribution of this research - the development of Strategic Sustainability Development. Drawing from the critique of SEA summarized in Chapter III, I argued that SEA is a process grounded in a discourse of material consumption and increasing pressures to attain greater wealth. SEA faces mounting problems related to the decline in institutional trust and the lack of cooperation at the regional, national and international level. It is further hampered by inexact and contested models and definitions of Sustainable Development. SEA, as it stands, is unable to meet the challenges presented by social inequalities, which hampers governments in their approaches to achieving Sustainable Development.

To this end, I have developed a system that places Sustainable Development at the core of the policy creation process. At the center of this model is the recognition that present policies have failed to adequately address environmental issues. Consequently, I have sketched out an approach to policy creation based on Strong Sustainability.

The effects of such impacts as global environmental problems have become increasingly difficult to ignore as the effects of environmentally polluting activities have become progressively more obvious to policy makers. As the global population and corresponding space and resource use have increased, the potential for further expansion of the global economy has reached some environmentally imposed boundaries of development. Limitations such as the level of consumption of water, the geographical size of cities vis-a-vis urban sprawl, carbon output, ocean and land-based biodiversity coupled with population pressures are forcing economies towards Sustainability orientated objectives. As noted above, the consumption discourse is being challenged by events such as Hurricane Katrina and the Stern Review, signaling a political shift towards Sustainability objectives. In the key environmental areas addressed above, I have strove
to highlight the relationships between these issues. At the core of SSD is the need for all of these issues to be addressed in an integrated fashion. The challenge for planning is how to meet these conditions in a way that meets the needs of populations equitably.

From a planning perspective, as shown in Aspect 7 (Institutional Review Process), the need for an assessment of the capacity of organizations to deliver a proposed PPP aimed at addressing these issues is critical. The New Zealand experience with implementing new SD orientated planning laws such as the Resource Management Act 1991 and the Local Government Act 2002, shows a lack of foresight into the complexity, time, funding and resources required of such an exercise. This Aspect at least points towards the need for a process that re-assesses organizational requirements of proposals, given the new SD orientated planning environment.

Just as an institutional assessment may be required, an assessment of the issues facing SEA is also required. As noted in the above assessment of the issues facing SEA, it appears that SEA may need a re-orientation away from policy evaluation; one that takes as its starting point the overall goals of the SEA process itself. The first stage of the SSD process is the Environmental Briefing Statement (EBS). The EBS recognizes a need for the introduction of a process that moves beyond reacting to policy as it is created. The EBS is intended to initiate a process aimed at achieving Sustainable Development in its own right, thus moving beyond an evaluative mode of analysis, which SEA as noted above, has a tendency to be limited by.

The definition of responsibility (Stage 1.4 of the EBS) is also of importance. The SSD model has inadvertently assumed that processes of this kind would largely be the responsibility of governments. Defining responsibility for commons in the form of public stewardship provides an alternative model for environmental management. One clear development in addressing environmental issues is the trend towards privatization of environmental services or resources. It is not clear that this process is without its problems and public stewardship may be an area for further use or elaboration in future.

In the following Chapter, the model of SSD developed above is applied to the region of Auckland.
CHAPTER VII: A SECOND GENERATION
AUCKLAND REGIONAL GROWTH STRATEGY

Introduction

The model outlined in the previous Chapter VI is a second-generation Strategic Environmental Assessment aimed at achieving Sustainable Development (SSD). This Chapter moves the discussion from theory to practice by using SSD to create a hypothetical second generation Auckland Regional Growth Strategy. For reasons of space, and because the model can be shown to achieve its objectives, it focuses only on Climate Change as an example of its application. While Climate Change is a critical environmental issue, it remains a subset of many other issues that underpin the drive towards SD (Macintyre, Nicholas, Penman, O’Fallon, & Croft, 1989; Meadows, Randers, & Meadows, 2004; Schor, 2001; Suzuki, 1998; Yashwant, 2003).

Since this Chapter demonstrates how to apply the theoretical model to a practical task, it begins with the Environmental Briefing Statement (EBS). As noted in Chapter VI, the EBS is intended as the initial scoping step designed to define the intent of the 2nd generation Regional Growth Strategy, and broadly outline the principles and models underpinning the overall process.

As explained in Chapter VI, SSD differs from earlier applications of SEA in the sense that triggering SSD is less contingent on traditional policy triggering mechanisms that evaluate PPPs after they are proposed. Rather, it relies on an environmental tipping point where SD has reached a point where an environmental issue is so undeniable that it has come to the forefront of individual, corporate and governmental thinking on policy direction. It is only when environmental consciousness has reached this critical mass of awareness, that societies will be able to accelerate their progress towards achieving SD. Recent events such as Hurricane Katrina, the melting polar ice-caps and credible environmentally orientated reports such as the Stern Review
(2006) have sparked a renewed focus on environmental issues, particularly Climate Change. It is one of the key findings of this research, that we have reached such an environmental tipping point.

The chapter will then follow the model given in Chapter VI to trace the application of each Aspect of the SSD model.

**Notes to the Reader**

For reasons of clarity, the reader should be aware of the following points:

1. The Chapter broadly conforms to the structure of the SSD model i.e. it begins with the EBS and EBS sub-sections, followed by Aspects 1 – 16, which are underlined. For clarity, these main titles are kept the same. It is assumed that a hypothetical report would use less technical language.

2. In the following sections, the text is divided into two types, shaded and non-shaded. The shaded areas highlight the text of the hypothetical Regional Growth Strategy, and the non-shaded areas offer an explanation of the model.

3. The compilation of parts and aspects presented by the main body of the thesis and would require further editing if it stood alone. Its purpose is to provide an idea of what could emerge from this model, for example, continuity between sections. For ease of reference, a complete version (without explanation) is provided in Appendix 2.

4. Some sections are the product of the SSD model itself and it is anticipated that policy would emerge based on this process. These areas are: EBS stages (4) Outline of Process and (5) Outline of process Timeframe and Aspects 6, 7, 9 and 10.

5. As I have argued in earlier Chapters, many environmental issues need to be addressed, not only at the regional, but at the national and international level as well. Where possible, this distinction is made.
The reader should further note that the related issue of air quality is also included at times, as it is an interrelated issue to Climate Change.

Aspect 1. Triggering a New Auckland Regional Growth Strategy

This Aspect (1) begins the SSD process.

As acknowledged in the SSD model, any process of IA requires a beginning point. As noted in Chapter VI, the policy creation process often does not have a clear-cut beginning, that is to say that developmental trajectories may occur over a great length of time. In terms of planning horizons, many ideas may be conceived decades or more before they are integrated into planning processes, let alone implemented. For example, in the case study employed, the completion of the Auckland motorway and public transport system has been a goal of local authorities since at least the 1960s (Auckland Regional Authority, 1968), and have since been incorporated to a greater or lesser degree into the present ARGs, and will continue to evolve as the region develops.

If the SSD assessment process can be reduced to a single trigger point, it must come from a coalition of interests sparked by the realization that the present unsustainable mode of existence will not serve any longer. I believe that SSD is possible, as we now are entering a new environmental era, or what is referred to as an environmental ‘tipping point’. A tipping point is a sociological phrase referring to a dramatic moment when something unique becomes commonplace (Gladdwell, 2002).

Publics, governments, industries are beginning to realize that these issues are not ‘growing’ away. For example, Hurricane Katrina, which hit the coast of New Orleans in 2005, costing an estimated 200 billion dollars (US), was one of the most destructive storms ever to hit the United States (Wolk, 2005). It also has achieved the status of an environmental ‘event’ (Brown, 2006). Similar to
Carson’s Bald Eagle, Hurricane Katrina has now an iconic status, indelibly linked to global warming, contributing to the environmental tipping point.

In New Zealand, Climate Change related events have not gone unobserved, and environmental issues are beginning to be mainstreamed. Recent policy shifts by central government suggests that the environment is becoming a mainstream issue. Although many of these policies are arguably a political sop, as they fail to substantively address the main environmental issues, it does however represent a significant movement in the political arena, pointing towards the environmental turning point.

A further case in point is the Mighty River Power\(^2\) consent application to re-power a 300 MW, coal powered power station, located at Bream Bay, in the Far North District. The Mighty River Power company successfully applied to the Northland Regional Council for eleven air, coastal and land use resource consents to operate the plant. A further successful application was also sought from the Whangarei District Council for land use (Northland Regional Council, 2006). Greenpeace and local residents\(^3\) appealed to the Environment Court to overturn the decision. Greenpeace’s grounds for appeal were that the commission failed to take into consideration the effects on Climate Change. Greenpeace further argued that the Commission did not interpret the RMA correctly by arguing that, while the Act was amended in 2004 to remove the ability of Regional Councils to regulate GHGs,\(^4\) the Act does cover Climate Change through the benefits of renewable energy. In the appeal, Greenpeace stated that Marsden B would inhibit other renewable energy sources by reducing the cost of non-renewable energy production. The Environment Court however rejected Greenpeace’s argument. In 2007, following pressure from

\(^2\) Mighty River Power is a State Owned power generation company.

\(^3\) Greenpeace, along with the Bream Bay Action Group and Ruakaka residents J and R Keith combined to appeal the decision at the Environment Court.

\(^4\) The Resource Management (Energy and Climate Change) Amendment Act 2004 requires local authorities to -

(i) plan for the effects of Climate Change; but

the public and political groups, as well as the release of the government’s Energy Strategy,\textsuperscript{85} which imposed a carbon tax on coal-powered generators, Mighty River abandoned its plans to re-commission the station.

This decision created a significant precedent as it allows Climate Change to be considered in the consent process. In addition, at the time of writing this thesis (in 2008), a Bill is before a select committee to reverse the 2004 RMA Amendment, proposing that District and Regional Councils should be required to give attention to Climate Change. The success of this Bill may have a significant impact on future Climate Change related decisions and consents and policies (Fitzsimons, 2006). Should the Bill be successful, it will mark a significant shift in environmental policy in New Zealand and may be the catalyst for future change.

A further indication of the mainstreaming of issues such as Climate Change can be seen with the reaction to the recent Stern Review on the Economics of Climate Change (2006). When combined with Hurricane Katrina, and the recent film by Al Gore, An Inconvenient Truth, these events sparked a national Government announcement of new policy on Climate Change and Sustainable Development (New Zealand Labour, 2006). Table 30 gives examples of the flurry of letters to the editor concerning the Stern Review and Climate Change. In these letters, a wider range of policy options is described, indicating an openness to change from mainstream New Zealanders.

Table 30: Letters to the Editor in Reaction to the Stern Review on the Economics of Climate Change

Sir Nicholas Stern’s report reveals the reality of global warming. Many New Zealanders cannot see the true consequences of climate change, and the Government should act to create awareness and minimize greenhouse gas emissions.

Schools should teach about the environment, especially at primary and intermediate level. The curriculum should involve an analysis of climate change, its implications and how to minimise its effects.

The Government should also introduce everyday technology (hydrogen-powered cars and low-cost solar panels). The irony is that plenty of current technologies match and outperform their fossil-fuelled counterparts.

The problem is that we are blindly dependent on fossil fuel as our main source of energy. This would not be the case if the Government introduced these technologies properly.

[name] Mt Roskill

The negative reaction to Sir Nicholas Stern’s Review on the Economics of Climate Change across the New Zealand political spectrum was sadly predictable, particularly given the media’s decision to focus on the unfortunate scenario of kiwifruit.

I do not think that any of these critics have ploughed through its 27 meticulously argued chapters. It is not about protectionism, and if Helen Clark thinks it is just another piece of scaremongering politics by European Greens, she should rethink. In the thinking part of the world, climate change is mainstream politics nowadays.

Well may New Zealanders still be able to spin around on their ever-expanding motorways without a care in the world. Maybe, though, it is time they started thinking about the consequences of a world where food miles are a reality.

We may have extremely efficient modes of agricultural and horticultural production, but what happens when what has happened in New South Wales occurs in New Zealand and we can no longer produce?

[name] London
In relation to this research, events such as these form the basis of a new motivation to address Climate Change and perhaps other environmental issues in New Zealand and is the true starting point for SSD.

The SSD process begins with a hypothetical version of the intended Environmental Briefing Statement (EBS). The EBS has three broad goals:

(1) The EBS is intended as a frame of reference to begin to develop an alternative ARGs based on the SSD process, which is based on the Strong Sustainability System Conditions identified in Chapter V, Table 22, p. 186.

Source: New Zealand Herald, 1 November, 2006 Perspectives, A20
The EBS is intended as a guide to its technical staff and consultants working on the second generation ARGs and includes the formation of a Strategic Sustainability Assessment Working Group, responsible for the drafting of the EBS and the final Strategy.

Similar to SEA, the EBS is also intended as a *scoping exercise* aimed at addressing and identifying areas of critical environmental capital.

Table 1 outlines the EBS process, and is drawn from the propositions outlined in the Earth Summits and Sustainability literature. The generation of these critical areas takes an issues-orientated approach (Taylor, Bryan, & Goodrich, 2004), where priorities are selected on the basis of environmental need, as developed from the environmental literature examined in Chapter V.

**Table 1: Stages of Environmental Briefing Statement Process**

<table>
<thead>
<tr>
<th>EBS Stage 1.1</th>
<th>Sustainable Development Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EBS Stage 1.2</strong></td>
<td>This section identifies issues a - f in the adjacent cell, which constitute critical environmental issues</td>
</tr>
<tr>
<td><strong>EBS Stage 1.3</strong></td>
<td>Outline of process</td>
</tr>
<tr>
<td><strong>EBS Stage 1.4</strong></td>
<td>Timeframe of process</td>
</tr>
<tr>
<td><strong>EBS Stage 1.5</strong></td>
<td>Definition of responsibility</td>
</tr>
</tbody>
</table>

The following section begins the hypothetical Strategy.

**Introducing Auckland**
The Auckland region has grown to its present population of over a million people and if trends continue will double over the next 35 years. The housing, transport, energy, infrastructural and other ecosystemic impacts of this projected growth pose significant problems for planners in the context of Sustainable Development. To cope with this growth, over 200,000 new dwellings will need to be constructed to house this new population, which will in turn create demand for a range of infrastructural projects.

The future Auckland will become a region of much greater social diversity with growth in populations of Asian, Pacific Island and Maori groupings, all becoming a larger proportion of the population, compared to the historically dominant European component.

The region of Auckland dominates New Zealand’s economy accounting for over 30 percent of national GDP. This underpins New Zealand’s economy with the country’s largest exporting port, a large manufacturing sector, and accompanying financial services.\(^86\)

In terms of its people, Aucklanders are richer, more educated and healthier than at any time in history. All other things being equal, these trends are likely to continue into the future.\(^87\) Economic prospects are positive with healthy recent growth rates, which are reflected in the lowest rate of unemployment in the world.\(^88\) Events such as the Americas Cup, The Lord of the Rings film by Peter Jackson, and the Rugby World Cup have given Auckland a high profile internationally.

While Auckland fares well in overall liveability,\(^89\) over the last two decades Aucklanders have however embraced a strongly car-orientated lifestyle with rates of vehicle ownership and miles travelled being one of the highest in the world. As a result, Aucklanders on a per capita basis contribute significantly to issues such as Climate Change and air and water pollution.

\(^{86}\) Regional Growth Forum (1999c).

\(^{87}\) Reid et al. (2003).

\(^{88}\) Statistics New Zealand (2006c).

\(^{89}\) Reid et al. (2003).
Additionally, Auckland’s transport infrastructure is overloaded to the point where delays due to congestion are creating a negative economic impact of over a billion dollars annually (in 2006).\(^9^0\)

Aucklanders also produce and throw away a growing volume of solid waste annually, \(^9^1\) creating pressure to find acceptable sites for more rubbish dumps.

Auckland has one of the most polarized rates of wealth disparity in the developed world.\(^9^2\) This is reflected in the decreasing rate of home ownership, which has in part been caused by the recent housing boom.

These issues undermine the perception of New Zealand’s clean green, egalitarian self-image. This strategy is intended to address these problems.

**Introduction**

A sustainable ecosystem is vital for the continuing wellbeing of Aucklanders. A healthy environment underpins every aspect of our lives whether cultural, business, or recreational. The purpose of this Strategy is to ensure the future wellbeing and happiness of following generations as they live and work in a sustainable environment.

This Strategy is divided into the following sections:

| Aspect 1 | Trigger SEA Process. Write EBS using SS criteria for Policy, Plans or Programs (PPP) |
| Aspect 2 | Define Strong Sustainability Model |
| Aspect 3 | Baseline level of Internalization of environmental externalities |
| Aspect 4 | Define Sectoral Ecological limits |
| Aspect 5 | Identify key unsustainable sectors and links between them |

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\(^9^0\) Whitehead (2005).

\(^9^1\) Statistics New Zealand (2006f).

\(^9^2\) St John (2006).
Aspect 6 Describe candidate PPPs and possible impacts
Aspect 7 Begin institutional review
Aspect 8 Describe synergies between other PPPs e.g. the RLTS initiatives e.g. air quality or Climate Change
Aspect 9 Design indicators & targets. Describe impacts, and mitigation
Aspect 10 Technical analysis
Aspect 11 Draft report of PPPs
Aspect 12 Political Go - No Go
Aspect 13 Evaluate against SS. Set time frame for next iteration
Aspect 14 Public hearings and write final report
Aspect 15 Review SSD Assessment report and make formal decision
Aspect 16 Implementation

**EBS Stage 1.1: Sustainable Development Statement**

The RGS is a response to the fact that Auckland is now living far beyond the means of its environmental context to sustain its present mode of production. In response, Auckland must manage its resources wisely by reducing physical growth in such a way that complements natural processes, while supporting its peoples equitably.

As per the above Table 1, the following section of the EBS deals with the selected Critical Environmental Issues a – f. With the exception of Critical Area (e) (Eliminating persistent additives), all of which are related to Climate Change. In addition, the below Critical Areas a - f relate to the Strong Sustainability model System Condition iv – the identification of capital assimilative capacity boundaries, examined in Chapter V (p. 186).

In terms of Climate Change, this assimilative capacity is defined by the Intergovernmental Panel on Climate Change, which argues that the world needs to reduce GHG emissions by over ninety percent to reach the assimilative capacity of the Earth’s biosphere.
EBS Stage 1.2: Areas of Environmental Limits

This section identifies issues that constitute critical environmental issues facing the Auckland region.

a) Air quality and Climate Change, including deforestation, transport and energy
b) Biodiversity, including habitat maintenance
c) Stabilizing and reducing population
d) Social wellbeing (including economic health and eliminating poverty and health related issues)
e) Eliminating persistent additives
f) Consumption and disposal of resources

These areas are addressed in turn.

EBS Critical Environmental Issue (a): Air quality and Climate Change, including deforestation, transport and energy

In addition to Climate Change, the issue air quality is an interrelated one, as they share sources and policy solutions. In Auckland, much of our air pollution is emitted from vehicles, which add the pollutants shown in Table 2 to the environment. The significance of this issue is made clear by National Institute of Water and Atmospheric Research, which estimates that nationally 399 people die annually from these pollutants. 255 of these deaths are in Auckland alone.\footnote{This Strategy aims to reduce or eliminate these unnecessary deaths. Table 2 shows the types of vehicle emissions and their health impacts.}

Table 2: Impact of Motor Vehicle Emissions on Health

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Increases hospital admissions &amp; mortality from cardiovascular disease, Headaches, dizziness, disorientation, visual disturbances, stress, anxiety, acute death after very high exposure</td>
</tr>
</tbody>
</table>

\footnote{Fisher \textit{et al.} (2002).}
<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen dioxide (NO₂)</td>
<td>This contaminant causes an increased frequency of coughing, wheezing &amp; breathlessness. Increased susceptibility to infections &amp; asthma attacks. Increased severity of asthma attacks. Increased reactivity to natural allergens. Stress, anxiety and irritability</td>
</tr>
<tr>
<td>Fine particles (PM₁₀)³⁴</td>
<td>This contaminant exacerbates respiratory conditions such as bronchitis and asthma. Increased mortality Increased hospital admissions for respiratory and cardiovascular disease. Increased frequency of respiratory symptoms. Reduced resistance to infection</td>
</tr>
<tr>
<td>Benzene (X₄)</td>
<td>Known carcinogen - Bone marrow suppression - Leukaemia</td>
</tr>
<tr>
<td>Lead (Pb)⁹⁵</td>
<td>Negative impact on children’s neurocognitive functioning</td>
</tr>
<tr>
<td>Ozone (O₃)⁹⁶</td>
<td>Causes cardiovascular and respiratory diseases, lung cancer, bronchitis and asthma</td>
</tr>
</tbody>
</table>

**Source:** (Table 10 from Kjellstrom & Hill, 2002, p. 25)

These figures are not universal, and concentrations of air pollutants are dependent on levels of exposure and vehicle density in urban areas. That is, some areas may be worse than others. When measured in terms of Ministry for the Environment guidelines, monitoring results show a worsening picture with total daily exceedances increasing (Figure 1).

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³⁴ PM₁₀ are particulate matter less than of between 2.5 and 10 micrometers in diameter (Kjellstrom & Hill, 2002).

