NOTE TO USERS

STRATEGIC ENVIRONMENTAL ASSESSMENT OF COMPREHENSIVE PLANS: A COMPARATIVE ANALYSIS OF COMPREHENSIVE PLANS FROM SCOTLAND, CALIFORNIA, AND NEW ZEALAND

by

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Abstract

Environmental impact assessment (EIA) has been successfully established world-wide as an effective tool to promote sustainable development by addressing the environmental impacts of development on a project by project basis. *Strategic environmental assessment, or SEA*, has emerged over the past ten years, as a way to integrate environmental considerations at more strategic levels of decision-making. In particular, the planning system has a vital role to play in promoting more sustainable land-use patterns and use of resources. The community's comprehensive plan must set a framework for long-term development that helps promote a more sustainable future for everyone in the community.

While the effectiveness of EIA has been of interest to researchers for some time, it is only recently that the effectiveness of SEA is receiving similar attention. There have been very few attempts to evaluate SEA application to comprehensive plans. The primary purpose of this thesis is to examine and compare the application and the effectiveness of SEA in comprehensive plans in three case studies: Perth and Kinross Council (Scotland); San Joaquin County (California, US), and Waitakere District (New Zealand). To compare effectiveness in the three case studies, an evaluation framework has been developed. The cases are evaluated against criteria within four levels of the framework: policy context, institutional arrangements, SEA processes, and SEA methods.

This study has shown that the strategic environmental assessment processes of the comprehensive plans in Perth and Kinross (Scotland), San Joaquin County (California, US), and Waitakere District (New Zealand) were only adequately effective. Differences in effectiveness among the three cases as well as among the levels of the evaluation framework, indicate two things. First, while there is scope for improving current practice, there is no need to reinvent the wheel. The knowledge for conducting SEA successfully is there and waiting to be applied. Second, as experience grows, and as regulations, guidance and training are strengthened, SEA practice is improving.

There appears to be resistance among decision-makers to either implement SEA processes in the absence of legal obligations, and to abide by the recommendations that emerge from the SEA. Advocates of SEA must recognize that many decisions are really made incrementally, and that decisions are often made with imperfect information despite the effort and resources spent to collect data and information (Clark 2000, 16). Although SEA is not without problems (for example, the establishment of good baseline data, approaches to the assessment of environmental capacity, and the tensions involved in the trade-offs between socio-economic and physical environmental goals (Glasson 1995, 729), the process does offer the potential to integrate environmental and sustainability factors into the mainstream of policy-making and planning. Assessment of environmental impacts at higher tiers of decision-making addresses the cause of environmental problems at their policy source, rather than just treating the symptoms of the impacts.

Overall SEA can be seen as a catalyst toward more integrated planning for sustainable development. SEA is still in a relatively early stage in its development, and current practice provides a stepping stone to something more substantial. SEA is significantly more complex than project EIA, and it will require developing a professional capacity to ensure its success and acceptance.

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Chapter One
Introduction

1.0 Introduction

Planning for sustainable development is about making the built environment more liveable, ecosystems healthier, economic development more responsive to the needs of place and the benefits of improvement more equitably distributed (Ericksen et al. 2001). Local land-use plans (referred to as "comprehensive plans" in this thesis) should integrate these elements of environmental quality, economic development and social well-being. The integration of environmental impact assessment (EIA) principles into planning and policy making has been called the "ultimate means by which sustainable development can be achieved" (Partidario 1996, 34). *Strategic environmental assessment (SEA)* has emerged as a way to integrate EIA and comprehensive planning to promote sustainability. SEA is a process for identifying and assessing the environmental effects of a policy, plan or program (PPP) so that they may be taken into consideration before the plan is approved or adopted.

While EIA focuses narrowly on the potential environmental impacts that may arise from a specific development project, SEA is set at a higher, more strategic level of decision-making, within a context of broader visions, goals and objectives. The 'strategic' component of SEA is "the process of defining goals or visions in terms of the desirable principles to be established, proposing alternative possibilities to achieve these principles, and selecting the most desirable approach" (Noble 2002).