⁹⁵ Leaded petrol was used in New Zealand until it was banned in 1986.

When compared internationally, New Zealand does however have relatively low levels of air pollution. However, some areas remain problematic. Air quality trends in Auckland are as follows. CO (carbon monoxide) emissions have fallen and are predicted to continue to fall in future, mainly due to increasing numbers of vehicles in the fleet with improved emissions controlling technology. The most worrying trend is CO$_2$ (carbon dioxide) emissions, which have risen and are predicted to continue to rise in future, mainly due to increased fuel consumption resulting from increased numbers of vehicles in the region, as well as increased vehicle kilometers traveled.

NO$_x$ (nitrogen dioxide) emissions have also risen slightly, also due to increased numbers of diesel vehicles in the fleet, but are predicted to fall slightly in future as diesel emissions control technology improves.

SO$_2$ (sulfur dioxide) emissions have also risen, mainly due to increased diesel fuel consumption

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resulting from increased numbers of diesel vehicles, but are predicted to fall in future as fuel sulfur levels continue to decrease.

PM$_{10}$ (fine particles) and VOC (volatile organic compounds) emissions have fallen slightly, mainly due to a shift away from coal and wood for both domestic heating and industrial use, and are predicted to fall in future with fuel trends and technology improvement.\textsuperscript{98}

**Addressing Climate Change**

Levels of Greenhouse Gasses are predicted to increase. Therefore, Auckland must do its part to address this burning environmental issue.

**Sources of Greenhouse Gasses**

There are three main chemicals that cause Climate Change: carbon dioxide (46 percent), methane (35 percent) and nitrous oxide (18 percent), as shown in Figure 2. These emissions are expressed in carbon equivalents. The bulk of these gasses come from New Zealand’s energy, transport and agricultural sectors.

**What does Greenhouse Gas Equivalent Mean?**

Carbon equivalent reduces GHGs to a consistent numerical value. Conversion is needed because of the varying levels of the different chemicals’ impact on Climate Change and their lifespan, for example, carbon dioxide has an atmospheric lifespan of fifty to two hundred years, while methane exists for only twelve years but has 23 times the impact.\textsuperscript{99}

\textsuperscript{98} Auckland Regional Council (2004, p. 29).

\textsuperscript{99} National Institute of Water and Atmospheric Research (2006).
NIWA estimates that New Zealand produces over 6 million tonnes of CO₂ equivalents each year. This production is increasing. The New Zealand Climate Change Office\textsuperscript{100} estimates that between 1990 and 2003 New Zealand increased its GHG emissions by over 37 percent. Of this, transport accounts for approximately 40 percent of New Zealand’s CO₂ equivalent output, or roughly 15 percent of the total of all greenhouse emitted.\textsuperscript{101} In addition, carbon emissions by transport are increasing at a rate faster than any other source. Figure 3 gives a breakdown of the GHG emissions by source. The two largest sectors are easily energy, particularly transport, and agriculture.

\begin{figure}[h!]
\centering
\includegraphics[width=\textwidth]{Figure2.png}
\caption{New Zealand's Emissions by Gas in 2003}
\end{figure}

\textsuperscript{100} (2006b).

\textsuperscript{101} (Gleisner & Weaver, 2006; Macbeth, 2004).
In 2003, road transport accounted for over 88 percent of the energy sector CO emissions or 75 percent of New Zealand’s total CO only emissions. Similarly, the energy sector was the largest source of NO\textsubscript{x} emissions (96.8 percent) with road transportation emissions comprising 40.9 percent of total NO\textsubscript{x} emissions.\(^\text{102}\) New Zealand is also a high per capita user of oil (Figure 4), well ahead of the OECD average, but behind the USA and Australia.

\(^\text{102}\) Ministry for the Environment (2005a).
When transport is removed from the equation, the level of per capita oil use decreases to well below the OECD average,\textsuperscript{103} which justifies a focus on this area.

**New Zealand’s Commitment Under the Kyoto Protocol**

In 1999, the New Zealand Government signed the Kyoto Protocol, committing New Zealand to reduce its greenhouse gas emissions to below 1990 levels.

Under the Kyoto Protocol, recognition is made of new initiatives that reduce a nation’s GHG output, which is rewarded by an international system of carbon credit exchange. If New Zealand plants new forests after 1990, they act as carbon sinks (storing carbon in trees), reducing New Zealand’s net carbon output. Since 1990, New Zealand has planted new forests which are

\textsuperscript{103} Delbruck (2005).
estimated to have absorbed over 71 million tonnes in the 2008 – 2012 Kyoto commitment period.\textsuperscript{104} The New Zealand Climate Change Office, when taking into account forestation projects, concluded that New Zealand has a net deficit of 36.2 million tonnes of CO\textsubscript{2} equivalent GHGs.\textsuperscript{105}

Attention should be given to energy efficiency, given the recently created New Zealand Transport Strategy which addresses Climate Change. Implicit in the Strategy is the recognition that major investment in the public transport system is needed to make it easy for Aucklanders to use public transport. Therefore this Strategy aims to increase funding for public transport, walking and cycling infrastructure.

A further initiative under consideration is congestion pricing. As the success of schemes in cities like London, Jakarta, or Brisbane has become apparent, such a scheme is recommended.

The figure of 36.2 million tonnes per year suggests that New Zealand is only a moderate net polluter. The reality is quite different. This figure means that New Zealand is only a moderate net emitter under the rules of the Kyoto agreement. New Zealand is still producing between 76 to 117 million tonnes of carbon and equivalents each year. Our real net position is far from moderate. Since 1990, New Zealand has emitted over 400 million tonnes of CO\textsubscript{2} equivalent. This is still problematic as levels of GHG emissions for Kyoto are based on the 1990 level. This level is allowable under Kyoto, but it is still highly unsustainable as the 1990 levels are still far above the ability of the atmosphere to break down. Consequently, any Sustainability related policy would have to aim for a reduction in carbon output that extends well beyond the limited targets set by Kyoto.

The Intergovernmental Panel on Climate Change (IPCC)\textsuperscript{106} estimates that a target of 450 ppm in the Earth’s atmosphere is needed to achieve a break-even point. This means that a reduction of between 90 and 95 percent of present levels is needed to achieve true Sustainability. The

\textsuperscript{104} New Zealand Climate Change Office (2005b).

\textsuperscript{105} The New Zealand Climate Change Office (2005b).

\textsuperscript{106} The Intergovernmental Panel on Climate Change (2001).
agreement in its present form goes nowhere near this level. In order to achieve a sustainable level of carbon output New Zealand would have to reduce its emissions to between 3.8 to 5.85 million tonnes per year, including agriculture.

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**EBS Critical Environmental Issue (b) Biodiversity, including habitat maintenance**

Climate Change is also an issue that relates to biodiversity. As the atmosphere becomes warmer, the ocean’s PH (acidity) level also increases. The impact is that many species are highly sensitive to even slight changes in acidity, for example coral reefs and therefore all of the species that are dependent on them as food sources, many of these species are at the bottom of the food chain and therefore ultimately affect our food sources.

Climate Change is also an issue related to forest cover. Over the last two centuries, New Zealand has reduced its forest cover from 85 to approximately 23 percent. Similarly New Zealand’s fresh water wetlands have been reduced from 670,000 to less than 100,000 hectares.\(^\text{107}\)

Placing a value on biodiversity is complex at both national and regional levels. It is recognized as a matter of national importance because *The New Zealand Biodiversity Strategy* estimates that biological diversity can be considered a major source of economic value, placing its worth at over 50 percent of New Zealand’s GDP.\(^\text{108}\)

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**EBS Critical Environmental Issue (c) Stabilizing and reducing population**

Climate Change is also related to the number of people living in New Zealand. In 2006, Statistics New Zealand estimated the population of New Zealand to be 4,134,200 people. The total

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\(^{107}\) Eley (2003).

population increased by over 40,900 (1 percent) from 2005. This growth was due in the main to natural increase.\textsuperscript{109} Natural increase accounted for 31,200 or 71 percent of this growth leaving 29 percent to net migration.\textsuperscript{110}

Successive New Zealand governments have attempted to boost economic growth by encouraging highly skilled and wealthy immigrants, many of which mainly settle in the Auckland region. Natural increase, particularly within the large Maori and Pacific Island groupings in the Auckland region, has placed pressure on Auckland’s infrastructure, particularly transport networks, sewerage and storm water systems.

Population growth has also placed an unsustainable pressure on Auckland ecosystem. Over the next few decades, Auckland’s population will double to over 2 million people. The bulk of this growth is projected to occur in Rodney, Franklin and Papakura Districts (on average 145 percent). This issue relates directly to Climate Change. As population increases, more Greenhouse gasses will be produced. Therefore population growth and immigration should be curbed to a level that is more sustainable.

\textit{EBS Critical Environmental Issue (d) Social wellbeing (including economic health and eliminating poverty and health related issues)}

This Strategy recognizes that an equitable society does not allow its elderly or young citizens to live in a state of ill health or poor housing and lack of access to other basic amenities. This Statement is mindful that in many Western countries poverty still exists for a great many people. New Zealand in 2000 ranked at the very bottom of the OECD at over 28 percent of children living below the poverty line (Table 3).

Most recently, the New Zealand, the \textit{Social Report 2005}\textsuperscript{111} shows that, between 2001 and 2004, the rate of children living in poverty has fallen from 27 to 21 percent. This still places New Zealand

\textsuperscript{109} Defined as the difference between births and deaths.

\textsuperscript{110} Statistics New Zealand (2006e).

\textsuperscript{111} Ministry of Social Development (2006).
almost at the bottom of OECD rankings. The recent Working For Families (WFF) Package announced by central government in 2005 gives greater financial support for working families with children. This includes improved affordable housing policies, supplementing childcare and early childhood education. The WFF package also includes an in-work benefit of 60 dollars per week for one, two or three children families. However, these supplements apply only to the those already in employment and not to those on the social welfare. This grouping has the highest proportion of people living in poverty. Eliminating the conditions that lead to social or economic deprivation is therefore a central goal of this strategy.

<table>
<thead>
<tr>
<th>Table 3: Child Poverty Rates in Selected OECD Countries</th>
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<tbody>
<tr>
<td>Denmark</td>
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<tr>
<td>Finland</td>
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<td>Norway</td>
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<td>Sweden</td>
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<td>Switzerland</td>
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<td>France</td>
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<td>Netherlands</td>
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<td>Germany</td>
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<tr>
<td>UK</td>
</tr>
<tr>
<td>New Zealand</td>
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<tr>
<td>USA</td>
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</tbody>
</table>

Source: (Mishel, Bernstein, & Allegretto, 2006, p. 29)

Critical Environmental Issue (e) Eliminating persistent chemicals

This issue is not directly related to Climate Change, and therefore is not included in this chapter.

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112 Families with 4 or more children receive $15 extra per child (Inland Revenue, 2006).
**EBS Critical Environmental Issue (f) Consumption and disposal of resources**

This issue is related to Climate Change, as landfills are responsible for the introduction of GHGs (mainly methane). In addition, the transportation of solid waste to landfills is not inconsiderable.

In New Zealand, the most common method of disposing of solid waste is landfilling. Nationally the amount of solid waste continues to increase and numerous impacts may be attributed to solid waste. A critical issue to be addressed is that approximately a quarter of waste is organic, which when landfilled, releases methane into the atmosphere causing Climate Change. Methane from landfills accounts for approximately 5 percent of New Zealand’s greenhouse gas emissions. In addition, landfills generate leachate which consists of heavy metals and other composting organic wastes, which eventually find their way into the water system.

As Auckland continues to produce unsustainable levels of solid waste, attention needs to be paid to this area, particularly in the production process. Examples of potential initiatives include the Global Reporting Initiative, which requires companies to publicize their accounts of their economic social and environmental performance in relation to its operations, on the same basis as financial reporting. To date over 1,000 companies worldwide use this format. This Strategy will seek to encourage companies to take up this form of accounting.

A further approach is the Material Flow Analysis, which involves taking a detailed measurement of a product from the extraction of raw materials, throughout their use and eventual disposal. The New Zealand government has awarded two million (NZ) dollars to the Zero Waste New Zealand Trust for waste minimization initiatives, helping half of New Zealand’s local authorities to develop zero waste strategies. This Strategy is intended to encourage the adoption of these types of initiatives. In this case, a range of initiatives need to be created to address this issue. This centers on recognizing limits to growth by aiming at zero or close to zero solid waste disposal.

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113 Statistics New Zealand (2006f).

114 Ministry for the Environment (2002b).

**EBS Application of Stage (4) Outline of Process and Stage (5) Timeframe**

The following Table 4 gives a timeframe for the application of SSD. It is envisaged that this will vary depending on the level of resources and targets created and level of public support. Overall, SSD creation process is intended to be carried out over a period of three years.\(^{116}\) Each number in column 1 corresponds to aspects 1 – 16 of the SSD model.

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### Table 4: SSD Timeframe

<table>
<thead>
<tr>
<th>Aspects 1 - 15</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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</thead>
<tbody>
<tr>
<td>Aspect 1 Trigger SEA Process. Write EBS using SS criteria for PPPs</td>
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</table>

\(^{116}\) The 3-year timeframe is based on the time it took the ARGS to be created. This table covers the SSD creation process, not the timetable for implementation.
In the case of applying this model to the Auckland region, a 10-year iteration timeframe would be an appropriate cycle. 10-year iterations encourage authorities to plan in the long term, and be less subject to the ebb and flow of election cycles with their changing policy priorities. Authorities in New Zealand are also used to this timeframe because of the requirement for policy and plan review under the Resource Management Act.

This concludes the Environmental Briefing Statement (Aspect1). The Chapter now turns to Aspects 2 – 16 of the SSD model.

**Aspect 2: Define Strong Sustainability Model**

Sustainable Development has come to mean many things to many people. For the purposes of creating a beginning point for this Strategy, two definitions of Sustainability, may be observed:

...a pattern of social and structural economic transformations (i.e., ‘development’) which optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in future. A primary goal of sustainable development is to achieve a reasonable (however defined) and equitably distributed level of economic well-being that can be perpetuated continually for many human generations.\(^{117}\)

A second definition is given by Pearce who argues for:

development subject to a set of constraints which set resource harvest rates at levels no higher than managed or natural regeneration rates; and (b) use of the environment as a ‘waste sink’ on the basis that waste disposal rates should not exceed rates of (natural or managed) assimilation by the counterpart ecosystem.\(^{118}\)

The New Zealand Parliamentary Commissioner for the Environment provides guidance on advocating and defining a SS model in the New Zealand national strategy for achieving Sustainable Development (Parliamentary Commissioner for the Environment, 2002). It should be noted by this section that the model adopted is positioned on a continuum of SD (Sustainable

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\(^{117}\) Goodland and Ledec (1987, p. 36).

\(^{118}\) Pearce (1988, p. 58).
Development) principles as we move from Weak to SS. This section should also describe the various models available to planners, and why they were rejected or retained.

A further definition is that "all economic growth in the future must be sustainable: that is to say, it must operate within and not beyond the finite limits of the planet"\textsuperscript{119}

In this statement, SS is understood to mean the following four principles:

1. Waste output = sink capacity in all areas of human activity\textsuperscript{120}

2. The elimination of poverty (relative or absolute) through wealth redistribution (trans-national and intra-generational)\textsuperscript{121}

3. Non-renewable resource depletion = the rate of development of renewable substitutes\textsuperscript{122}

4. Economic growth that conforms to principles 1 – 3

These principles are applied in the following sections.

**Aspect 3: Baseline Level of Internalization of Environmental Externalities and Recommended Actions**

As discussed in Chapter V, the potential for significant behavior change can be brought about by price incentives. This section examines the application of eco-taxation to the EBS Critical Environmental Issues a - f.

\textsuperscript{119} Porrit (1984, p. 120).

\textsuperscript{120} Daly (1999).

\textsuperscript{121} Schnaiberg (1994).

\textsuperscript{122} Daly (1999).
While eco-taxation is advocated by the SS model, their application risks violating the principle given in Chapter V of intra-generational equity. The application of new forms of taxation risk impacting disproportionately low socio-economic groups. For example, applying taxes to energy production will raise its cost, potentially leaving consumers with few alternative options. Consequently, when applying eco-taxes, the distributional impacts of these policies must be examined with a socio / economic impact assessment process (Taylor, Bryan, & Goodrich, 2004). Should any impacts be discovered, this process should be accompanied by a feedback loop aimed at creating further policies aimed at mitigating these impacts.

(a) Biodiversity

Biodiversity is declining in New Zealand as a result of invasive species, the influence of Climate Change and forestry conversion. New Zealand’s pristine forests are highly valued, yet the notion of pristine is largely a myth, as Pre-European contact Maori and later arrivals to New Zealand converted much of our forest into farmland. The widespread adoption of agricultural processes has significantly reduced species’ habitat, reducing New Zealand’s unique bio-heritage.

The term biodiversity encompasses a range of animal and plant species, both on land and in water. The marine environment is overseen by several different agencies, these include local and central government, the Ministry of Fisheries oversees aspects of marine bio-security, the Department of Conservation (DoC) is responsible for protecting endangered species and areas. Together with DoC, Regional Councils also manage coastal areas, as required by the RMA. This also includes shipping discharges with territorial waters. The New Zealand Government is also required to produce a Coastal National Policy Statement.

As a signatory to the Convention on Biological Diversity, New Zealand has agreed to use market incentives to improve its biodiversity practices in relation to Sustainability goals. In broad terms there are three main drivers for loss of biological diversity, these are – (1) the introduction of non-native species (predation and competition), (2) over fishing and (3) loss of habitat. A further issue relates to the economic development of Auckland and its growing population. Because of higher standards of wealth and a growing population, as well as an international demand for housing, more affluent and mobile members of society inhabit sub-urban houses and second holiday
homes where they live and recreate.\textsuperscript{123} This demand for land is stressing habitats and contributing to species loss.

In the Auckland region, much of its habitat has already been so affected by development that the damage has already been done. What does remain of the region’s forests has been protected by legislation which created land and marine reserves and parks. For these areas, the issue becomes less of altering human behavior and more on capacity building for controlling alien species, pest eradication, protecting declining species and breeding programs, as well as creating further resources. The one exception to the use of eco-taxation is on agricultural land use. While the New Zealand Biodiversity strategy is calling for farmers to focus on biodiversity by improving water quality through the fencing of water channels and rivers. The practice of fencing rivers could be incentivized through a levy system where farmers are given a choice to either pay a charge aimed at financing water quality initiatives or exempt themselves by conforming to environmental rules. This is an example of what Amory Lovins calls a ‘fee-bate’\textsuperscript{124} which involves applying a financial penalty for undesirable activities and giving a financial reward for a desired activity, usually funded by revenues gained from the penalties.

Eco-taxation can also link biodiversity to Climate Change. Global warming has raised the temperature of the sea as well as causing ecosystemic disruption on land via storms and changing weather patterns. This weather disruption is in turn linked to global biodiversity loss (World Conservation, 1999) via changing habitats. As McGlone (2001) notes:

There is a strong possibility that the climate of New Zealand will change substantially over the next 100 years, and this will inevitably affect indigenous biodiversity and ecosystem functioning through the direct effect of atmospheric carbon dioxide concentration, warming, precipitation changes and alteration of the frequency and severity of extreme event (p. 5).

In relation to Climate Change, the Stern Review (2006) had this to say on the subject:

Ecosystems will be particularly vulnerable to Climate Change, with one study estimating that around 15 – 40% of species face extinction with 2°C of warming. Strong drying over the Amazon, as predicted by some climate models, would result in dieback of the forest with the highest biodiversity

\textsuperscript{123} TerraNature (2006).

\textsuperscript{124} Hawken, Lovins, and Lovins (1999).
on the planet (p. 56).

**Recommendations**

- Increase fuel taxes to incentivize public transport use
- Levy the agriculture industry to incentivize clean farming practices

This is a limited example of eco-taxation and underlines the need for these types of initiatives to be viewed as none apparatus in a toolbox of instruments.

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Even if the polluter pays principle could be internalized fully, the problem of free riding remains. If environmental costs are internalized, countries and companies should bear these costs evenly. This points toward the necessity of international environmental standards. One only needs to look to the implementation of the Kyoto Protocols; with nations such as Australia and New Zealand and business communities suggesting that non-Kyoto communities will have an unfair economic advantage. Consequently, any national-level environmental planning must be seen in the context of internationally negotiated structures as it is the international context that many companies operate.

**An alternative Approach to Business as Usual**

Environmental taxation would need to be applied at the national level to be effective in most cases. Climate Change is ripe for the imposition of such measures. These costs are intended to be fiscally neutral in relation to total individual tax paid. The following eco-taxes are recommended:

- Introduction of graduated tax on vehicle ownership based on engine rating, linked to subsidizing public transport
- Annual road-user charge linked to subsidizing public transport
• Introduction of full-cost GHG emission charges on agriculture
• Full cost emissions charging on aviation fuel
• Full cost emissions charging on un-sustainable power stations e.g. Huntly power station
• Full cost of disposal of products imposed on producers
• Full cost of health impacts due to air quality emissions, as part of environmental tax

Tighter controls on vehicles would have a number of positive spinoff effects. The reduction in vehicles could be accompanied by higher standards of vehicle age, maintenance, fuel efficiency and insurance requirements. By restricting the importation to new or near new vehicles, when combined with higher fuel efficiency standards, the overall fuel fleet efficiency would improve. This by itself would lead to less GHG emissions, and the lower number of vehicles would lead to lower levels of other types of air and water emissions. Lower air emissions would lead to lower air pollution related deaths. In addition, newer cars would lead to improved safety standards, as newer cars are more likely to have the latest safety features. The reduction in the number of cars would also ease the pressure on councils to build new roads allowing them to focus on improving public transport.

A New National Approach to Reducing Congestion

The new national approach to reducing congestion will use a Vehicle Quota system. In this system, a set number of vehicles will be allowed to be imported into the country. The price is then determined via a market mechanism where publics may purchase a Certificate of Entitlement which is openly contested through a bidding system and price is set by demand. Demand is very high in comparison to supply and so vehicle prices will become highly inflated, putting them outside of the purchasing range of many New Zealanders. Importing a car into New Zealand will incur a tax of 40 percent, an annual registration fee of 1,000 dollars for private vehicles and 5,000 for company-owned vehicles. In addition, when a car is registered for the first time (new or used) it incurs a once-off registration fee of 150 percent of total cost.
For Auckland (and other main centers), the policy includes restricting private vehicle use in the city center and a 40 percent tax on fuel applies. These strategies, when combined with the introduction of user charges for peak hours via electronic means, will substantially internalize environmental costs and services. The result will be significantly reduced air and water pollution, major reductions in congestion and a massive uptake of public transport. Public transport quality will be improved because they are supported by the road user charges.

(c) Stabilizing and reducing population

Population growth underpins all aspects of Sustainable Development. While much of New Zealand is open space, it still boasts a population that has exceeded nature’s ability to support it in a sustainable manner. As Auckland is the focal point for population growth, it makes sense to consider the positives of limiting population.

Recommendations

- An international population treaty is established requiring countries to define and meet a sustainable population level and agree to measures enforcing zero population growth
- A system of financial disincentives to procreate in the form of higher taxes be established
- Excluding refugees, reduce immigration inflows to a zero net gain

At present, there are major legal and political obstacles to population control, particularly in Western countries that strongly guarantee individual, constitutional or legal rights. In addition, the social and religious opposition to abortion or population control would cause widespread resistance and social unrest. Similarly, tax revolts could occur, causing further opposition and violence. In order to be put in place reforms of this nature would require an emotional buy-in by individual citizens, suggesting a major overhaul of both social goals relating to personal wealth
and the role of social welfare i.e. changing from the present antagonism by the free market, to being viewed as a critical component of social life.

From the perspective of local councils, population growth is in many ways viewed as both a problem and a solution for Auckland’s woes. On the one hand, it is problematic for sprawl and congestion and other associated problems, on the other, the benefits to councils in terms of revenue streams is an enticing outcome for political leaders. While population growth therefore is mostly viewed as a positive factor in the sense that higher population growth will lead to a higher taxation base and therefore greater revenue and status for governments, which in turn will enable them to expand infrastructure, council related projects and the economy, there are negative consequences related to the difficulty of funding essential social services (e.g. care for the elderly).

The application of extrinsic costs to population control comes in the form of Lovins’ Fee-bate system and Daly’s (1991) notion of the Steady State (see Chapter V, The Strong Sustainability (SS) Perspective, p. 185). The Auckland regional level by itself would be the least effective level of application, as people would simply move to another region to have children. Similarly, at the national level, those who could afford to travel internationally to have children would do so. Therefore, an internationalized system of birth rights will need to be established. This would need to be based on a quota system in the form of privatized procreation rights. This could come in the form of financial disincentives to procreate beyond the recommended level (most likely something similar to the Chinese one-child system). Parents could be fined for having extra children and be placed in a higher tax bracket until the child reaches adulthood. Alternatively, a taxation system could be created that incentivizes non-reproduction.

A related issue is immigration. As noted above, New Zealand has benefited from the migration of people from other countries coming here to live. While there are many benefits from this migration, such as higher economic growth, investment, skills, capital, larger local market as well as the moral duty to accept refugees, immigration has the down side of increasing the population of New Zealand and placing pressure on infrastructure. These could be alleviated with stringent immigration policies.

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125 Schnaiberg and Gould (1994).
(d) Social Wellbeing

The creation of social equality again requires national-level and international-level attention. In this section, the aim is to reduce disparities, which is linked to the consumption of non-renewables.

Internalizing environmental costs by raising taxes to a high level will create a less unjust society and one which consumes less. Essentially a wealth tax will impede the more extreme wealth ratios and allow governments the funding to carry out programs aimed at alleviating social ills.

Social wellbeing also has a spatial dimension. Auckland is a heavily car-reliant city. The impact of this can be seen not just in terms of polluting our oceans and skies, but also in terms of its impacts on our communities. A range of social impacts occur:

- Social severance, where reliance on the private vehicle reduces the potential for social interaction. For example, this may occur when a large road severs a community. Research suggests this affects the elderly, young children and the disabled.\(^\text{126}\)

- The issue of reliance on roading is that it drives demand for more roads by creating more traffic demand; the social dimension is that demand for more roads creates pressure for more land leading to more urban sprawl. Auckland is a good exemplar of this process, where roads now account for between 25 and 30 percent of land.\(^\text{127}\)

- Over-reliance on private vehicles exacerbate social inequalities in the form of greater social isolation. Social isolation leads to worse health and weaker social ties, particularly for ethnic groupings.\(^\text{128}\)

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\(^{126}\) Kjellstrom and Hill (2002).

\(^{127}\) Cayford (2005).

• Reliance on cars also feeds into social isolation by undermining public transport. The second generation ARGS recognizes that it remains difficult for people to navigate around Auckland, as it is a predominately car-based transportation system. Approximately 11 percent of households do not own a car,\(^{129}\) making it difficult for these groups to get access to the services they need.

**Recommendations**

- Increase the level of graduated tax to match Scandinavian levels
- Significantly higher spending on social programs (such as mental health), aimed at alleviating poverty and increasing education levels

(e) **Eliminating persistent chemicals**

Chemical pollution is a critical area that needs addressing, perhaps less so in New Zealand, but certainly in many other countries with lower environmental standards. A recent report published in *The Lancet* in 2006, suggests that over a quarter of all children in Britain suffer from various forms of developmental disability, for example, autism, cerebral palsy or attention deficit disorder. From their research in the United States, Grandjean and Perez (2006) suggest that while the effects of pollutants such as lead and mercury have long been known, there are over 200 chemicals that have the capacity to cause brain damage. The impacts of these chemicals at present levels are unknown. However, this issue, due to space considerations will not be addressed in this Chapter.

\(^{129}\) Kjellstrom and Hill (2002).
(f) Consumption and disposal of resources

Aucklanders are creating far too much solid waste. Few people relish the thought of landfills yet we are creating more and more rubbish. One way of reducing the amount of rubbish produced is to make people realize the true cost of its production and disposal, which would encourage people to be more responsible with what they throw away and how companies produce goods.

The internalization of costs is an area that can be applied to waste creation and disposal. Although this application would need to be mandated at the national level, the cost of packaging disposal could be included in the price. Auckland manufacturing companies could be required to take home any products and pay for their disposal thus giving an incentive to reduce the overall amount of packaging and resource use of their products. Eco-taxes may be applied to the production process to eliminate unsustainable energy production i.e. oil-based production. By taxing oil at its base i.e. at the point of purchase (or even earlier), this will tax non-transport related users of oil.

This applies especially to plastics and synthetic fiber products and paint.\textsuperscript{130} Attaching more realistic costs to packaging would encourage the development of alternative products and processes, for example bio-fuels and coconut oil-based products. Similarly, the total cost of solid waste disposal should be internalized and charged to companies who generate waste. This could be operationalized by developing strategies which encourage the analysis of material throughput. Some of these processes are summarized in Table 5.

\textsuperscript{130} Douthwaitte (1996).
Table 5: Material Throughput Analyses

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dematerialization</td>
<td>Absolute or relative reductions in the use of nature (material and energy) per unit of output</td>
</tr>
<tr>
<td>Factor 4</td>
<td>This is an objective whereby the input of natural resources, raw materials and energy in each unit or production is to be reduced to one quarter of its current level in the long term, over the next 20 to 30 years</td>
</tr>
<tr>
<td>Factor 10</td>
<td>This is an objective whereby the input of natural resources, raw materials and energy in each unit or production is to be reduced to one tenth of its current level in the long term, over the next 20 to 30 years</td>
</tr>
<tr>
<td>Total Material Requirement</td>
<td>This indicator is used to describe, in terms of total tonnage, not only the amount of natural resources contained in the commodities produced by the economy, but also the hidden flows which remain outside of the economy including wood materials which are not used in logging (branches, needles, leaves and roots), earth and stone which is excavated in mining and quarrying along with usable ore and minerals, earthworks necessary in the construction of infrastructure systems (roads and communities) and erosion resulting from human activities (including intensive agriculture). The indicator may be used to assess the economic efficiency of a national economy and realization of the factor objectives</td>
</tr>
<tr>
<td>Direct material input (DMI)</td>
<td>The flow of natural resource commodities that enter the industrial economy for further processing. DMI is calculated as Total Material Requirement (TMR) less the domestic and imported hidden flows (ecological rucksacks)</td>
</tr>
</tbody>
</table>

Source: (Schutz & Welfens, 2000, pp. 10 – 12)

Recommendations

- Charge companies the total cost of solid waste disposal as a separate charge
- Require companies to carry out material flow analysis
- Charge for the use of oil-based products
- Require companies to take back product packaging

Aspect 4. Defining Ecological Limits
As established in Chapter II, the first generation ARGS is embedded within a Weak model of Sustainability. The conclusion of Chapter II was that this model fails to adequately capture the essence of what Sustainability actually entails. The core characteristic of the WS model is that it uses market mechanisms or price signaling to achieve its ends, but disavows the notion of limits to growth. This model is partially used as a basis for the first generation ARGS to determine its desired outcomes and objectives. Few would argue that the “critical” ARGS objectives such as transport efficiency, water and air quality and the sustainable use of land, energy and infrastructural resources (Regional Growth Forum, 1999b, p. 21), are not desirable, yet they are only weakly linked to SD related outcomes.

In contrast to Weak Sustainability, the SS model used in this second generation ARGS recognizes the limitations of the surrounding ecosystem as expressed in the limits to growth section in Chapter V. For example, in the case of Climate Change, SS points to the definable ability of the biosphere to absorb greenhouse gasses. The Intergovernmental Panel on Climate Change has concluded that the world must reduce its GHG emissions by between 90 and 95 percent (in 2001) to achieve sustainability.

In Climate Change terms, it is inappropriate to use WS as the basis of a second generation ARGS. The argument goes that, as oil becomes scarcer, and the price for oil-based products may increase (affecting the costs of all energy sources), which in turn stimulates investment into alternative energy sources and cleaner technologies, SD will occur as a result. However, as Jaeger (2004) argues, there are enough fossil fuels in the form of oil, coal, shale and gas to enable us to increase production of GHGs at a rate of 3 percent per year for the next two centuries, which is what is occurring in countries such as China and India. In this way the WS perspective will be unable to respond to the challenges of Climate Change by simply relying on market signals alone.
The approach used in the second generation ARGs accepts that it may be appropriate to construct policy on Climate Change and limiting population growth that is compatible with both the Weak Sustainability and Strong Sustainability models. It is possible for the two models to recognize the validity of the other. It is clear that the limits to growth in terms of GHG carrying capacity have been exceeded, as evidenced by global warming. It is also clear that the Kyoto protocol will not achieve Sustainability (in terms of GHG emissions) as it currently stands. What is needed is a model that is able to recognize both the limits to growth and be able to still maintain the market’s ability to grow.

A further problem with WS in relation to Climate Change, is that price signals in their present form are unable to translate into an effective policy at a fast enough pace to match the required level of action needed to avert further damage. Although the price of oil has consistently trended upwards, this has had little impact on distances traveled, the overall number of vehicles owned, and therefore the aggregate level of higher GHG output. Therefore, what is needed is a system of stronger market signals that recognize a defined amount of GHG emission and price polluting activities accordingly, as the SSD model does.

As shown in Chapter V, SS solutions need not be too economically detrimental and therefore have the potential to be politically acceptable, as SS policies should not be perceived as equating to a lower standard of living. In this second generation ARGs, it is argued therefore that an alternative can be attained that achieves the objectives of both positions without compromise. Therefore this process envisages a market-based solution that recognizes aggregate limits to growth in terms of GHG emission, but allows the market to develop in alternative directions, that are more environmentally optimal.
Climate Change

This Strategy is premised on the idea that in order to meet Kyoto, New Zealand’s emissions for the first commitment period (2008-2012) must be less than 308 million tonnes of carbon dioxide equivalents.

Climate Change in Auckland is fueled by a number of factors which include:

- Levels of wealth and consumption
- The political climate
- Vehicle ownership and efficiency rates
- The overall size of the population.

As per capita wealth improves, vehicle ownership rates tend to rise, leading to more GHG emissions. Population therefore is a key dimension of Climate Change. While the assumption of 60 percent population increase in the Auckland region resulting from natural increase is retained from the previous ARGs, the balance of 40 percent from migration is questioned. This means it is assumed that policy will be developed that reduces immigration levels affecting Auckland.

While this issue is difficult to address at the local level, initiatives aimed at reducing population could include tax incentives for single-child families and tax disincentives for families of more than one child. This could be accompanied by anti-birth advertising as well as improvements in such things as sex education to reduce rates of teenage pregnancy, in conjunction with fully subsidized contraception and abortion.

Recommendations

Within the arguments for not limiting growth, there are some candidate non-spatial policy areas. These form part of the ARGs’s outcomes, and it is assumed in the spatial policy that they have been given effect. These are:

- Provide central government funding or non-rating property tax alternatives to offset the net
economic losses experienced by local government from limiting growth. (Net is used here because the absence of some growth means costs will not be incurred and property tax will not be needed.)

- Central government to adopt an approach to reducing car ownership as a way to reduce congestion.

**Policy to Reduce Vehicle Numbers and Congestion**

There are several matters that are addressed in this proposal. For example, this policy is responding to the estimate that approximately one third of New Zealand’s socio-economic differences in mortality rates are due to deaths from motor vehicle injuries. In New Zealand (and for Auckland) there is higher pedestrian exposure to road traffic among those in lower socio-economic circumstances, due largely to lower rates of car ownership. For instance, children aged 5 to 9 years in the lowest household income bracket cross 50 percent more roads on their way to school than those in middle and higher income brackets. The higher exposure levels are thought to partially explain the increased injury rates of children in lower socio economic groups. There is also evidence for ethnic disparities in injury rates. In New Zealand, for instance, the hospitalization rate from road traffic injury for Māori children is three times that of non-Māori children.\(^\text{131}\)

Similarly there is a connection between car dependency and housing. Housing is also an important factor in the well-being of individuals and families. High housing costs relative to income are often associated with severe financial difficulty, especially among low income households, and can leave such households with insufficient income to meet other basic needs such as food, clothing and transport. Low cost transport therefore needs to be available to low SES (Socio-Economic Status) groups in order to participate in society.

It is also recognized that this part of the Strategy would have a significant impact on the lives of New Zealanders. The issue of Climate Change, transport and land use is multi-dimensional and needs to be addressed from a range of institutional jurisdictions. Government interests include the Ministry of Health, Transit NZ, Ministry of Justice, Ministry of Housing, Ministry of Transport,

\(^{131}\) Public Health Advisory Committee (2003).
Ministry of Economic Development, the Ministry of Social Policy, and Te Puni Kokiri. These Ministries will need to work collectively to address this issue in conjunction with Local Government and affected industry groups. In particular, they need to address the reality that there is a range of positive and negative impacts of reducing the number of vehicles on New Zealand’s roads.

Cutting the number of vehicles on the roads would augment the usage of passenger transport systems. There are a number of consequential impacts that need to be considered in the preparation of this policy. For example, currently approximately 30 percent of people do not have access to private vehicle use. As the population grows older, this figure is likely to increase. The assumed national policy changes on vehicle quotas will also change this situation.

This Strategy recommends a reduction in the number of vehicles, through a system of vehicle quotas. It recognizes that this quota would need to be enacted at the national government level. In addition, an increase in the fuel and engine efficiency of existing vehicles is needed to augment this system.

**Policy on Car-Dependent Cities:** this policy addresses the question of how do we address the problems arising from inheriting a car dependent city. A car dependent city generates social exclusion – to be poor and car-less is to face reduced access to employment, entertainment and social opportunities. This policy recognizes, therefore, that urban transport is not just about physical mobility; it is an important aspect of social policy.

This PPP is intended to produce the following Desired Regional Outcomes:

- Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations
- An efficient and reliable, rail-based goods transport system
- A switch to a reliance on public or alternative transport as the main mode of individual travel
- Equal ability to access public transport and alternative modes of transport

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Possible Responses by Desired Regional Outcomes

(1) Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations

Candidate Policy responses include:

- Vehicle emissions testing and compulsory tuning
- Requirement to tune vehicles every six months
- A graduated system of vehicle registration charges relating to engine size or fuel efficiency
- Emissions testing for industries – establishing maximum pollution levels
- Establish industrial polluting rights system
- Requiring cleaner burning fires or switching to electricity
- Requirement for P.V. electricity generation for new houses and buildings and inducements to get existing ones installed

(2) An efficient and reliable, rail-based goods transport system

Candidate Policy responses include:

- Reduce competition between alternative transport modes and private vehicle use
- Freeze new road construction
- Road charging to reflect ‘real’ cost of motoring
- Develop greater trans-regional integration
(3) A switch to a reliance on public or alternative transport as the main mode of individual travel

Candidate Policy responses include:

- Introduce vehicle charging system for central Auckland
- Cap resources directed at new roading projects
- Increase subsidization of non-economic bus routes
- Increase rail capacity
- Increase spending on bus priority lanes
- Increase spending on encouraging alternative transport systems such as high quality cycle lanes

(4) Equal ability to access public transport and alternative modes of transport

Candidate Policy responses include:

- Increase subsidization of non-economic bus routes
- Increase bus and rail capacity
- Increase spending on bus priority lanes
- Integrated cross-modal ticketing system

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The Surface Transport Costs and Charges report (Booz Allen Hamilton, Institute for Transport Studies, & University of Leeds, 2005), shows that land transport, particularly cars and trucks, impose significant costs on the environment and society, such as air pollution, Climate Change, and noise pollution. The study found that the true costs to society of road and rail transport are more than $1 billion higher than the amount of money the Government collects from road users, in the form of petrol tax, road user charges, motor vehicle fees and other fees. While this is a national level study, much of this spending is at a regional level. Only a minority of this funding goes on transport alternatives. Disproportionate investment in roading impacts on future generations through continued commitment to GHG emitting transport. Consequently, it is recommended that alternative transport receive a similar level of subsidization.
Aspect 5. Key Unsustainable Sectors and Links Between Them

This Strategy recognizes the importance of institutions cooperating in order to accomplish goals that they would be unable to achieve individually. In many respects, this Strategy is aimed at transportation policy. Within this sector, the key actors are territorial authorities, Transfund and Transit New Zealand. The goal of this stage of developing a new strategy is to align the policy outcomes of all of these actors with a strong focus on Sustainability.

Road Transport

The second generation ARGs recognizes that operating within the Auckland region is Transit New Zealand (Transit) which is the Crown Entity responsible for building and maintaining New Zealand’s state highway system. Transit is responsible for 12 percent of all of New Zealand’s roads, approximately 11,000 kilometers in length, with an annual budget of over one billion (NZ) dollars. Transit is responsible for the State Highway system in the Auckland Region, which includes the Auckland motorway and arterial system.

It is important for this hypothetical Strategy to recognize the role of Transit because one of its key purposes is “coordinating land-use planning and transport planning to achieve integrated and sustainable transport solutions.”

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134 Transit New Zealand (2005).
In addition, Transit NZ is “fully involved at the beginning of local authority planning processes and individual development proposals to promote integrated land use and transport solutions.”

Transit also works with the Road Controlling Authorities (RCA) forum, a forum convened jointly by Transit and Local Government New Zealand. This group is set up to share knowledge and to facilitate joint progress on roading related issues nationwide.

The second generation ARGs also takes into account Transit’s 500 million dollar plan to upgrade State Highway 1 south of the Auckland Regional boundary, by upgrading the present arterial route with a continuous four lane motorway. This will bypass Ohinewai, Huntly, Taupiri, Ngaruawahia, Hamilton City and Cambridge. Transit NZ has promoted the project for a number of benefits including, reducing the number of fatalities and crashes, reduce travel time and congestion. This Strategy accepts that this will reduce congestion and time taken to drive to any of the destinations between Mercer, Cambridge and Hamilton.