Many countries currently undertake SEA or a SEA-type system of their comprehensive plans, such as the United Kingdom, Sweden, the United States and New Zealand (refer to Appendix A for an overview of SEA of plans in selected countries). While the term "SEA" is not always used to describe these existing practices, the type of evaluation complies with

many of the principles of SEA as described in the academic literature (Sadler 1998; Sadler and Verheem 1996; Partidario 1996; Therivel et al 1992). In this thesis, the term SEA will be used to refer to all SEA-type systems. Driven by the recent adoption of the European Union's Directive for SEA[1] which requires the 15 Member States[2] to implement legislation for SEA for plans and programmes (including comprehensive plans), there has been an upsurge of attention to this topic by both academics and practitioners. One of the key areas of interest is the evaluation of the effectiveness of SEA, as applied to comprehensive plans and the ways in which effectiveness can be measured. The effectiveness of EIA systems has been of interest for some time (e.g., Sadler 1996; Wood 1995; Gibson 1993; CEARC 1988), but it is only recently that the effectiveness of SEA systems has been considered (e.g., Fischer 1999; Marsden 1998a; Sadler and Verheem 1996).

In evaluating effectiveness, the concern is with "how well SEA actually works, which components and activities contribute to or detract from success, and what realistically could be done to improve the process(es) under review" (Sadler and Verheem 1996, 18). Two dimensions of effectiveness have been described in the "SEA Report" (the accompanying document to the International Study on the Effectiveness of Environmental Assessment) – substantive and procedural (Sadler and Verheem 1996). The first is used to determine the extent to which SEA performance meets "established purpose(s), goals and objectives", and the second is used to determine the extent to which SEA performance meets "accepted provisions and principles".

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[1] Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment. Adopted at Luxembourg on 27 June 2001 (CEC 2001).

[2] Currently, the 15 Member States of the European Union include (with date joining EC/EU): Austria (1995), Belgium (1952), Denmark (1973), Finland (1995), France (1952), Germany (1952), Greece (1981), Ireland (1973), Italy (1952), Luxembourg (1952), the Netherlands (1952), Portugal (1986), Spain (1986), Sweden (1995) and the United Kingdom (1973).

The principles and features of SEA have been highlighted in numerous journals, exploring the benefits of, and rationale for, SEA as a concept. There have been few efforts directed towards the comparative evaluation of SEA application at the plan level. This thesis aims to fill that gap by exploring the current state of SEA or SEA-type systems of comprehensive plans and by evaluating the effectiveness of SEA-type systems in comprehensive planning through a comparative review of three case studies located in Scotland, California and New Zealand. These case studies represent three different models of SEA within three distinct jurisdictions.

1.1 Purposes and Objectives of Research

The primary purpose of this thesis is to examine the application and the effectiveness of SEA in comprehensive planning. To achieve this purpose, the research has the following objectives:

(i) to determine how SEA is applied to comprehensive plans in the United Kingdom, California and New Zealand;

(ii) to develop an evaluation framework and associated criteria, against which to measure the effectiveness of SEA of the identified case studies' comprehensive plans;

(iii) to use this framework to measure the effectiveness of SEA systems in comprehensive plans, both *procedurally* (the extent to which the SEA system conforms to established provisions and principles) and *substantively* (the extent to which the objectives of SEA are met);

(iv) to determine whether the model of SEA followed (i.e., standard or EIA-based model; equivalent or environmental appraisal model; integrated or environmental management model) results in greater effectiveness;

(v) to verify whether current SEA theory accurately reflects existing SEA practice; and

(vi) to provide suggestions to improve SEA of comprehensive plans.

1.2 Research Questions

In order to realize the research purpose and objectives, the following five research questions were posed:

(i) What are the criteria and how does one determine effective implementation of strategic environmental assessment (SEA) of comprehensive plans?