This second generation ARGs also addresses the completion of Auckland’s motorway system. The completion of Auckland’s motorway system is a key plank in the first generation ARGs but it requires a modification to its own goals. The modification of goals will involve restructuring public transportation in such a way that it more effectively competes with the motor vehicle to reduce traffic use and congestion.

**Recommendation**

The issues addressed here highlights the need for a national-level transport policy assessment system linked to regional development projects, with the much stronger SSD model used as a basis for creating policy. These types of processes are needed to form a cornerstone for the tiering of policy. This ARGs assumes that strong, sustainable linkages will be made between local projects which are in turn clearly articulated in national-level policy.

Consequently this second generation ARGs makes provision for the extension of Auckland’s rail-based public transport system to be extended into the Waikato region as far as Hamilton. This is

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136 ibid.
subject to cross-regional agreements between the Auckland and Waikato Regional Councils.

**Aspect 6: Candidate Policies and Possible Impacts**

Aspect 6 of the SSD model evaluates candidate plans according to the SS System Conditions. It is assumed that policies, plans and programs will be developed from the Critical Environmental Issues identified in the Environmental Briefing Statement (Table 1).

**Aspect 7: Begin Institutional Review Process**

This phase consists of stages 7 to 10. Its purpose is to build on the preliminary plan creation process and subject them to a greater level of analysis. It looks to the institutional context of the proposed PPPs.

**Aspect 8: Synergies Between Other PPPs**

The development of a truly sustainable Auckland will require the linkages between related PPPs and the proposed second generation growth strategy. This is needed in order to align public policy instruments as these often determine organizational structure and their operational direction. An example of the type of content that could apply to the ARGS follows.

The bulk of air pollution is caused by inefficient fuel combustion and domestic fires. As heavy metals settle from the air, they eventually make their way into the eco-system. Drainage from city roads always contains contaminants including a range of petrochemicals and heavy metals.
The issue of air quality is multi-dimensional and requires attention from a range of institutional jurisdictions. Government interests include the Ministry of Health, local and central government, Transit, Ministry of Justice, Ministry of Housing, transport and other industries and the ministry of Social Welfare.

These chemicals are harmful to invertebrates such as snails or crayfish, especially if the runoff enters small streams with little dilution. Auckland’s harbors and waterways show a steady increase in the level of heavy metal contamination (lead, zinc and copper) and hydrocarbons (polycyclic aromatic hydrocarbons in particular) mainly attributable to motor vehicle emissions transported into the harbor via air and stormwater.

The benefit of focusing on synergies between plans may be seen in how vehicle dependence is linked to social factors. A candidate plan relates to the recommendation to reduce the number of vehicles in through a system of vehicle quota. This quota would need to be enacted at the national government level. In addition, an increase in the fuel and engine efficiency of existing vehicles is needed to augment this system. Cutting the number of vehicles on the roads would augment the usage of passenger transport. Urban transport is not just about physical mobility; it is an important aspect of social policy. A car dependent city generates social exclusion – to be poor and car-less is to face reduced access to employment, entertainment and social opportunities. Therefore reducing vehicle dependence would reduce these impacts.

Housing is an important factor in the well-being of individuals and families. High housing costs relative to income are often associated with severe financial difficulty, especially among low income households, and can leave such households with insufficient income to meet other basic needs such as food, clothing and transport. Low cost transport therefore needs to be available to low SES groups in order to enable them to participate in society.

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137 Waitakere City Council (2003).

138 Organic compounds containing only hydrogen and carbon atoms.

139 Kjellstrom and Hill (2002).
This aspect could produce the following desired regional outcomes:

(1) *No deaths caused by vehicle emissions*

**Possible Responses by local or central governments**

- Vehicle emissions testing and compulsory tuning
- Requirement to tune vehicles every six months
- A graduated system of vehicle registration charges relating to engine size or fuel efficiency
- Emissions testing for industries – establishing maximum pollution levels
- Establish industrial polluting rights system
- Requiring cleaner burning fires or switching to electricity
- Requirement for P.V. electricity generation for new houses and buildings and inducements to get existing ones installed

(2) *An efficient and reliable, rail-based goods transport system*

**Possible Responses by local or central governments**

- Reduce competition between alternative transport modes and private vehicle use
- Freeze new road construction
- Road charging to reflect ‘real’ cost of motoring
- Develop greater trans-regional integration
(3) A switch to a reliance on public or alternative transport as the main mode of individual travel

Possible Responses by local or central governments

- Introduce vehicle charging system for central Auckland
- Cap resources directed at new roading projects
- Increase subsidization of non-economic bus routes
- Increase rail capacity
- Increase spending on bus priority lanes
- Increase spending on encouraging alternative transport systems such as high quality cycle lanes

(4) Equal ability to access public transport and alternative modes of transport

The Surface Transport Costs and Charges Report\textsuperscript{[40]} shows that land transport, particularly cars and trucks, impose significant costs on the environment and society, such as air pollution, Climate Change, and noise pollution.

The report found that the true costs to New Zealand of road and rail transport are more than $1 billion higher than the amount of money the Government collects from road users, in the form of petrol tax, road user charges, motor vehicle fees and other fees. While this is a national level study, much of this spending is at a regional level. Only a minority of this funding goes on transport alternatives. Disproportionate investment in roading impacts on future generations through continued commitment to GHG emitting transport. Consequently, it is recommended that

\textsuperscript{40} Booz Allen Hamilton, Institute for Transport Studies, and University of Leeds (2005).
alternative transport receive a similar level of subsidization.

Possible Responses by local or central governments

- Increase subsidization of non-economic bus routes
- Increase bus and rail capacity
- Increase spending on bus priority lanes
- Integrated cross-modal ticketing system
- Increase spending on encouraging alternative transport systems such as high quality cycle lanes

Aspect 9: Indicators and Targets For PPPs

Similar to a vehicle warning dial, an indicator is a simple representation of a complex system. In this case, the complex system is the environment and social trends. Indicators are linked to targets and targets are a result of policy deliberation. Consequently, measurement of key indicators allows authorities to gauge whether or not policies are succeeding.

The targets, policies and indicators are taken from the above sections and summarized in Table 6.
<table>
<thead>
<tr>
<th>Aim / Target</th>
<th>Policy</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biodiversity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rate of species extinction halted</td>
<td>• Increase fuel taxes</td>
<td>• Rate of species loss</td>
</tr>
<tr>
<td></td>
<td>• Levy the agriculture industry to incentivize clean farming practices</td>
<td>• Area dedicated to reserves</td>
</tr>
<tr>
<td></td>
<td>• Levy tourism industry for funding for biodiversity programs</td>
<td>• Level of reserve connectivity</td>
</tr>
<tr>
<td><strong>Climate Change and Air Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Zero deaths from air pollution</td>
<td>• A bidding system for the private sector and individuals to operate a</td>
<td>• Deaths due to air pollution</td>
</tr>
<tr>
<td>• Atmospheric temperature stabilized</td>
<td>motor vehicle</td>
<td>• Rate GHG equivalent output</td>
</tr>
<tr>
<td>• Equal ability to access public</td>
<td>• Introduction of graduated tax on vehicle ownership based on CC rating</td>
<td>• Number of vehicles</td>
</tr>
<tr>
<td>transport and alternative modes of</td>
<td>• Higher annual road-user charge</td>
<td>• Percentage of vehicle tuning</td>
</tr>
<tr>
<td>transport</td>
<td>• Introduction of full-cost GHG emission charges on agriculture</td>
<td>• Percentage of homes with electric heating,</td>
</tr>
<tr>
<td>• Reduce competition between</td>
<td>• Full cost emissions charging on carbon-based energy sources</td>
<td>• Percentage of homes with high standard of</td>
</tr>
<tr>
<td>alternative transport modes and</td>
<td>• Full cost of health impacts due to air quality emissions</td>
<td>insulation</td>
</tr>
<tr>
<td>private vehicle use</td>
<td>• Vehicle emissions testing and compulsory tuning</td>
<td>• Percentage of homes with PV power generation</td>
</tr>
<tr>
<td>• Develop greater trans-regional</td>
<td>• A graduated system of vehicle registration charges relating to CC</td>
<td>• Percentage of total renewable energy</td>
</tr>
<tr>
<td>integration</td>
<td>rating or efficiency</td>
<td>• Rate of new road construction</td>
</tr>
<tr>
<td>• A switch to a reliance on public</td>
<td>• Requiring cleaner burning fires or switching to electricity</td>
<td>• Rate passenger uptake and trips</td>
</tr>
<tr>
<td>or alternative transport as the main</td>
<td>• P.V. electricity generation for new houses and buildings and</td>
<td>• Rate of cycling trips</td>
</tr>
<tr>
<td>mode of individual travel</td>
<td>inducements to get existing ones installed</td>
<td>• Rate of walking trips</td>
</tr>
<tr>
<td>• Air quality is maintained by no</td>
<td>• Amalgamation of public transport providers</td>
<td>• Emissions levels (CO₂, NOₓ, SO₂, PM₁₀₂.₅)</td>
</tr>
<tr>
<td>impact occurring and is improved to</td>
<td>• Freeze new road construction</td>
<td>by sector</td>
</tr>
<tr>
<td>acceptable levels for future</td>
<td>• Resources directed at new roading projects</td>
<td></td>
</tr>
<tr>
<td>generations</td>
<td>• Increase subsidization of non-economic bus routes</td>
<td></td>
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<tr>
<td></td>
<td>• Increase rail capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increase spending on bus priority lanes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increase spending on encouraging alternative transport systems such</td>
<td></td>
</tr>
<tr>
<td></td>
<td>as high quality cycle lanes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Emissions levels (CO₂, NOₓ, SO₂, PM₁₀₂.₅) by sector</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>Rate of population increase</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------</td>
<td></td>
</tr>
<tr>
<td>Zero Population Growth</td>
<td>Rate of immigration</td>
<td></td>
</tr>
<tr>
<td>• A system of financial disincentives to procreate in the form of higher taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• One child policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Excluding refugees, reduce immigration inflows to a zero net gain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social wellbeing</th>
<th>GINI coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Alleviating poverty and improving mental health and education levels</td>
<td>Suicide rates</td>
</tr>
<tr>
<td>• Increase the level of graduated tax to match Scandinavian levels</td>
<td>Level of imprisonment</td>
</tr>
<tr>
<td>• Significantly higher spending on social programs (such as mental health),</td>
<td>Level of mental health</td>
</tr>
<tr>
<td>• Incorporate the fiscal aim of reducing economic growth to between 0 and 1 percent</td>
<td></td>
</tr>
<tr>
<td>• Increase funding to match the corresponding growth in unemployment</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical pollution</th>
<th>Waterway chemical pollution</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chemicals disposal at a rate equal to sink capacity</td>
<td>Ocean chemical pollution</td>
</tr>
<tr>
<td>• The introduction of an eco-tax on the importation of products containing the above chemicals</td>
<td></td>
</tr>
<tr>
<td>• Charge companies the total cost of solid waste disposal as a separate charge</td>
<td></td>
</tr>
<tr>
<td>• Require companies to carry out material flow analysis</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unsustainable Resource consumption</th>
<th>Level of solid waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reducing consumption of resources to rate of replacement</td>
<td>Recycling rates</td>
</tr>
<tr>
<td>• Charge companies the total cost of solid waste disposal as a separate charge</td>
<td>Level of water use</td>
</tr>
<tr>
<td>• Charge for the use of oil-based products</td>
<td></td>
</tr>
<tr>
<td>• Require companies to take back product packaging</td>
<td></td>
</tr>
</tbody>
</table>
Aspect 10: Technical and Political Review

On a more mundane level, the socio-political context can be addressed through a consideration of Capability Building, including issues of Commitment and Capacity. Strengthening institutions consists of:

1. Recommendations for strengthening and identification of the individual authorities/institutions responsible for the implementation of the PPP (e.g. forestry, agriculture, transport, health, finance, industry departments) and for monitoring its effectiveness (e.g. environment and/or health departments);

2. Recommendations for creating synergies between the various identified authorities and institutions thus encouraging collaboration and formation of alliances around common goals;

3. Recommendations for strengthening of public participation skills; and


5. Development of education as an important mechanism contributing to a plan or program’s Sustainability and to the distribution of PPP derived benefits to local people.

6. Ensuring an adequate distribution of benefits, as to minimize conflict of interest among different societal groups.

7. Ensuring that special attention will be given to extending the benefits to the poorest levels of the society.\(^{141}\)

The two Aspects of political and technical review are linked together as neither are independent of each other. Capacity building rests on the skills and resources of an organization. While these are important components, they are by no means the most critical. The most critical aspect is commitment to an organizational or ideological goal.

The decider for achieving SD is related to previously established models of Sustainability and carrying capacity loads. In the case of Auckland, this is a technically difficult aspect to establish and one the ARGS considered. The notion of carrying capacity of a city in many respects cannot be considered in isolation to the rest of the country. The application of carrying capacity to agricultural production for example, is difficult as many goods are produced outside of the region.

\(^{141}\) Ericksen et al (2003, p. 60).
and transported to Auckland for export. Stated differently, many aspects of Sustainability can only be addressed in conjunction with national level planning or even at the international level.

Aspect 11: Write Draft Report of PPPS

Drafting a final report is a critical aspect to the policy creation process and this Aspect differs little from the standard SEA process. Here, goals targets and the means to attain them and their justification should be clearly stated. The report should be peer reviewed, using both political actors as well as being subject to a final public submission process.

Aspects 12 and 13: Evaluate Technical and Political Input Strategy Against Strong Sustainability

The International Association for Impact Assessment (2002) published performance criteria for accountability in the form of the following questions:

- Is it the responsibility of the leading agencies for the strategic decision to be taken.
- Is it carried out with professionalism, rigor, fairness, impartiality and balance.
- Is it subject to independent checks and verification
- Documents and justifies how Sustainability issues were taken into account in decision making.\textsuperscript{142}

Moreover, these criteria, a final evaluation should be carried out to examine how the proposals match the SS criteria.\textsuperscript{143} In addition, the review process should seek to improve the PPP delivery


\textsuperscript{143} See Table 22: Strong Sustainability System Conditions.
process by finding ways to integrate public bodies in order to act in a more coherent manner.

Similarly, the evaluation should be cognizant of national and international developments in the area of SD. As this process is in many respects reliant on national and international level developments as well as public support, an evaluation of a strategy is also reliant on evaluating developments in these spheres. Consequently, relying purely on indicators that relate to only physical, economic or social processes ignores critical subsidiarity processes such as developing relationships and integrating previously unaligned institutional actors.

**Aspect 14: Public Hearings and Writing the Final Strategy**

The content in this section will be written at the time of the public hearings to reflect the following purpose of this Aspect.

The second generation Growth Strategy will be finalized at this stage and will consist of a number of processes:

- The consultation process will include space for the public and relevant agencies to comment on the final proposed strategy
- The report should contain a description of the overall process which includes the findings of the report as well as how it influenced the creation of the report. The format should be designed with the general public in mind.
- In the next stage of the assessment, the Strategic Sustainability Assessment Working Group will integrate the comments received from the public and relevant agencies

**Aspect 15: Review 2nd Generation Growth Strategy and Make Formal Decision**

In this section, input from the peer review process and public is considered. SSD is not considered a decision-making process per se, rather a decision-augmenting process designed to create
alternatives that are not traditionally considered. Various decision-making models exist for analyzing alternatives for example C-B analysis and Multi-criteria analysis. While the focus of this SSD is not on decision-making processes, some objectives are identified:

- Often there exist multiple objectives that need to be applied to specific instruments
- As there are alternatives, the decision-making process needs to identify trade-offs
- Often goals and objectives require national-level policy intervention / cooperation as well as requiring cross-regional cooperation
- A balance needs to found against a backdrop of a plurality of stakeholders
- The decision-making process needs to incorporate models that internalize environmental externalities
- The decision-making process needs to address social equity as a key concern
- The decision making process must evaluate decisions within the Strong Sustainability framework

Aspect 16: Implementation

Implementing a new growth strategy requires there to be a process that integrates the policies and applications at an appropriate level. Based on the notion of tiering, this strategy is intended to give consistency to the policies it envisages. Table 7 shows one policy area that delineates policy needs by levels of national and central government. This demonstrates the crossover between national government and regional level government. It shows that, in many cases, the relationship between local and central government must be strengthened in order to achieve the outcomes envisaged by this strategy.
<table>
<thead>
<tr>
<th>Aim</th>
<th>Policy</th>
<th>Government</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero deaths from air pollution</td>
<td>Higher annual road-user charge</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Vehicle emissions testing and compulsory tuning</td>
<td></td>
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<td></td>
<td>Increase spending on encouraging alternative transport systems such as high quality cycle lanes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atmospheric temperature stabilized</td>
<td>P.V. electricity generation for new houses and buildings and inducements to get existing ones installed</td>
<td></td>
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<tr>
<td></td>
<td>Requiring cleaner burning fires or switching to electricity</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Introduction of full-cost GHG emission charges on agriculture and electricity</td>
<td></td>
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<tr>
<td>Equal ability to access public transport and alternative modes of transport</td>
<td>Increase spending on bus priority lanes</td>
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<td></td>
<td>Increase rail capacity</td>
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<td></td>
<td>Increase subsidization of non-economic bus routes</td>
<td></td>
<td></td>
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<tr>
<td>Reduce competition between alternative transport modes and private vehicle use</td>
<td>Freeze new road construction</td>
<td></td>
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</tr>
<tr>
<td>Develop greater trans-regional integration</td>
<td>Full cost emissions charging on carbon-based energy sources</td>
<td></td>
<td></td>
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<tr>
<td>A switch to a reliance on public or alternative transport as the main mode of individual travel</td>
<td>Amalgamation of public transport providers</td>
<td></td>
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<tr>
<td></td>
<td>A bidding system for the private sector and individuals to operate a motor vehicle</td>
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<tr>
<td></td>
<td>Introduction of graduated tax on vehicle ownership based on CC rating, linked to subsidizing public transport</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>A graduated system of vehicle registration charges relating to CC rating or efficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Full cost of health impacts due to air quality emissions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons Learned

This Chapter used the SSD model developed in Chapter VI to apply the principles of (Strong) Sustainable Development to create a hypothetical, second generation Auckland Regional Growth Strategy. As mentioned at the beginning of this Chapter, recent events such as Hurricane Katrina, the melting of the polar ice caps and the Stern Review are defining environmental events of the present generation. Events such as these challenge the currently dominant growth discourse and will form the basis of further Sustainability orientated policy development.

This Chapter made use of the principles of environmental economics, that is, the costing of environmental services whether directly or by proxy markets, usually in the form of eco-taxes. New Zealand has one of the lowest environmental tax rates in the OECD (Organisation for Economic Co-operation and Development, 2002b), largely due to the low rate of fuel tax. This low rate of fuel tax provides an opportunity to introduce measures that have been successfully applied in many other countries. The recent oil price increases in response to the war in Iraq demonstrate the sensitivity of consumers to price increases. As petrol prices have risen to unprecedented levels, consumers began considering alternatives such public transportation and living arrangements (Bone, 2005). This is evidence of the potential efficacy of introducing eco-taxation measures.

A similar conundrum exists with issues related to social Sustainability. In writing this thesis, in New Zealand, planning predominately has a spatial orientation. While planning for Sustainability clearly includes physical processes, developing Sustainability orientated solutions also addresses social processes. As shown in earlier chapters, New Zealand has significant and enduring poverty rates. This is primarily related to New Zealand’s dominant ideological context and less related the ability of New Zealand and its planning institutions in Auckland to solve. The application of SSD has shown that is theoretically possible to address these issues, when they are accorded greater priority.
CHAPTER VIII: THESIS CONCLUSION

This thesis set out to develop insights into Strategic Environmental Assessment (SEA) when current practice is augmented by the principles embedded within the perspective of Strong Sustainability (SS). The result of the research has been to create a contemporary generation of SEA and call it Strategic Sustainability Development (SSD). To reach this point it was necessary to first establish the basis of this process.

The approach adopted in this research for SSD was to work with a case study of the Auckland Region and its first generation *Auckland Regional Growth Strategy 2050*. Underpinning this approach has been an examination of the literature on Sustainability as well as impact assessment in order to establish SEA’s principles and processes. The expectation was that this part of the research could underpin a new generation of policy assessment methodology. The result has been the policy assessment model developed in Chapter VI, which integrates the theory and practice of environmental Sustainability and Strategic Environmental Assessment. As noted in the methodology section in Chapter I, the reader should be aware of limitation of this research which is that the thesis lacks any attempt at triangulation needed to essay the empirical validity of the conclusions and the model used. That is to say that once the model was constructed, there was no effort put into researching the reactions by practitioners to the model itself, nor were there any alternative forms of data analysis used, theoretical perspectives employed or other analysts used.

The approach adopted for this concluding Chapter is threefold, first to review the research questions from chapter I, second on a chapter by chapter summary basis, discuss the lessons learned from applying the SSD model, and third to discuss key Sustainability themes arising from the thesis overall.

The intentions of the research were expressed by three questions: (1) what is the feasibility of an SEA model based on Strong Sustainability? (2) how might the objectives of ARGS have changed
had a formally adopted SEA methodology been applied to support the Growth Forum’s decision-making process? (3) how should social impacts be integrated with SEA?

Chapter II introduced the case study of the research – *The Auckland Regional Growth Strategy 2050*. The Chapter included an analysis of Auckland’s key growth drivers, namely population growth and economic development. As the ARGs was a response to these drivers, it was appropriate to analyze how these drivers were dealt with, by the Regional Growth Forum. This analysis focused on the following five themes: market failure; institutional integration; democratic disenfranchisement; the application of New Urbanism (NU) as the theoretical basis of the Growth Strategy, and the efficacy of strategy’s model of Sustainable Development. Beginning with market failure, these are discussed in turn.

I defined market failure as the externalization of costs from the market to the environment in the form of pollution or other negative third party impact. The addition of carbon dioxide into the atmosphere is the primary example of a directly uncounted cost. Externalities also exist in terms of the social milieu, for example the indirect costs associated with social disenfranchisement, such as the impacts of poor housing, health or education. If polluting behaviors are externalized, this reduces the cost of such unsustainable behaviors, creating an incentive for both individuals and governments to continue those behaviors and policies. In Auckland, externalizing policies have been entrenched historically and continue to the present. Due to this entrenchment, the ARGs favors the extension of existing and significant new unsustainable roading infrastructure. The impact of this roading agenda, in combination with one of the most car-orientated policies in the world (Mees & Dodson, 2006), will be to deepen Auckland’s dependence on fossil fuels and exacerbate an already stressed biophysical environment. This unsustainable mode of development has also been accompanied by disinvestment in public transport infrastructure, congestion, extensive suburban sprawl, and a list of other negative environmental impacts related to private vehicle dependence. Despite some areas of significant public transport investment such as the North Shore Bus way, this distortion predominates and, if externalized cost incentives are maintained, will continue over the life of the Growth Strategy. A renewed dedication to roading investment may also be evidenced with the new National government’s 2009 economic stimulus package which provides a backdrop to the strategy, moving Auckland further along an unsustainable development trajectory. Thus, the ARGs maintains the key driver of market failure,
by continuing to prioritize roading infrastructure over public transport, it fails to meet its own goals relating to Sustainable Development. The externalization of costs in the form of an entrenched spending bias towards road projects is also related to the second area of critique of the ARGS, the lack of institutional integration.

A focus on institutional fragmentation was necessary as it was identified by the Regional Growth Forum as a strategic issue in Auckland in relation to the historical efficacy of transport and a dearth of population growth management policies. Institutional integration is understood to mean the level of alignment of policy goals and actions in areas where institutions have important areas of commonality. The analysis by the Regional Growth Forum, when combined with a review of literature and primary research, suggests that poor institutional integration has been the result of the adoption of market rationalism or decentralization, from the late 1980s onwards. The decentralization model (in the form of the Resource Management and Local Government Acts) entrenched a culture of institutional specialization, territorialism, which came at the expense of a more systemic approach, a malady more commonly referred to as the silo effect. The silo effect has arguably led to a number of discontinuities ranging from the lack of policy coordination to an non-integrated public transport ticketing system provide to the lack of information sharing between councils (Crothers, Woodley and Davies, 2007). Far from the model of efficient, responsive institutions envisaged by the New Mangementist reforms, council service provision in the last two decades has been a mixed bag as they struggle to fulfill their statutory requirements. For example, some councils are still operating under transitional District Plans, eighteen years after the RMA was made into law.

The depth of commitment to decentralization associated with market rationalism is demonstrated by the high level of resistance generated by proposals for urban containment by some councils and members of the public. The reaction by Auckland publics was mixed, ranging from relief that Auckland authorities were dealing with Auckland’s transport and environmental issues, to one bordering on civil disobedience. Those who opposed the imposition of the Metropolitan Urban Limit (MUL), considered it a contravention of property rights in violation of free market principles, and led to the formation of NIMBY (Not in My Back Yard) groups.

144 See Fookes (1999).
The implementation of the MUL was also contested by Territorial Local Authorities (TLAs) and central government in judicial hearings. The TLAs opposed the ARGS, arguing that the market was the best determinant of urban growth, and intervention by a regional authority in the urban land market was unwarranted for efficiency reasons and disallowed under the RMA as an effects based environmental statute. This argument was rejected by the Courts, finding in favor of the Auckland Regional Council, confirming the right to create policies defining Auckland’s urban limits, as well as the validity of the criteria the ARC used to determine the location of the Metropolitan Urban Limit (Memon, Davies & Fookes). However, despite the application of the Growth Strategy and associated population and transport initiatives, the decentralized local government model remains largely intact to the present. The lack of integration remains a significant issue facing Auckland councils when attempting to address problems requiring a more regionalized approach.

From primary research and literature, a number of institutional and policy linkages were found to be insufficient for creating the continuity needed for SD. The primary institutional disconnect is the relationship between land-use and transport. An illustrative example used in this research was the relationship between Transit New Zealand and the Regional Growth Forum. In this example, the MUL has been undermined by the upgrade of Auckland’s southern State Highway One to a four lane motorway between Auckland and Mercer (the Waikato Expressway).

By constructing the Waikato Expressway, Transit New Zealand intends to reduce the travel time within the Waikato region (mainly between Auckland, Hamilton and Tauranga). This example shows a clear disconnect between not only the goals of the Regional and District councils and Transit, but also to other councils in the Waikato. I conclude that the policies and structures created in such an environment provide a considerable obstacle to Sustainable Development. In the SSD model, the integration of relevant institutions is a key focus. Had SSD been employed in this process, the ARGS would question the necessity of this extension and given greater emphasis on examining alternative transport modes, as well as institutional goals (of Transit).

The third significant area of critique of the ARGS is how the Strategy arguably undermines local authority democratic process. While acknowledging the greater need for systemic thinking in Auckland, this section concluded that the regionalism of the ARGS further entrenched power hierarchies, leading to social and environmental discrimination. Using an analysis based on the work of Murray Bookchin, Zigmunt Bauman and Stanley Milgram, the conclusion reached was that
the increased distance between publics and decision-makers created by larger political entities disincentivizes ethical environmental and social policy outcomes. As the ARGs lengthens Auckland’s power hierarchies through institutional consolidation, it undermines the notion of subsidiarity, a core aspect of both the RMA and broader SD related theory. SSD strengthens the vertical linkages between levels of councils and government via the creation of binding national strategies with SD as a key policy outcome. Systemic socio-economic discrimination may also be seen in the New Urbanist model adopted by the Regional Growth Forum as a theoretical basis of the Growth Strategy.

The ARGs uses New Urbanism (NU) as a theoretical model, with particular reference to creating community cohesion through improved spatial design and to generate high levels of public utility in urban growth nodes. In this section, literature relating to NU was examined and primary research was integrated with its findings. The conclusion reached was that NU is a poor model for addressing social cohesion. By using NU as its theoretical basis, the Strategy ignores key structural drivers that reinforce social division. The reliance on market forces as the prism for policy creation leads to significant social stratification. Social stratification, by definition, reduces opportunities for social, economic, educational or cultural engagement such as voluntary work or political process, which undermines the notion of community cohesion. New Urbanism also ignores large classes of people who are highly mobile in terms of where they work and therefore live. This includes high socio-economic status groups who can afford to live in a variety of places and engage culturally predominately with other members of this exclusive group. Other transients are those who travel often to carry out work contracts such engineers, professional managers, IT specialists etc. A third transient class is the economically disenfranchised. This grouping consists of the homeless, the unemployed and those are engaged in short-term or low skill work. This group moves often due to their economic environment and is largely ignored by the Growth Strategy. The latter point is reflected in one of the key findings which is that, despite social housing built into the Strategy, New Urbanist communities, because of the extra attention given to urban amenity become exclusive. Once again, the Strategy undermines its own goals by failing to provide true housing choices, particularly in poorer areas demonstrating the most need.

The final and perhaps most significant criticism of the ARGs is that the model relies on a poorly defined model of Sustainable Development. In fact, one architect of the Strategy went as far as
claiming a complete absence of any model of SD whatsoever. The ARGS in fact does supply a model on which to base its policy. In contrast to the stated “core element” (Regional Growth Forum, (1999b, p. 54). it is clear that Sustainable Development remains a secondary consideration, almost an appendage to its main aims.

As shown in the case study, the Auckland Regional Growth Strategy was created mainly to address issues related to natural and policy-derived population growth and the consequent demand for more housing, and other economic drivers. From primary research, it was concluded that the main drivers for the Auckland Regional Growth Strategy are predominately the economic gains to be made from population growth and an adherence to the broader goals of the consumption discourse. Primary research has shown that it was only after the economic and population drivers were identified, that Sustainable Development was incorporated into the strategy. The late treatment of SD into the policy creation process highlights the need for a clear articulation of an SD model as a beginning point to the policy creation process. The above criticisms were used in part as basis for creating the institutional and policy linkages described in the SSD model in Chapter VI.

Chapter III examined the history, principles and scope of application of Strategic Environmental Assessment. SEA stems from a concern with social and environmental issues dating back to the 1960s, particularly in the United States, which first introduced it in 1969, in the form of Environmental and Programmatic IA. From the 1960s onwards, the most commonly applied model of subjecting developments to environmental assessment was Environmental Impact Assessment (EIA) and Cost Benefit Analysis (CBA). As CBA and EIA became more commonplace it was found that the greater level of complexity associated with long-term environmental issues, particularly cumulative and social impacts were beyond the capabilities of these models. As the limitations of particularly EIA emerged, a more strategic approach to environmental issues was needed, one capable of addressing this complexity. SEA was created in response to this need. More recently, SEA has become an assessment tool, commonly applied to policies, plans and programs (although excluding much national-level application), particularly in Europe and the United States and in New Zealand. The main finding of this Chapter was that SEA faces three main challenges.

The first observed challenge to SEA, reflects the conclusions found in Chapter VI, in that SEA faces the problem of finding an acceptable definition of Sustainable Development, agreeable to
often conflicting political perspectives. While this issue remains unresolved, it will continue to hamper SEA in its focus. The issue of definition and therefore usage of SD models is related to the second problem identified with SEA, that of a lingering application to biophysical issues to the detriment of the social arenas, reflecting a predisposition of SEA towards the Weak Sustainability model. The Chapter noted that this issue becomes more of a question of ideological context and not whether or not SEA or governments are capable of addressing social issues. In Chapter IV, the example of poverty was given. While not entirely eliminated, the data showed that, if the right policies are put in place, poverty can be mostly alleviated, while maintaining a high standard of living.

The implication of a workable solution to poverty is that, if there are examples used by governments dealing with this lingering problem, why do so many countries fail to use this experience in order to deal with their own poverty? Defining SD in SEA is therefore problematic as it reflects in many instances the left – right political divide. Policy outcomes depend strongly on the philosophical underpinnings of the selected SD model. Broadly, the Weak Sustainability perspective is most closely aligned with the political right and SS with the left. As noted in Chapter V, Weak Sustainability should be viewed as a stepping stone to true or Strong Sustainability. The Sustainability-orientated model of SEA discussed in Chapter Three includes the notion of ‘social’ Sustainability. While SEA is a creature of context, if social inequalities and civil society continue to decline and remain unaddressed by policies created by SEA, then SEA will have difficulty continuing to be regarded as a Sustainability-orientated method of policy creation, at least within the confines of the SD model used in this research. Therefore by adopting policies most closely aligned with the WS perspective, SEA has only partly reached its theoretical and pragmatic potential of full policy integration.

The third issue observed of SEA is that it remains locked into a largely evaluative mode of analysis, largely responding to developmental trajectories and policies ex post facto. This challenge is especially pertinent as SEA is designed to be fully integrated with the policy creation. In addition, similar to the New Zealand RMA, SEA is at its most efficacious when applied at all levels of government, particularly central government and even international institutions or agreements. SEA should be applied at the national level as policies and laws often set the vision or framework for lower order policies, laws and institutional structures, rules and processes.
Consequently, a greater level of definition of the linkages between this aspect was addressed in the SSD model explained in Chapter VI.

Chapter IV examined New Zealand’s economic restructuring of local and central governments since the mid 1980s. It traced the effects of the application of Agency theory and New Managerialism on both central and local government functions. An examination of these trends was of relevance as these reforms underpin the creation, as well as the flaws of the ARGs, and how they reflect tensions within broader New Zealand society, as it attempts grapple with Sustainable Development. The conclusion was that this restructuring has been a dual edged sword in respect to achieving substantive gains in relation to local council goals as well as SD. It is without question that councils have improved transparency and local authority connectivity to local concerns. The cost however has been the lack of coordination of policy between institutions within the Auckland region and beyond.

The Chapter also examined the restructuring and its effects on civil society, focusing on declining political engagement and distrust of governments by publics. The Chapter concluded with the question of why governments seem unable to deal with issues related to Sustainable Development. The answer is that SD, while possible, is incompatible with the increased adoption of free market principles by many countries. The two interrelated trends of declining civil society and political engagement are reflected in the withdrawal of many governments from social welfare provision.

The implication of the withdrawal of social welfare results in free market social engineering and undermines the ability of publics to engage in activities leading to social cohesion. As publics become increasingly time pressured, engagement in activities such as voluntary work, sports and perhaps most importantly, political participation have declined. The lack of social cohesion may also be linked via the decline in voting, to the perception of the level of relevance of governments to the populace as they adopt non-interventionist ideologies. As the global free market has become more pervasive, so too has the ideology of non-intervention accompanied by the application of New Managerialist principles. While the application of New Managerialism to local government functions has been traversed in the above sections of this Chapter, Chapter IV provided a useful summary of the neoliberal reforms. The problems created by the application of New Managerialism are myriad and are substantively rejected as a means of achieving SD.
Chapter V introduced the reader to theories of Sustainable Development employing a framework categorizing the core environmental issues into a series of eight oppositions. These oppositions included the role of technology, instrumental versus inherent rights, the level of interchangeability of capital, social equity, population growth, resource consumption and globalization. The framework was further refined into four questions relating to resource scarcity, decoupling economic growth from environmental impact, capital substitution and integrating social factors with SEA.

Chapter V also identified the two core Sustainable Development theories of Weak and Strong Sustainability. Otherwise known as the Promethean perspective, the Weak Sustainability perspective is non-capital differentiating, and characterizes environmental functions largely in terms of human use-value, and relies on technological ingenuity to solve environmental problems. In opposition, the Strong Sustainability perspective poses two principle challenges to WS. Within the SS perspective it is argued that use-value alone (via market valuation) is not a viable approach to achieving true Sustainable Development as environmental functions are unique and therefore irreplaceable. Furthermore, as many people lack adequate frameworks for assessing the value of biophysical processes, use-value is a questionable mode of determining the true value of environmental function. Moreover, significant knowledge gaps, or imperfect information renders the determination of the value of environmental capital even more difficult.

The second challenge posed to WS is similar to the criticism applied to the regionalism of the ARGs. WS, because of non-capital differentiation, does not take into account the distribution of human capital i.e. equity. The non-differentiation of human capital is reflected by WS in its non-critical stance on the less than democratic and disproportionate impact of power elites on the policy creation process. The effect of power elites is to create a form of pseudo democracy where decisions are disproportionately influenced by power coalitions, undermining the notion of local democracy. Disproportionate power structures are therefore the focus of many environmental theorists who advocate a stronger emphasis on collective over individual rights (Strong Sustainability). These theorists argue that, when left to itself, the market is a poor instrument for achieving SD as it is unable to deal with the curvilinear nature of many environmental issues, resulting in the externalization of environmental damage. Therefore, Strong Sustainability supports, a greater level of collective and governmental advocacy.
From the WS perspective, a case was made that the market is an effective vehicle for achieving Sustainable Development. A number of researchers working on Sustainability use the Kuznets Hypothesis, which correlates resource use to economic growth, to argue that wealth generation via the free market is the best means of alleviating environmental issues. While there appears to be some evidence to support this conclusion, it remains unconvincing, particularly in the area of increasing resource use and disposal and in the area of climate change. Moreover, the Kuznets curve supporters argued that it was not the free market in itself that achieved resource de-coupling, rather the opportunities provided by a high standard of living to demand of governments that environmental action be taken was key. Stated differently, the high standard of living derived from wealth generates a high level of collective cultural capital, particularly education and the resulting political knowledge of a democratic environment, allowing publics the ability, opportunity and resources to demand environmental actions by governments. The implication of this finding is that governments must be supported with the tools necessary to intervene in communities and economies to achieve substantive SD outcomes.

Chapter V also examined the debate concerning the substitutability of capital. The perspectives on whether or not capital may be substituted constitute the main difference between the two models of Strong and Weak Sustainability. The WS paradigm is built on the neo-classical assumption of unlimited substitutability of natural capital. This implies that natural capital can be safely consumed without concern for the future as long as other forms of capital are created in its place (inter-generational equity). This is largely based on two main assumptions (1) that natural resources are more or less unlimited and, (2) that technological progress can overcome resource constraints (Neumayer, 2003). This section of Chapter V concluded that the evidence regarding resource consumption is strong enough to support the resource optimist position. The resource optimist position rests on the assumption that resources are effectively infinite. At present, only a small percentage of the Earth’s crust is mined, down to a depth of between zero and three kilometers.145 The Earth’s crust is over 3500 kilometers deep (Britt, 2005). Assuming that technology can develop to the point where deep resource extraction is a) possible and b) economic, it suggests that resources are effectively infinite, affirming the resource optimist

145 The deepest mine in the is the East Rand mine in South Africa which goes down to a depth of 3585 meters see http://www.absoluteastronomy.com/topics/East_Rand_Mine.
position, given enough energy. Moreover, physical resources are not the only type of resources SD extends to. However, resource optimism does little to alleviate the issue of the Earths’ absorptive or carrying capacity. While recycling technologies and practices have advanced significantly, the recycling of resources has been far outstripped by the consumption and consequent pollution generated by industrializing nations with large populations such as China and India as well as other large Asian countries. Presuming that the developmental trajectory is broadly similar to Western countries, the level of pollution will, in these countries increase dramatically, and arguably already has. The evidence in support of the technological fix in this case is disheartening. A similar conclusion is reached in relation to biodiversity. Extinction is speeding up and forests are disappearing. The disappearance of habitat and species is an issue that technology is unlikely to fix in the years to come. WS proponents argue that the market will value and thus protect biophysical resources. The fact remains that it is unrestrained market processes that are destroying species, literally as this thesis is being read. Consequently this form of Weak Sustainability will not be fully compatible with biophysical axioms and will fail to recognize critical environmental limits. While much of the argument based on the Environmental Kuznets curve hypothesis are accepted, the final conclusion of the Chapter is that by solving power / wealth inequalities, the world will go a long way towards true Sustainable Development.

Chapter VI provided the core contribution of this research - the development of Strategic Sustainability Development (SSD). This Chapter, expanded on the critique of SEA drawn from Chapter III, in which I argued that SEA is grounded in a social context of ideological commitment to the discourse of consumption described in Chapter V. To this end, I have sketched out an approach to policy creation based on the model of Strong Sustainability.

This Chapter also noted that the impacts of global environmental issues have become increasingly obvious to policy makers as the world’s population and corresponding use of space and resources grow ever further beyond the Earth’s carrying capacity. Limits to growth such as rates of biospheric carbon storage, availability of water, ocean and land-based biodiversity, when coupled with population growth, are all issues that are beginning to force governments to re-examine their growth priorities. Recent events in the form of Hurricane Katrina and the Stern Review and the availability of oil have signaled a shift towards Sustainable Development. As a consequence of these events, at the center of SSD is the need for substantive change towards
addressing environmental issues in an integrative way. The challenge for SEA is to meet these conditions in a manner that meets the needs of populations equitably. SSD is one model that does this. The SSD model (Figure 23) is best understood as a process that not only makes links to between local, sectoral and national PPPs, but also makes explicit reference to international agreements.

By creating internationalized structures such as trade blocks and agreements, the process of globalization has challenged the nation state to the extent that central and local governments by themselves are less able to deal successfully with SD issues. Actors such as multinationals and trade blocks are in many respects beyond the ability of governments to influence in any meaningful way. This is particularly the case for less developed nations, which have a greater dependence on direct foreign investment and the benefits that flow from it, such as increased revenue, employment and skills etc. As signaled by the SSD model, to embrace a decentralized system runs the risk of undermining the state and international structures, without which meaningful integration of high-level environmental initiatives are likely to fail. The vertical integration of local, state and international actors is considered by the model to be a necessary reform to alleviate the worst aspects of present unsustainable development.

Hence, it was argued in this Chapter that the type of SD issue identification process outlined in the new SSD model, is a more appropriate means of addressing environmental issues. As such, the first stage of the SSD process is the Environmental Briefing Statement (EBS). The EBS recognizes a need for the introduction of a process that moves away from reacting to policy as it is created. The EBS is intended to initiate a process aimed at achieving Sustainable Development in its own right, thus moving beyond an evaluative mode of analysis. The definition of responsibility (Stage 1.4 of the EBS) is also of importance. The SSD model assumes that processes of this kind would largely be the responsibility of governments. Defining responsibility for commons in the form of public stewardship provides an alternative model for environmental management.

In order to understand the results of an attempt to sketch out the type of document which would result from the SSD process, a hypothetical draft Second Generation Auckland Regional Growth Strategy for 2050 was compiled. Even though the limitations of a thesis forced consideration of only one environmental resource (Air) and things that affect its quality, this has been sufficient to demonstrate the way the SSD model can change the objectives in an ARGS. This was the
purpose of Question 1. The thesis has in fact achieved more than the question intended because the SS foundation for SSD forced a consideration of a much wider range of matters than can be found in the first generation ARGs. A wider consideration of environmental issues demonstrates a level of synergy between the issues identified, for example, the relationship between Climate Change and biodiversity or population growth and air quality or the relationship between disparity, democratic process and SD. The Second Generation ARGs also shows a distinction between the type of planning that has dominated New Zealand over the last two decades, that of having a predominately spatial application, particularly in an RMA context. This has left a gap for a more policy-focused approach to planning to be filled. The conclusions on SS answer Question 2, which asked about the feasibility of an SEA model based on this theoretical orientation. Through the creation of a hypothetical second generation ARGs, it was found to be possible to integrate the principles of Strong Sustainability into the ARGs.

While I conclude that the Strong Sustainability is the most viable model for addressing SD, as expressed through SSD, it is clear that many of the truths of the model are unpalatable to the public and vested power interests. The challenge for SEA therefore is one of not repeating the mistakes of the past and in presenting these truths in a manner that is palatable to many, and not causing the polarization often associated with radical politics. The way forward is to tap into the increasing groundswell of belief in the Sustainability discourse. It is also clear that recent high profile events highlighting Climate Change combined with a new political recognition of the dangers that it and other environmental issues; signal a tipping point in its acceptance as a real problem. The creation of SSD demonstrates that environmental issues are solvable, should we choose to take up the challenge it poses.
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APPENDICES

Appendix 1: Interview Schedule

This appendix provides a copy of the semi-structured interview schedule used in this research. Interviews generally took approximately 45 minutes to complete and were recorded. Informants were supplied information pertaining to the purpose of the research.

1. What’s your perspective on the history of regional growth and regional development – especially Auckland growth plans (1970s and early 1990s)
2. What was your involvement with the Strategy and the ARC?
3. What is the history and legal standing of the ARGS
   a. What was the timeline of development and mandate etc (and politicking)?
   b. Why was the timeline forward 50 years? Where did the prediction of a doubling of population come from?
   c. What impact does this 50-year plan have on institutional arrangements/thinking – especially given shorter electoral and planning cycles?
   d. Where does the ARGS fit into provisions within the RMA and the LGA?
   e. What role does the MfE play in this ARGS and what other key stakeholders emerged?
4. How does the ARGS differ from the ARDS and why?

Institutional / Regionalism

5. Do you believe that regional level of governance is best suited for Auckland’s planning? Why?
6. How do you see the relationships between the local and regional councils evolving in the future?
7. Has devolution created stronger planning? Has privatisation made councils more sustainable?
a. Has devolution and privatisation created more efficient government service provision? LATES and SABUs

b. How has devolution and privatisation impacted on community service provision? (are poorer councils less able to provide services to poorer sections of the community). If this is the case, how might these problems be overcome i.e. is greater centralisation the answer?

**Sustainability**

8. Compact cities and smart growth – how much of an influence was smart growth or new urbanism?

9. How is the ARGS being monitored? What will the 5-yearly review include? What would you expect the review to conclude?

10. Sustainability framework employed & threshold indicators included?

11. How are you ensuring that plan is achieving Sustainability outcomes?

12. What are the Sustainability outcomes intended by the ARGS?

13. What are/have been the major obstacles (political / technical) to the development of the ARGS?

14. What was the context of its development leading to the establishment of the ARGs and ARGF? What is the relationship between the ARC and the ARGs (standing committee but what does this mean in effect?)

15. How is the ARGS improving quality of life? And is this working? If not what are the obstacles to be overcome?

**Miscellaneous**

16. How do you see the media involvement in the consultation and public information?

17. Were population restrictions on national immigration policies considered? And if not, why not?

18. How important is consensus in regional planning? What is the place of conflict and conflict resolution in the planning process?

19. What makes the regional identity cohesive in your opinion?

20. How important is consensus in public planning? Conversely, is there a place for conflict in planning? (distinguish between council and public consensus).
21. What are the biggest obstacles in Auckland and the Strategy? What issues are in most urgent need of attention?

22. What is your perception of the relations between local and central government?

23. How and from where did the reinvigoration of the strategic planning arise?

24. Would you describe Auckland as a global city? On what terms?

25. What most satisfies you about the Strategy? What least satisfies you? Why?

26. How does diversity and wellbeing attach to a largely infrastructural strategy?

27. What evidence is there to suggest that compact city forms can significantly reduce urban energy consumption?

28. How do you see devolution to the community creating stronger planning?

29. How has the plan changed (if at all) since 1998?

30. What did the plan look like prior to and after public consultation?

31. Comment on Phil Warren’s leadership and influence?

Appendix 2: Text of Hypothetical Growth Strategy

This appendix provides the reader with the text to the proposed second generation Auckland Regional Growth Strategy. This copy of Chapter VI is intended to provide the reader with the text unimpeded by explanatory text.

Introducing Auckland

The Auckland region has grown to its present population of over a million people and if trends continue will double over the next 35 years. The housing, transport, energy, infrastructural and other ecosystemic impacts of this projected growth pose significant problems for planners in the context of Sustainable Development. To cope with this growth, over 200,000 new dwellings will
need to be constructed to house this new population, which will in turn create demand for a range of infrastructural projects.

The future Auckland will become a region of much greater social diversity with growth in populations of Asian, Pacific Island and Maori groupings, all becoming a larger proportion of the population, compared to the historically dominant European component.

The region of Auckland dominates New Zealand’s economy accounting for over 30 percent of national GDP. This underpins New Zealand’s economy with the country’s largest exporting port, a large manufacturing sector, and accompanying financial services.146

In terms of its people, Aucklanders are richer, more educated and healthier than at any time in history. All other things being equal, these trends are likely to continue into the future.147 Economic prospects are positive with healthy recent growth rates, which are reflected in the lowest rate of unemployment in the world.148 Events such as the Americas Cup, The Lord of the Rings film by Peter Jackson, and the Rugby World Cup have given Auckland a high profile internationally.

While Auckland fares well in overall liveability,149 over the last two decades Aucklanders have however embraced a strongly car-orientated lifestyle with rates of vehicle ownership and miles travelled being one of the highest in the world. As a result, Aucklanders on a per capita basis contribute significantly to issues such as Climate Change and air and water pollution. Additionally, Auckland’s transport infrastructure is overloaded to the point where delays due to congestion are creating a negative economic impact of over a billion dollars annually (in 2006).150

146 Regional Growth Forum (1999c).
147 Reid et al. (2003).
149 Reid et al. (2003).
Aucklanders also produce and throw away a growing volume of solid waste annually,\textsuperscript{151} creating pressure to find acceptable sites for more rubbish dumps.

Auckland has one of the most polarized rates of wealth disparity in the developed world.\textsuperscript{152} This is reflected in the decreasing rate of home ownership, which has in part been caused by the recent housing boom.

These issues undermine the perception of New Zealand’s clean green, egalitarian self-image. This strategy is intended to address these problems.

**Introduction**

A sustainable ecosystem is vital for the continuing wellbeing of Aucklanders. A healthy environment underpins every aspect of our lives whether cultural, business, or recreational. The purpose of this Strategy is to ensure the future wellbeing and happiness of following generations as they live and work in a sustainable environment.

This Strategy is divided into the following sections:

- **Aspect 1** Trigger SEA Process. Write EBS using SS criteria for Policy, Plans or Programs (PPP)
- **Aspect 2** Define Strong Sustainability Model
- **Aspect 3** Baseline level of Internalization of environmental externalities
- **Aspect 4** Define Sectoral Ecological limits
- **Aspect 5** Identify key unsustainable sectors and links between them
- **Aspect 6** Describe candidate PPPs and possible impacts
- **Aspect 7** Begin institutional review

\textsuperscript{151} Statistics New Zealand (2006f).

\textsuperscript{152} St John (2006).
Aspect 8 Describe synergies between other PPPs e.g. the RLTS initiatives e.g. air quality or Climate Change
Aspect 9 Design indicators & targets. Describe impacts, and mitigation
Aspect 10 Technical analysis
Aspect 11 Draft report of PPPs
Aspect 12 Political Go - No Go
Aspect 13 Evaluate against SS. Set time frame for next iteration
Aspect 14 Public hearings and write final report
Aspect 15 Review SSD Assessment report and make formal decision
Aspect 16 Implementation

**EBS Stage 1.1: Sustainable Development Statement**

The RGS is a response to the fact that Auckland is now living far beyond the means of its environmental context to sustain its present mode of production. In response, Auckland must manage its resources wisely, in a way that reduces physical growth in a way that complements natural processes, while supporting its peoples equitably.

**EBS Stage 1.2: Areas of Environmental Limits**

This section identifies issues that constitute critical environmental issues facing the Auckland region.

- g) Air quality and Climate Change, including deforestation, transport and energy
- h) Biodiversity, including habitat maintenance
- i) Stabilizing and reducing population
- j) Social wellbeing (including economic health and eliminating poverty and health related issues
- k) Eliminating persistent additives
I) Consumption and disposal of resources

These areas are addressed in turn.

**EBS Critical Environmental Issue (a): Air quality and Climate Change, including deforestation, transport and energy**

In addition to Climate Change, the issue of air quality is an interrelated one, as they share sources. In Auckland, much of our air pollution is emitted from vehicles, which add the pollutants shown in to the environment. The significance of this issue is made clear by the National Institute of Water and Atmospheric Research, which estimates that nationally 399 people die annually from these pollutants. 255 of these deaths are in Auckland alone.\(^{153}\) This Strategy aims to reduce or eliminate these unnecessary deaths. Table 2 shows the types of vehicle emissions and their health impacts.

### Table 2: Impact of Motor Vehicle Emissions on Health

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide (CO)</td>
<td>Increases hospital admissions &amp; mortality from cardiovascular disease, Headaches, dizziness, disorientation, visual disturbances, stress, anxiety, acute death after very high exposure</td>
</tr>
<tr>
<td>Nitrogen dioxide (NO(_x))</td>
<td>This contaminant causes an increased frequency of coughing, wheezing &amp; breathlessness. Increased susceptibility to infections &amp; asthma attacks. Increased severity of asthma attacks. Increased reactivity to natural allergens. Stress, anxiety and irritability</td>
</tr>
<tr>
<td>Fine particles (PM(_{10}))(^{154})</td>
<td>This contaminant exacerbates respiratory conditions such as bronchitis and asthma. Increased mortality. Increased hospital admissions for respiratory and cardiovascular disease. Increased frequency of respiratory symptoms. Reduced resistance to infection</td>
</tr>
<tr>
<td>Benzene (X(_4))</td>
<td>Known carcinogen - Bone marrow suppression - Leukaemia</td>
</tr>
<tr>
<td>Lead (Pb)(^{155})</td>
<td>Negative impact on children’s neurocognitive functioning</td>
</tr>
</tbody>
</table>

\(^{153}\) Fisher *et al.* (2002).

\(^{154}\) PM\(_{10}\) are particulate matter less than or between 2.5 and 10 micrometers in diameter (Kjellstrom & Hill, 2002).

\(^{155}\) Leaded petrol was used in New Zealand until it was banned in 1986.
Ozone (O₃)\textsuperscript{156} Causes cardiovascular and respiratory diseases, lung cancer, bronchitis and asthma

Source: (Table 10 from Kjellstrom & Hill, 2002, p. 25)

The figures in Table 2 are not consistent around Auckland, and concentrations of air pollutants are dependent on levels of exposure and vehicle density in urban areas. That is, some areas may be worse than others. When measured in terms of Ministry for the Environment guidelines, monitoring results show a worsening picture with total daily exceedances increasing (Figure 1).

Figure 1: Annual Air Quality Exceedances in Auckland 1991 - 2001

Source: (Auckland Regional Council, 2006a, p. 1)

When compared internationally, New Zealand does however have relatively low levels of air pollution.\textsuperscript{157} However, some areas remain problematic. Air quality trends in Auckland are as follows. CO (carbon monoxide) emissions have fallen and are predicted to continue to fall in future, mainly due to increasing numbers of vehicles in the fleet with improved emissions controlling technology. The most worrying trend is CO₂ (carbon dioxide) emissions, which have risen and are predicted to continue to rise in future, mainly due to increased fuel consumption

\textsuperscript{156} Martuzzi, Mitis, Iavarone and Serinell, (2006, p. VI).

\textsuperscript{157} Ministry for the Environment (2002a).
resulting from increased numbers of vehicles in the region, as well as increased vehicle kilometers traveled.

\( \text{NO}_x \) (nitrogen dioxide) emissions have also risen slightly, also due to increased numbers of diesel vehicles in the fleet, but are predicted to fall slightly in future as diesel emissions control technology improves.

\( \text{SO}_2 \) (sulfur dioxide) emissions have also risen, mainly due to increased diesel fuel consumption resulting from increased numbers of diesel vehicles, but are predicted to fall in future as fuel sulfur levels continue to decrease.

\( \text{PM}_{10} \) (fine particles) and \( \text{VOC} \) (volatile organic compounds) emissions have fallen slightly, mainly due to a shift away from coal and wood for both domestic heating and industrial use, and are predicted to fall in future with fuel trends and technology improvement.\(^{158}\)

**Addressing Climate Change**

Levels of Greenhouse Gasses are predicted to increase. Therefore, Auckland must do its part to address this burning environmental issue.

**Sources of Greenhouse Gasses**

There are three main chemicals that cause Climate Change: carbon dioxide (46 percent), methane (35 percent) and nitrous oxide (18 percent), as shown in Figure 2. These emissions are expressed in carbon equivalents. The bulk of these gasses come from New Zealand’s energy, transport and agricultural sectors.

**What does Greenhouse Gas Equivalent Mean?**

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\(^{158}\) Auckland Regional Council (2004, p. 29).
Carbon equivalent reduces GHGs to a consistent numerical value. Conversion is needed because of the varying levels of the different chemicals' impact on Climate Change and their lifespan, for example, carbon dioxide has an atmospheric lifespan of fifty to two hundred years, while methane exists for only twelve years but has 23 times the impact.\(^{159}\)

**Figure 2: New Zealand's Emissions by Gas in 2003**

Source: (Figure 2.2.1 in New Zealand Climate Change Office, 2005b, p. 12)

NIWA estimates that New Zealand produces over 6 million tonnes of CO\(_2\) equivalents each year. This production is increasing. The New Zealand Climate Change Office\(^{160}\) estimates that between 1990 and 2003 New Zealand increased its GHG emissions by over 37 percent. Of this, transport accounts for approximately 40 percent of New Zealand’s CO\(_2\) equivalent output, or roughly 15 percent of the total of all greenhouse emitted.\(^{161}\) In addition, carbon emissions by transport are increasing at a rate faster than any other source. Figure 3 gives a breakdown of the GHG emissions by source. The two largest sectors are easily energy, particularly transport, and agriculture.

\(^{159}\) National Institute of Water and Atmospheric Research (2006).

\(^{160}\) (2006b).

\(^{161}\) (Gleisner & Weaver, 2006; Macbeth, 2004).
In 2003, road transport accounted for over 88 percent of the energy sector CO emissions or 75 percent of New Zealand’s total CO only emissions. Similarly, the energy sector was the largest source of NO\textsubscript{x} emissions (96.8 percent) with road transportation emissions comprising 40.9 percent of total NO\textsubscript{x} emissions.\textsuperscript{162} New Zealand is also a high per capita user of oil (Figure 4), well ahead of the OECD average, but behind the USA and Australia.

\textsuperscript{162} Ministry for the Environment (2005a).
When transport is removed from the equation, the level of per capita oil use decreases to well below the OECD average, which justifies a focus on this area.

New Zealand's Commitment Under the Kyoto Protocol

In 1999, the New Zealand Government signed the Kyoto Protocol, committing New Zealand to reduce its greenhouse gas emissions to below 1990 levels.

Under the Kyoto Protocol, recognition is made of new initiatives that reduce a nation's GHG output, which is rewarded by an international system of carbon credit exchange. If New Zealand plants new forests after 1990, they act as carbon sinks (storing carbon in trees), reducing New Zealand’s net carbon output. Since 1990, New Zealand has planted new forests which are estimated to have absorbed over 71 million tonnes in the 2008 – 2012 Kyoto commitment

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period.\textsuperscript{164} The New Zealand Climate Change Office, when taking into account forestation projects, concluded that New Zealand has a net deficit of 36.2 million tonnes of CO\textsubscript{2} equivalent GHGs.\textsuperscript{165}

Attention should be given to energy efficiency, given the recently created \textit{New Zealand Transport Strategy} which addresses Climate Change. Implicit in the Strategy is the recognition that major investment in the public transport system is needed to make it easy for Aucklanders to use public transport. Therefore this Strategy aims to increase funding for public transport, walking and cycling infrastructure.

A further initiative under consideration by the Auckland Regional Council is congestion pricing. As the success of schemes in cities like London, Jakarta, or Brisbane have become apparent, such a scheme is recommended in Auckland.

\textbf{EBS Critical Environmental Issue (b) Biodiversity, including habitat maintenance}

Climate Change is also an issue that relates to biodiversity. As the atmosphere becomes warmer, the ocean’s PH (acidity) level also increases. The impact is that many species are highly sensitive to even slight changes in acidity, for example coral reefs and therefore all of the species that are dependent on them as food sources, many of these species are at the bottom of the food chain and therefore ultimately affect our food sources.

Climate Change is also an issue related to forest cover.

Over the last two centuries, New Zealand has reduced its forest cover from 85 to approximately 23 percent. Similarly New Zealand’s fresh water wetlands have been reduced from 670,000 to less than 100,000 hectares.\textsuperscript{166}

Placing a value on biodiversity is complex at both national and regional levels. It is recognized as a matter of national importance because \textit{The New Zealand Biodiversity Strategy} estimates that

\textsuperscript{164} New Zealand Climate Change Office (2005b).

\textsuperscript{165} The New Zealand Climate Change Office (2005b).

\textsuperscript{166} Eley (2003).
biological diversity can be considered a major source of economic value, placing its worth at over 50 percent of New Zealand’s GDP.\footnote{167 Ministry for the Environment (2000).}

**EBS Critical Environmental Issue (c) Stabilizing and reducing population**

Climate Change is also related to the number of people living in New Zealand. In 2006, Statistics New Zealand estimated the population of New Zealand to be 4,134,200 people. The total population increased by over 40,900 (1 percent) from 2005. This growth was due in the main to natural increase.\footnote{168 Defined as the difference between births and deaths.} Natural increase accounted for 31,200 or 71 percent of this growth leaving 29 percent to net migration.\footnote{169 Statistics New Zealand (2006e).}

Successive New Zealand governments have attempted to boost economic growth by encouraging highly skilled and wealthy immigrants, many of which mainly settle in the Auckland region. Natural increase, particularly within the large Maori and Pacific Island groupings in the Auckland region, has placed pressure on Auckland’s infrastructure, particularly transport networks, sewerage and storm water systems.

Population growth has also placed an unsustainable pressure on Auckland’s ecosystem. Over the next few decades, Auckland’s population will double to over 2 million people. The bulk of this growth is projected to occur in Rodney, Franklin and Papakura Districts (on average 145 percent). This issue relates directly to Climate Change. As population increases, more Greenhouse gasses will be produced. Therefore population growth and immigration should be curbed to a level that is more sustainable.

**EBS Critical Environmental Issue (d) Social wellbeing (including economic health and eliminating poverty and health related issues)**
This Strategy recognizes that an equitable society does not allow its elderly or young citizens to live in a state of ill health or poor housing, or lack access to other basic amenities. This Statement is mindful that in many Western countries poverty still exists for a great many people. New Zealand in 2000 ranked at the very bottom of the OECD at over 28 percent of children living below the poverty line (Table 3).

In the New Zealand, the Social Report 2005 it shows that between 2001 and 2004, the rate of children living in poverty has fallen from 27 to 21 percent. This still places New Zealand almost at the bottom of OECD rankings. The recent Working For Families (WFF) Package announced by central government in 2005 gives greater financial support for working families with children. This includes improved affordable housing policies, supplementing childcare and early childhood education. The WFF package also includes an in-work benefit of 60 dollars per week for one, two or three children families. However, these supplements apply only to the those already in employment and not to those on the social welfare. This grouping has the highest proportion of people living in poverty. Eliminating the conditions that lead to social or economic deprivation is therefore a central goal of this strategy.

<table>
<thead>
<tr>
<th>Table 3: Child Poverty Rates in Selected OECD Countries</th>
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<tbody>
<tr>
<td>Denmark</td>
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<tr>
<td>Finland</td>
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<td>Norway</td>
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<tr>
<td>UK</td>
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<tr>
<td>New Zealand</td>
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<tr>
<td>USA</td>
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Source: (Mishel, Bernstein, & Allegretto, 2006, p. 29)

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171 Families with 4 or more children receive $15 extra per child (Inland Revenue, 2006).
Critical Environmental Issue (e) Eliminating persistent chemicals

This issue is not directly related to Climate Change, and therefore is not included in this chapter.

EBS Critical Environmental Issue (f) Consumption and disposal of resources

This issue is related to Climate Change, as landfills are responsible for the introduction of GHGs (mainly methane). In addition, the transportation of solid waste to landfills is not inconsiderable.

In New Zealand, the most common method of disposing of solid waste is land filling. Nationally the amount of solid waste continues to increase and numerous impacts may be attributed to solid waste. A critical issue to be addressed is that approximately a quarter of waste is organic, which when landfilled, releases methane into the atmosphere causing Climate Change. Methane from landfills accounts for approximately 5 percent of New Zealand’s greenhouse gas emissions.172 In addition, landfills generate leachate which consists of heavy metals and other composting organic wastes, which eventually find their way into the water system.173

As Auckland continues to produce unsustainable levels of solid waste, attention needs to be paid to this area, particularly in the production process. Examples of potential initiatives include the Global Reporting Initiative, which requires companies to publicize accounts of their economic, social and environmental performance in relation to its operations, on the same basis as financial reporting. To date over 1,000 companies worldwide use this format.174 This Strategy will seek to encourage companies to take up this form of accounting.

A further approach is the Material Flow Analysis, which involves taking a detailed measurement of a product from the extraction of raw materials, throughout their use and eventual disposal. The New Zealand government has awarded two million (NZ) dollars to the Zero Waste New Zealand

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172 Statistics New Zealand (2006f).


Trust for waste minimization initiatives, helping half of New Zealand’s local authorities to develop zero waste strategies. This Strategy is intended to encourage the adoption of these types of initiatives. In this case, a range of initiatives need to be created to address this issue. This centers on recognizing limits to growth by aiming at zero or close to zero solid waste disposal.

*EBS Application of Stage (4) Outline of Process and Stage (5) Timeframe*

The following Table 4 gives a timeframe for the application of the second generation Growth Strategy. It is envisaged that this will vary depending on the level of resources and targets created and level of public support. Overall, SSD creation process is intended to be carried out over a period of three years.\(^{175}\) Each number in column 1 corresponds to aspects 1 – 16 of the SSD model.

**Table 4: SSD Timeframe**

<table>
<thead>
<tr>
<th>Aspects 1 - 15</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tbody>
<tr>
<td>Aspect 1 Trigger SEA Process. Write EBS using SS criteria for PPPs</td>
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<td>Aspect 2 Define Strong Sustainability Model</td>
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<td>Aspect 3 Baseline level of Internalization of environmental externalities</td>
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<td>Aspect 4 Define Sectoral Ecological limits</td>
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<td>Aspect 5 Identify key unsustainable sectors and links between them</td>
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<td>Aspect 6 Describe candidate PPPs and possible impacts</td>
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<td>Aspect 7 Begin institutional review</td>
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<tr>
<td>Aspect 8 Describe synergies between other PPPs e.g. the RLTS initiatives e.g. air quality or Climate Change</td>
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<tr>
<td>Aspect 9 Design indicators &amp; targets. Describe impacts, and mitigation</td>
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<td>Aspect 10 Technical analysis</td>
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<tr>
<td>Aspect 11 Draft report of PPPs</td>
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\(^{175}\) The 3-year timeframe is based on the time it took the ARGS to be created. This table covers the SSD creation process, not the timetable for implementation.
| Aspect 12 | Political Go - No Go |
| Aspect 13 | Evaluate against SS. Set time frame for next iteration |
| Aspect 14 | Public hearings and write final report |
| Aspect 15 | Review SSD Assessment report and make formal decision |
| Aspect 16 | Implementation |

**Aspect 2: Define Strong Sustainability Model**

Sustainable Development has come to mean many things to many people. For the purposes of creating a beginning point for this Strategy, two definitions of Sustainability, may be observed:

…a pattern of social and structural economic transformations (i.e., 'development') which optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future. A primary goal of sustainable development is to achieve a reasonable (however defined) and equitably distributed level of economic well-being that can be perpetuated continually for many human generations.

A second definition is given by Pearce who argues for:

(a) development subject to a set of constraints which set resource harvest rates at levels no higher than managed or natural regeneration rates; and (b) use of the environment as a 'waste sink' on the basis that waste disposal rates should not exceed rates of (natural or managed) assimilation by the counterpart ecosystem.

A further definition is that “all economic growth in the future must be sustainable: that is to say, it must operate within and not beyond the finite limits of the planet”

In this statement, SS is understood to mean the following four principles:

5. Waste output = sink capacity in all areas of human activity

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178 Porrit (1984, p. 120).

179 Daly (1999).
6. The elimination of poverty (relative or absolute) through wealth redistribution (trans-national and intra-generational)\textsuperscript{180}

7. Non-renewable resource depletion = the rate of development of renewable substitutes\textsuperscript{181}

8. Economic growth that conforms to principles 1 – 3

These principles are applied in the following sections.

**Aspect 3: Baseline Level of Internalization of Environmental Externalities and Recommended Actions**

(a) Biodiversity

Biodiversity is declining in New Zealand as a result of invasive species, the influence of Climate Change and forestry conversion. New Zealand’s pristine forests are highly valued, yet the notion of pristine is largely a myth, as Pre-European contact Maori and later arrivals to New Zealand converted much of our forest into farmland. The widespread adoption of agricultural processes has significantly reduced species’ habitat, reducing New Zealand’s unique bio-heritage.

The term biodiversity encompasses a range of animal and plant species, both on land and in water. The marine environment is overseen by several different agencies, these include local and central government, the Ministry of Fisheries oversees aspects of marine bio-security, the Department of Conservation (DoC) is responsible for protecting endangered species and areas. Together with DoC, Regional Councils also manage coastal areas, as required by the RMA. This

\textsuperscript{180} Schnaiberg (1994).

\textsuperscript{181} Daly (1999).
also includes shipping discharges with territorial waters. The New Zealand Government is also required to produce a Coastal National Policy Statement.

As a signatory to the Convention on Biological Diversity, New Zealand has agreed to use market incentives to improve its biodiversity practices in relation to Sustainability goals. In broad terms there are three main drivers for loss of biological diversity, these are – (1) the introduction of non-native species (predation and competition), (2) over fishing and (3) loss of habitat. A further issue relates to the economic development of Auckland and its growing population. Because of higher standards of wealth and a growing population, as well as an international demand for housing, more affluent and mobile members of society inhabit sub-urban houses and second holiday homes where they live and recreate.\(^{182}\) This demand for land is stressing habitats and contributing to species loss.

In the Auckland region, much of its habitat has already been so affected by development that the damage has already been done. What does remain of the region’s forests has been protected by legislation which created land and marine reserves and parks. For these areas, the issue becomes less of altering human behavior and more on capacity building for controlling alien species, pest eradication, protecting declining species and breeding programs, as well as creating further resources.

The one exception to the use of eco-taxation is on agricultural land use. While the New Zealand Biodiversity strategy is calling for farmers to focus on biodiversity by improving water quality through the fencing of water channels and rivers. The practice of fencing rivers could be incentivized through a levy system where farmers are given a choice to either pay a charge aimed at financing water quality initiatives or exempt themselves by conforming to environmental rules. This is an example of what Amory Lovins calls a ‘fee-bate’\(^ {183}\) which involves applying a financial penalty for undesirable activities and giving a financial reward for a desired activity, usually funded by revenues gained from the penalties. Eco-taxation can also link biodiversity to Climate Change. Global warming has raised the temperature of the sea as well as causing ecosystemic disruption on land via storms and changing weather patterns. This weather disruption is in turn linked to

\(^{182}\) TerraNature (2006).

\(^{183}\) Hawken, Lovins, and Lovins (1999),
global biodiversity loss (World Conservation, 1999) via changing habitats. As McGlone (2001) notes:

There is a strong possibility that the climate of New Zealand will change substantially over the next 100 years, and this will inevitably impact on indigenous biodiversity and ecosystem functioning through the direct effect of atmospheric carbon dioxide concentration, warming, precipitation changes and alteration of the frequency and severity of extreme event (p. 5).

In relation to Climate Change, the Stern Review (2006) had this to say on the subject:

Ecosystems will be particularly vulnerable to Climate Change, with one study estimating that around 15 – 40% of species face extinction with 2°C of warming. Strong drying over the Amazon, as predicted by some climate models, would result in dieback of the forest with the highest biodiversity on the planet (p. 56).

**Recommendations**

- Increase fuel taxes to incentivize public transport use
- Levy the agriculture industry to incentivize clean farming practices

This is a limited example of eco-taxation and underlines the need for these types of initiatives to be viewed as one apparatus in a toolbox of instruments.

**(b) Climate Change**

Climate Change is critical area that affects Auckland’s environmental health. The following sections briefly cover the types of policies needed to achieve substantive change.

**Implementing User Charges**

In terms of Auckland’s transport, this means limiting output to approximately 250,000 tonnes per year. An aggregate reduction approach using the market could meet the conditions of both weak and SS models by imposing a quota system, similar to fishing or Singapore’s approach. In such a system, a number of conditions would have to be met.
Based on load capacity, Sustainability limits of carbon emission (right to pollute) would be defined.

The right to pollute (non-tradable quotas) would be divided by sector and individual usage.

The right to pollute or level of emission would then be divided on a per vehicle basis, determining the number of vehicles allowed.

A charging system for the private sector and individuals would be established, based on a bidding system.

The above charges would be linked to the subsidization of the new level of public transport required.

Even if the polluter pays principle could be internalized fully, the problem of free riding remains. If environmental costs are internalized, countries and companies should bear these costs evenly. This points toward the necessity of international environmental standards. One only needs to look to the implementation of the Kyoto Protocols; with nations such as Australia and New Zealand and business communities suggesting that non-Kyoto communities will have an unfair economic advantage. Consequently, any national-level environmental planning must be seen in the context of internationally negotiated structures as it is the international context that many companies operate.

**An alternative Approach**

Environmental taxation would need to be applied at the national level to be effective in most cases. Climate Change is ripe for the imposition of such measures. These costs are intended to be fiscally neutral in relation to total individual tax paid. The following eco-taxes are recommended:

- Introduction of graduated tax on vehicle ownership based on CC rating, linked to subsidizing public transport

- Annual road-user charge linked to subsidizing public transport
• Introduction of full-cost GHG emission charges on agriculture

• Full cost emissions charging on aviation fuel

• Full cost emissions charging on un-sustainable power stations e.g. Huntly power station

• Full cost of disposal of products imposed on producers

• Full cost of health impacts due to air quality emissions

Tighter controls on vehicles would have a number of positive spinoff effects. The reduction in vehicles could be accompanied by higher standards of vehicle age, maintenance, fuel efficiency and insurance requirements. By restricting the importation to new or near new vehicles, when combined with higher fuel efficiency standards, the overall fuel fleet efficiency would improve. This by itself would lead to less GHG emissions, and the lower number of vehicles would lead to lower levels of other types of air and water emissions. Lower air emissions would lead to a lower air pollution related deaths. In addition, newer cars would lead to improved safety standards, as newer cars are more likely to have the latest safety features. The reduction in the number of cars would also ease the pressure on councils to build new roads allowing them to focus on improving public transport.

A New National Approach to Reducing Congestion

The new national approach to reducing congestion uses a Vehicle Quota system. In this system, a set number of vehicles are allowed to be imported into the country. The price is then determined via a market mechanism where publics may purchase a Certificate of Entitlement which is openly contested through a bidding system and price is set by demand. Demand is very high in comparison to supply and so vehicle prices will become highly inflated, putting them outside of the purchasing range of many New Zealanders. Importing a car into New Zealand will incur a tax of 40 percent, an annual registration fee of 1,000 dollars for private vehicles and 5,000 for company-owned vehicles. In addition, when a car is registered for the first time (new or used) it incurs a once-off registration fee of 150 percent of total cost.
For Auckland (and other main centers), the policy includes restricting private vehicle use in the city center and a 40 percent tax on fuel applies. These strategies, when combined with the introduction of user charges for peak hours via electronic means, they will substantially internalize environmental costs and services. The result will be significantly reduced air and water pollution, major reductions in congestion and a massive uptake of public transport. Public transport quality will be improved because they are supported by the road user charges.

Tighter controls on vehicles would have a number of positive spinoff effects. By restricting the importation of vehicles, when combined with higher fuel efficiency standards, the overall fuel fleet efficiency would improve. This by itself would lead to less GHG emissions, and the lower number of vehicles would lead to lower levels of other types of air and water emissions. Lower air emissions would lead to a lower air pollution related deaths. In addition, newer cars would lead to improved safety standards, as newer cars are more likely to have the latest safety features. The recent Stern Review (2006) has given weight to the type of regulatory scenarios expressed here, potentially signaling a political shift.

(c) Stabilizing and reducing population

Population growth underpins all aspects of Sustainable Development. While much of New Zealand is open space, it still boasts a population that has exceeded nature’s ability to support it in a sustainable manner. As Auckland is the focal point for population growth, it makes sense to consider the positives of limiting population.

Recommendations

- An international population treaty is established requiring countries to define and meet a sustainable population level and agree to measures enforcing zero population growth
- A system of financial disincentives to procreate in the form of higher taxes be established
- Excluding refugees, reduce immigration inflows to a zero net gain
(d) Social Wellbeing

The creation of social equality again requires national-level and international-level attention. In this section, the aim is to reduce disparities, which is linked to the consumption of non-renewables.

Internalizing environmental costs by raising taxes to a high level will create a less unjust society and one which consumes less. Essentially a wealth tax will impede the more extreme wealth ratios and allow governments the funding to carry out programs aimed at alleviating social ills.

Social wellbeing also has a spatial dimension. Auckland is a heavily car-reliant city. The impact of this can be seen not just in terms of polluting our oceans and skies, but also in terms of its impacts on our communities. A range of social impacts occur:

- Social severance, where reliance on the private vehicle reduces the potential for social interaction. For example, this may occur when a large road severs a community. Research suggests this affects the elderly, young children and the disabled.\(^{184}\)

- The issue of reliance on roading is that it drives demand for more roads by creating more traffic demand; the social dimension is that demand for more roads creates pressure for more land leading to more urban sprawl. Auckland is a good exemplar of this process, where roads now account for between 25 and 30 percent of land.\(^{185}\)

- Over-reliance on private vehicles exacerbate social inequalities in the form of greater social isolation. Social isolation leads to worse health and weaker social ties, particularly for ethnic groupings.\(^{186}\)

- Reliance on cars also feeds into social isolation by undermining public transport. The second generation ARGS recognizes that it remains difficult for people to navigate around Auckland, as it is a predominately car-based transportation system. Approximately 11

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\(^{184}\) Kjellstrom and Hill (2002).

\(^{185}\) Cayford (2005).

\(^{186}\) Banwell, Hinde, Dixon and Sibthorpe (2005).
percent of households do not own a car,\textsuperscript{187} making it difficult for these groups to get access to the services they need.

**Recommendations**

- Increase the level of graduated tax to match Scandinavian levels
- Significantly higher spending on social programs (such as mental health), aimed at alleviating poverty and increasing education levels

**\textbf{(e) Eliminating persistent chemicals}\textsuperscript{*}**

Chemical pollution is a critical area that needs addressing, perhaps less so in New Zealand, but certainly in many other countries with lower environmental standards. A recent report published in *The Lancet* in 2006, suggests that over a quarter of all children suffer from various forms of developmental disability, for example, autism, cerebral palsy or attention deficit disorder. From their research in the United States, Grandjean and Perez (2006) suggest that while the effects of pollutants such as lead and mercury have long been known, there are over 200 chemicals that have the capacity to cause brain damage. The impacts of these chemicals at present levels are unknown. However, this issue, due to space considerations will not be addressed in this Chapter.

**\textbf{(f) Consumption and disposal of resources}\textsuperscript{*}**

Aucklanders are creating far too much solid waste. Few people relish the thought of landfills yet we are creating more and more rubbish. One way of reducing the amount of rubbish produced is to make people realize the true cost of its production and disposal, which would encourage people to be more responsible with what they throw away and how companies produce goods.

\textsuperscript{187} Kjellstrom and Hill (2002).
The internalization of costs is an area that can be applied to waste creation and disposal. Although this application would need to be mandated at the national level, the cost of packaging disposal could be included in the price. Auckland manufacturing companies could be required to take home any products and pay for their disposal thus giving an incentive to reduce the overall amount of packaging and resource use of their products. Eco-taxes may be applied to the production process to eliminate unsustainable energy production i.e. oil-based production. By taxing oil at its base i.e. at the point of purchase (or even earlier), this will tax non-transport related users of oil.

This applies especially to plastics and synthetic fiber products and paint. Attaching more realistic costs to packaging would encourage the development of alternative products and processes, for example bio-fuels and coconut oil-based products. Similarly, the total cost of solid waste disposal should be internalized and charged to companies who generate waste. This could be operationalized by developing strategies which encourage the analysis of material throughput. Some of these processes are summarized in Table 5.

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
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<tbody>
<tr>
<td>Dematerialization</td>
<td>Absolute or relative reductions in the use of nature (material and energy) per unit of output</td>
</tr>
<tr>
<td>Factor 4</td>
<td>This is an objective whereby the input of natural resources, raw materials and energy in each unit or production is to be reduced to one quarter of its current level in the long term, over the next 20 to 30 years</td>
</tr>
<tr>
<td>Factor 10</td>
<td>This is an objective whereby the input of natural resources, raw materials and energy in each unit or production is to be reduced to one tenth of its current level in the long term, over the next 20 to 30 years</td>
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</table>
Recommendations

- Charge companies the total cost of solid waste disposal as a separate charge
- Require companies to carry out material flow analysis
- Charge for the use of oil-based products
- Require companies to take back product packaging

Aspect 4. Defining Ecological Limits

This Aspect recognizes the environmental limitations facing Auckland related to Climate Change. It also relates Climate Change to population Growth.

Climate Change

This Strategy is premised on the idea that in order to meet Kyoto, New Zealand’s emissions for the first commitment period (2008-2012) must be less than 308 million tonnes of carbon dioxide equivalents.
Climate Change in Auckland is fueled by a number of factors which include:

- Levels of wealth and consumption
- The political climate
- Vehicle ownership and efficiency rates
- The overall size of the population.

As per capita wealth improves, vehicle ownership rates tend to rise, leading to more GHG emissions. Population therefore is a key dimension of Climate Change. While the assumption of 60 percent population increase in the Auckland region resulting from natural increase is retained from the previous ARGS, the balance of 40 percent from migration is questioned. This means it is assumed that policy will be developed that reduces immigration levels affecting Auckland.

While this issue is difficult to address at the local level, initiatives aimed at reducing population could include tax incentives for single-child families and tax disincentives for families of more than one child. This could be accompanied by anti-birth advertising as well as improvements in such things as sex education to reduce rates of teenage pregnancy, in conjunction with fully subsidized contraception and abortion.

**Recommendations**

Within the arguments for not limiting growth, there are some candidate non-spatial policy areas. These form part of the ARGS’s outcomes, and it is assumed in the spatial policy that they have been given effect. These are:

- Provide central government funding or non-rating property tax alternatives to offset the net economic losses experienced by local government from limiting growth. (Net is used here because the absence of some growth means costs will not be incurred and property tax will not be needed.)

- Central government to adopt an approach to reducing car ownership as a way to reduce congestion.
Policy to Reduce Vehicle Numbers and Congestion

There are several matters that are addressed in this PPP. For example, this PPP is responding to the estimate that approximately one third of New Zealand’s socio economic differences in mortality rates are due to deaths from motor vehicle injuries. In New Zealand (and for Auckland) there is higher pedestrian exposure to road traffic among those in lower socio economic circumstances, due largely to lower rates of car ownership. For instance, children aged 5 to 9 years in the lowest household income bracket cross 50 percent more roads on their way to school than those in middle and higher income brackets. The higher exposure levels are thought to partially explain the increased injury rates of children in lower socio economic groups. There is also evidence for ethnic disparities in injury rates. In New Zealand, for instance, the hospitalization rate from road traffic injury for Māori children is three times that of non-Māori children. Pedestrians and cyclists comprise exclusion.188

Similarly there is a connection between car dependency and housing. Housing is important factor in the well-being of individuals and families. High housing costs relative to income are often associated with severe financial difficulty, especially among low income households, and can leave such households with insufficient income to meet other basic needs such as food, clothing and transport. Low cost transport therefore needs to be available to low SES (Socio-Economic Status) groups in order to participate in society.

It is also recognized that this part of the Strategy would have a significant impact on the lives of New Zealanders. The issue of Climate Change, transport and land use is multi-dimensional and needs to be addressed from a range of institutional jurisdictions. Government interests include the Ministry of Health, Transit NZ, Ministry of Justice, Ministry of Housing, Ministry of Transport, Ministry of Economic Development, the Ministry of Social Policy, and Te Puni Kokiri. These Ministries will need to work collectively to address this issue in conjunction with Local Government and affected industry groups. In particular, they need to address the reality that there is a range of positive and negative impacts of reducing the number of vehicles on New Zealand’s roads.

188 Public Health Advisory Committee (2003).
Cutting the number of vehicles on the roads would augment the usage of passenger transport systems. There are a number of consequential impacts that need to be considered in the preparation of this PPP. For example, currently approximately 30 percent of people do not have access to private vehicle use. As the population grows older, this figure is likely to increase. The assumed national policy changes on vehicle quotas will also change this situation.

This Strategy recommends a reduction in the number of vehicles, through a system of vehicle quotas. It recognizes that this quota would need to be enacted at the national government level. In addition, an increase in the fuel and engine efficiency of existing vehicles is needed to augment this system.

**Policy on Car-Dependent Cities:** this policy addresses the question of how do we address the problems arising from inheriting a car dependent city? A car dependent city generates social exclusion – to be poor and car-less is to face reduced access to employment, entertainment and social opportunities. This PPP recognizes, therefore, that urban transport is not just about physical mobility; it is an important aspect of social policy.

This PPP is intended to produce the following Desired Regional Outcomes:

- Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations
- An efficient and reliable, rail-based goods transport system
- A switch to a reliance on public or alternative transport as the main mode of individual travel
- Equal ability to access public transport and alternative modes of transport

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189 Ministry of Transport (2002).
Possible Responses by Desired Regional Outcomes

(1) Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations

Candidate Policy responses include:

- Vehicle emissions testing and compulsory tuning
- Requirement to tune vehicles every six months
- A graduated system of vehicle registration charges relating to engine size or fuel efficiency
- Emissions testing for industries – establishing maximum pollution levels
- Establish industrial polluting rights system
- Requiring cleaner burning fires or switching to electricity
- Requirement for P.V. electricity generation for new houses and buildings and inducements to get existing ones installed

(2) An efficient and reliable, rail-based goods transport system

Candidate Policy responses include:

- Reduce competition between alternative transport modes and private vehicle use
- Freeze new road construction
- Road charging to reflect ‘real’ cost of motoring
- Develop greater trans-regional integration
(3) A switch to a reliance on public or alternative transport as the main mode of individual travel

Candidate Policy responses include:

- Introduce vehicle charging system for central Auckland
- Cap resources directed at new roading projects
- Increase subsidization of non-economic bus routes
- Increase rail capacity
- Increase spending on bus priority lanes
- Increase spending on encouraging alternative transport systems such as high quality cycle lanes

(4) Equal ability to access public transport and alternative modes of transport

Candidate Policy responses include:

- Increase subsidization of non-economic bus routes
- Increase bus and rail capacity
- Increase spending on bus priority lanes
- Integrated cross-modal ticketing system

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190 The Surface Transport Costs and Charges report (Booz Allen Hamilton, Institute for Transport Studies, & University of Leeds, 2005), shows that land transport, particularly cars and trucks, impose significant costs on the environment and society, such as air pollution, Climate Change, and noise pollution. The study found that the true costs to society of road and rail transport are more than $1 billion higher than the amount of money the Government collects from road users, in the form of petrol tax, road user charges, motor vehicle fees and other fees. While this is a national level study, much of this spending is at a regional level. Only a minority of this funding goes on transport alternatives. Disproportionate investment in roading impacts on future generations through continued commitment to GHG emitting transport. Consequently, it is recommended that alternative transport receive a similar level of subsidization.
Increase spending on encouraging alternative transport systems such as high quality cycle lanes

Aspect 5. Key Unsustainable Sectors and Links Between Them

This Strategy recognizes the importance of institutions cooperating in order to accomplish goals that they would be unable to achieve individually. In many respects, this 2nd generation growth strategy is aimed at transportation policy. Within this sector, the key actors are territorial authorities, Transfund and the Transit New Zealand. The goal of this stage of developing a new strategy is to align the policy outcomes of all of these actors with a strong focus on Sustainability.

Road Transport

This Strategy recognizes that operating within the Auckland region is Transit New Zealand (Transit) which is the Crown Entity responsible for building and maintaining New Zealand’s state highway system. Transit is responsible for 12 percent of all of New Zealand’s roads, approximately 11,000 kilometers in length, with an annual budget of over one billion (NZ) dollars per year. Transit is responsible for the State Highway system in the Auckland Region, which includes the Auckland motorway and arterial system.

It is important for this hypothetical Strategy to recognize the role of Transit because one of its key purposes is “coordinating land-use planning and transport planning to achieve integrated and sustainable transport solutions.”

191 Transit New Zealand (2005).

In addition, Transit NZ is “fully involved at the beginning of local authority planning processes and individual development proposals to promote integrated land use and transport solutions.”\textsuperscript{193}

Transit also works with the Road Controlling Authorities (RCA) forum, a forum convened jointly by Transit and Local Government New Zealand. This group is set up to share knowledge and to facilitate joint progress on roading related issues nationwide.

This Strategy also takes into account Transit’s 500 million dollar plan to upgrade State Highway 1 south of the Auckland Regional boundary, by upgrading the present arterial route with a continuous four lane motorway. This will bypass Ohinewai, Huntly, Taupiri, Ngaruawahia, Hamilton City and Cambridge. Transit NZ has promoted the project for a number of benefits including, reducing the number of fatalities and crashes, reduce travel time and congestion. This Strategy accepts that this will reduce congestion and time taken to drive to any of the destinations between Mercer, Cambridge and Hamilton.

This Strategy also addresses the completion of Auckland’s motorway system. The completion of Auckland’s motorway system is key plank in the first generation ARGs but it requires a modification to its own goals. This is to structure public transportation in such a way that it competes with the motor vehicle so as to reduce traffic use and congestion.

\textbf{Recommendation}

The issues addressed here highlights the need for a national-level transport policy assessment system linked to regional development projects, with the much stronger SSD model used as a basis for creating policy. These types of processes are needed to form a cornerstone for the tiering of policy. This ARGs assumes that strong, sustainable linkages will be made between local projects which are in turn clearly articulated in national-level policy.

Consequently this second generation ARGs makes provision for the extension of Auckland’s rail-based public transport system to be extended into the Waikato region as far as Hamilton. This is subject to cross-regional agreements between the Auckland and Waikato Regional Councils.

\textsuperscript{193} ibid.
Aspect 6: Candidate Policies and Possible Impacts

Aspect 6 of the SSD model evaluates candidate plans according to the SS System Conditions. It is assumed that PPPs will be developed from the Critical Environmental Issues identified in the Environmental Briefing Statement (Table 1).

Aspect 7: Synergies Between Other PPPs

The development of a truly sustainable Auckland will require the linkages between related PPPs and the proposed second generation growth strategy. This is needed in order to align public policy instruments as these often determine organizational structure and their operational direction. An example of the type of content that could apply to the ARGs follows.

The bulk of air pollution is caused by inefficient fuel combustion and domestic fires. As heavy metals settle from the air, they eventually make their way into the eco-system. Drainage from city roads always contains contaminants including a range of petrochemicals and heavy metals.

These chemicals are harmful to invertebrates,\textsuperscript{194} especially if the runoff enters small streams with little dilution.\textsuperscript{195} Auckland’s harbors and waterways show a steady increase in the level of heavy metal contamination (lead, zinc and copper) and hydrocarbons (polycyclic aromatic hydrocarbons in particular)\textsuperscript{196} mainly attributable to motor vehicle emissions transported into the harbor via air and stormwater.\textsuperscript{197}

\textsuperscript{194} Invertebrates are animals without backbones such as snails or crayfish.

\textsuperscript{195} Waitakere City Council (2003).

\textsuperscript{196} Organic compounds containing only hydrogen and carbon atoms.

\textsuperscript{197} Kjellstrom and Hill (2002).
The benefit of focusing on synergies between plans may be seen in how vehicle dependence is linked to social factors. A candidate plan relates to the recommendation to reduce the number of vehicles in through a system of vehicle quota. This quota would need to be enacted at the national government level. In addition, an increase in the fuel and engine efficiency of existing vehicles is needed to augment this system. Cutting the number of vehicles on the roads would augment the usage of passenger transport. Urban transport is not just about physical mobility; it is an important aspect of social policy. A car dependent city generates social exclusion – to be poor and car-less is to face reduced access to employment, entertainment and social opportunities. Therefore reducing vehicle dependence would reduce these impacts.

Housing is an important factor in the well-being of individuals and families. High housing costs relative to income are often associated with severe financial difficulty, especially among low income households, and can leave such households with insufficient income to meet other basic needs such as food, clothing and transport. Low cost transport therefore needs to be available to low SES groups in order to participate in society.

This aspect could produce the following desired regional outcomes:

(1) Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations

**Possible Responses**

- Vehicle emissions testing and compulsory tuning
- Requirement to tune vehicles every six months
- A graduated system of vehicle registration charges relating to engine size or fuel efficiency
- Emissions testing for industries – establishing maximum pollution levels
- Establish industrial polluting rights system
- Requiring cleaner burning fires or switching to electricity
- Requirement for P.V. electricity generation for new houses and buildings and inducements to get existing ones installed

(2) An efficient and reliable, rail-based goods transport system

Possible Responses
- Reduce competition between alternative transport modes and private vehicle use
- Freeze new road construction
- Road charging to reflect ‘real’ cost of motoring
- Develop greater trans-regional integration

(3) A switch to a reliance on public or alternative transport as the main mode of individual travel

Possible Responses
- Introduce vehicle charging system for central Auckland
- Cap resources directed at new roading projects
- Increase subsidization of non-economic bus routes
- Increase rail capacity
- Increase spending on bus priority lanes
• Increase spending on encouraging alternative transport systems such as high quality cycle lanes

(4) Equal ability to access public transport and alternative modes of transport

The *Surface Transport Costs and Charges Report*\(^{98}\) shows that land transport, particularly cars and trucks, impose significant costs on the environment and society, such as air pollution, Climate Change, and noise pollution.

The study found that the true costs to society of road and rail transport are more than $1 billion higher than the amount of money the Government collects from road users, in the form of petrol tax, road user charges, motor vehicle fees and other fees. While this is a national level study, much of this spending is at a regional level. Only a minority of this funding goes on transport alternatives. Disproportionate investment in roading impacts on future generations through continued commitment to GHG emitting transport. Consequently, it is recommended that alternative transport receive a similar level of subsidization.

**Possible Responses**

• Increase subsidization of non-economic bus routes

• Increase bus and rail capacity

• Increase spending on bus priority lanes

• Integrated cross-modal ticketing system

• Increase spending on encouraging alternative transport systems such as high quality cycle lanes

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Aspect 8: Indicators and Targets For PPPs

Similar to a vehicle warning dial, an indicator is a simple representation of a complex system. In this case, the complex system is the environment and social trends. Indicators are linked to targets and targets are a result of policy deliberation. Consequently, measurement of key indicators allows authorities to gauge whether or not policies are succeeding.

The targets, policies and indicators are taken from the above sections and summarized in Table 6.
<table>
<thead>
<tr>
<th>Aim / Target</th>
<th>Policy</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biodiversity</strong></td>
<td>• Increase fuel taxes</td>
<td>• Rate of species loss</td>
</tr>
<tr>
<td></td>
<td>• Levy the agriculture industry to incentivize clean farming practices</td>
<td>• Area dedicated to reserves</td>
</tr>
<tr>
<td></td>
<td>• Levy tourism industry for funding for biodiversity programs</td>
<td>• Level of reserve connectivity</td>
</tr>
<tr>
<td><strong>Climate Change and Air Quality</strong></td>
<td>• Zero deaths from air pollution</td>
<td>• Deaths due to air pollution</td>
</tr>
<tr>
<td></td>
<td>• Atmospheric temperature stabilized</td>
<td>• Rate GHG equivalent output</td>
</tr>
<tr>
<td></td>
<td>• Equal ability to access public transport and alternative modes of transport</td>
<td>• Number of vehicles</td>
</tr>
<tr>
<td></td>
<td>• Reduce competition between alternative transport modes and private vehicle use</td>
<td>• Percentage of vehicle tuning</td>
</tr>
<tr>
<td></td>
<td>Develop greater trans-regional integration</td>
<td>• Percentage of homes with electric heating,</td>
</tr>
<tr>
<td></td>
<td>• A switch to a reliance on public or alternative transport as the main mode of individual travel</td>
<td>• Percentage of homes with high standard of insulation</td>
</tr>
<tr>
<td></td>
<td>• Air quality is maintained by no impact occurring and is improved to acceptable levels for future generations</td>
<td>• Percentage of homes with PV power generation</td>
</tr>
<tr>
<td></td>
<td>• Rate of species extinction halted</td>
<td>• Percentage of total renewable energy</td>
</tr>
<tr>
<td></td>
<td>• Area dedicated to reserves</td>
<td>• Rate of new road construction</td>
</tr>
<tr>
<td></td>
<td>• Levy tourism industry for funding for biodiversity programs</td>
<td>• Rate passenger uptake and trips</td>
</tr>
<tr>
<td></td>
<td>• Level of reserve connectivity</td>
<td>• Rate of cycling trips</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rate of walking trips</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Emissions levels (CO₂, NOₓ, SO₂, PM₁₀₂·₅) by sector</td>
</tr>
<tr>
<td><strong>Population</strong></td>
<td><strong>Social wellbeing</strong></td>
<td><strong>Chemical pollution</strong></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>• Zero Population Growth</td>
<td>• Alleviating poverty and improving mental health and education levels</td>
<td>• Chemicals disposal at a rate equal to sink capacity</td>
</tr>
<tr>
<td>• A system of financial disincentives to procreate in the form of higher taxes</td>
<td>• Increase the level of graduated tax to match Scandinavian levels</td>
<td>• The introduction of an eco-tax on the importation of products containing the above chemicals</td>
</tr>
<tr>
<td>• One child policy</td>
<td>• Significantly higher spending on social programs (such as mental health),</td>
<td>• Charge companies the total cost of solid waste disposal as a separate charge</td>
</tr>
<tr>
<td>• Excluding refugees, reduce immigration inflows to a zero net gain</td>
<td>• Incorporate the fiscal aim of reducing economic growth to between 0 and 1 percent</td>
<td>• Require companies to carry out material flow analysis</td>
</tr>
<tr>
<td>• Rate of population increase</td>
<td>• Increase funding to match the corresponding growth in unemployment</td>
<td>• Waterway chemical pollution</td>
</tr>
<tr>
<td>• Rate of immigration</td>
<td>• GINI coefficient</td>
<td>• Ocean chemical pollution</td>
</tr>
<tr>
<td></td>
<td>• Suicide rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Level of imprisonment</td>
<td></td>
</tr>
</tbody>
</table>
**Aspect 9: Write Draft Report of PPPS**

Drafting a final report is a critical aspect to the policy creation process and this Aspect differs little from the standard SEA process. Here, goals targets and the means to attain them and their justification should be clearly stated. The report should be peer reviewed, using both political actors as well as being subject to a final public submission process.

**Aspect 10: Technical and Political Review**

On a more mundane level, the socio-political context can be addressed through a consideration of Capability Building, including issues of Commitment and Capacity. Strengthening institutions consists of:

8. Recommendations for strengthening and identification of the individual authorities/institutions responsible for the implementation of the PPP (e.g. forestry, agriculture, transport, health, finance, industry departments) and for monitoring its effectiveness (e.g. environment and/or health departments);

9. Recommendations for creating synergies between the various identified authorities and institutions thus encouraging collaboration and formation of alliances around common goals;

10. Recommendations for strengthening of public participation skills; and


12. Development of education as an important mechanism contributing to a plan or program’s Sustainability and to the distribution of PPP derived benefits to local people.

13. Ensuring an adequate distribution of benefits, as to minimize conflict of interest among different societal groups.

14. Ensuring that special attention will be given to extending the benefits to the poorest levels of the society.¹⁹⁹

The two Aspects of political and technical review are linked together as neither are independent of each other. Capacity building rests on the skills and resources of an organization. While these are

important components, they are by no means the most critical. The most critical aspect is commitment to an organizational or ideological goal.

The decider for achieving SD is related to previously established models of Sustainability and carrying capacity loads. In the case of Auckland, this is a technically difficult aspect to establish and one the ARGS considered. The notion of carrying capacity of a city in many respects cannot be considered in isolation to the rest of the country. The application of carrying capacity to agricultural production for example, is difficult as many goods are produced outside of the region and transported to Auckland for export. Stated differently, many aspects of Sustainability can only be addressed in conjunction with national level planning and even at the international level.

Aspect 11: Evaluate Technical and Political Input Strategy Against Strong Sustainability

The International Association for Impact Assessment (2002) published performance criteria for accountability, these are:

- Is it the responsibility of the leading agencies for the strategic decision to be taken.
- Is it carried out with professionalism, rigor, fairness, impartiality and balance.
- Is it subject to independent checks and verification
- Documents and justifies how Sustainability issues were taken into account in decision making.\(^{200}\)

In addition to these criteria, a final evaluation should be carried out to examine how the proposals match the SS criteria.\(^{201}\) In addition, the review process should seek to improve the PPP delivery process by finding ways to integrate public bodies in order to act in a more coherent manner.


\(^{201}\) See Table 22: Strong Sustainability System Conditions.
Similarly, the evaluation should be cognizant of national and international developments in the area of SD. As this process is in many respects reliant on national and international level developments as well as public support, an evaluation of a strategy is also reliant on evaluating developments in these spheres. Consequently, relying purely on indicators that relate to only physical, economic or social processes ignores critical subsidiarity processes such as developing relationships and integrating previously unaligned institutional actors.

Aspect 12: Public Hearings and Writing the Final Strategy

The content in this section will be written at the time to reflect the following purpose of this Aspect.

The second generation Growth Strategy will be finalized at this stage and will consist of a number of processes:

- The consultation process will include space for the public and relevant agencies to comment on the final proposed strategy
- The report should contain a description of the overall process which includes the findings of the report as well as how it influenced the creation of the report. The format should be designed with the general public in mind.
- In the next stage of the assessment, the Strategic Sustainability Assessment Working Group will integrate the comments received from the public and relevant agencies

Aspect 13. Review 2nd Generation Growth Strategy and Make Formal Decision

In this section, input from the peer review process and public is considered. SSD is not considered a decision-making process per se, rather a decision-augmenting process designed to create alternatives that are not traditionally considered. Various decision-making models exist for analyzing alternatives for example C-B analysis and Multi-criteria analysis. While the focus of this SSD is not on decision-making processes, some objectives with decision-making are identified:
Often there exist multiple objectives that need to be applied to specific instruments

As there are alternatives, the decision-making process needs to identify trade-offs

Often goals and objectives require national-level policy intervention / cooperation as well as requiring cross-regional cooperation

A balance needs to found against a backdrop of a plurality of stakeholders

The decision-making process needs to incorporate models that internalize environmental externalities

The decision-making process needs to address social equity as a key concern

The decision making process must evaluate decisions within the String Sustainability framework

**Aspect 14. Implementation**

Implementing a new growth strategy requires there to be a process that integrates the policies and applications at an appropriate level. Based on the notion of tiering, this strategy is intended to give consistency to the policies it envisages. Table 7 shows one policy area that delineates policy needs by levels of national and central government. This demonstrates the crossover between national government and regional level government. It shows that, in many cases, the relationship between local and central government must be strengthened in order to achieve the outcomes envisaged by this strategy.
<table>
<thead>
<tr>
<th>Aim</th>
<th>Policy</th>
<th>Government</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero deaths from air pollution</td>
<td>Higher annual road-user charge</td>
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<td></td>
<td>Vehicle emissions testing and compulsory tuning</td>
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<td></td>
<td>Increase spending on encouraging alternative transport systems such as high quality cycle lanes</td>
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<tr>
<td>Atmospheric temperature stabilized</td>
<td>P.V. electricity generation for new houses and buildings and inducements to get existing ones installed</td>
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<td></td>
<td>Requiring cleaner burning fires or switching to electricity</td>
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<tr>
<td></td>
<td>Introduction of full-cost GHG emission charges on agriculture and electricity</td>
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<tr>
<td>Equal ability to access public transport and alternative modes of transport</td>
<td>Increase spending on bus priority lanes</td>
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<td></td>
<td>Increase rail capacity</td>
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<td></td>
<td>Increase subsidization of non-economic bus routes</td>
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<tr>
<td>Reduce competition between alternative transport modes and private vehicle use</td>
<td>Freeze new road construction</td>
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<tr>
<td>Develop greater trans-regional integration</td>
<td>Full cost emissions charging on carbon-based energy sources</td>
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<tr>
<td>A switch to a reliance on public or alternative transport as the main mode of individual travel</td>
<td>Amalgamation of public transport providers</td>
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<td></td>
<td>A bidding system for the private sector and individuals to operate a motor vehicle</td>
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<td></td>
<td>Introduction of graduated tax on vehicle ownership based on CC rating, linked to subsidizing public transport</td>
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<td></td>
<td>A graduated system of vehicle registration charges relating to CC rating or efficiency</td>
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<tr>
<td></td>
<td>Full cost of health impacts due to air quality emissions</td>
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</tbody>
</table>