(ii) To what extent does SEA of comprehensive plans follow accepted provisions and principles (procedural effectiveness), and to what extent does SEA result in the achievement of its stated goals and objectives (substantive effectiveness)?

(iii) Does the model of SEA followed result in greater effectiveness?

(iv) Does current SEA theory accurately reflect existing SEA practice?

(v) What recommendations can be made to improve the effectiveness of SEA as applied to comprehensive plans?

The answers to these questions may provide guidance to future planners, local authorities and decision makers at all levels that wish to implement effective SEA systems for the evaluation of comprehensive plans.

1.3 Background

For the past decade, different strategic environmental assessment processes have been used in several countries under different names. A number of definitions for SEA are offered in the academic literature and through legal provisions for SEA. One of the most cited definitions is offered by Therivel et al (1992, 19-20):

> *...a formalized, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or programme and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making.*

This definition highlights several key features of SEA including: a systematic process, the need for evaluating alternative options, documentation and the accountability of decision makers to the public. Similarly, Sadler and Verheem (1996, 27) also highlight SEA as a systematic process, but their definition identifies the need for early application of SEA and the equal consideration of all three elements of sustainability:

> *SEA is a systematic process for evaluating the environmental consequences of proposed policy, plan and programme initiatives in order to ensure that they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations.*

Although the term 'SEA' is fairly recent, SEA-type provisions were mentioned for the first time at the birth of EIA, in the form of a need to "...include in every recommendation or report on proposals for legislation...a detailed statement on...the environmental impact of the proposed action..." [excerpt from NEPA 1969, Section 102(4332) (c)]. More recently, the growth of interest in SEA (as well as the term itself) has been spurred by the European Union with its recent adoption of a SEA Directive that requires all Member States to incorporate SEA into national legislation for certain plans and programmes by July 2004.

Over the past decade, experience has accumulated in the practical application of the strategic environmental assessment of comprehensive plans in many countries, including the United Kingdom, Sweden, Belgium and the United States, to name a few. However, a review of the existing SEA literature led to the following conclusions: (i) SEA has been applied primarily in an ad hoc manner, with little attention devoted to the development of an appropriate framework and a set of tested methods (Partidario 2000; Therivel et al 1992;

Bridgewater 1989); (ii) a greater understanding of the political and institutional contexts that SEA occurs within will serve to advance the effectiveness of SEA application (Marsden 1998a; Marsden 1998b; Partidario 1996; Sadler and Verheem 1996); (iii) many practical issues with respect to the application of SEA processes and methods have yet to be resolved (Sadler 1998; Sadler and Verheem 1996); and (iv) an understanding of how assessments from different countries compare in both application and effectiveness has been inadequate (Fischer 1999).

1.4 Case Studies

In order to address the research questions, three case studies were selected from around the world and evaluated against a set of identified criteria (refer to Chapter Three and Chapter Four). The cases were selected on the basis of several criteria: (i) the case must include an evaluation of the environmental (or sustainability) impacts of a comprehensive plan (as defined in section 1.5); (ii) the primary language must be English to assist in the interpretation of documents and interviews by the researcher; (iii) case study material must be easily accessible; and (iv) the case must be identified as a "good practice" SEA by the literature, practitioners or through special recognition (such as awards). Furthermore, each case study represents one of three models of SEA, as identified by Sadler and Verheem (1996) and the European Commission (Sheate et al. 2001a), to assess whether the effectiveness of a SEA system has any relationship with the type of model that has been implemented in a given jurisdiction.

Using the criteria noted above, the following three cases were selected for further investigation on the effectiveness of SEA systems for comprehensive plans (see Table 1 for a

summary of the characteristics of the case studies): (i) Scotland: Perth and Kinross Council; (ii) California, United States: San Joaquin County; and (iii) New Zealand: Waitakere District.

(i) **Perth and Kinross Council (Scotland) – Sustainability Appraisal of the Structure Plan.** Since 1992, SEA has been applied to local authority development plans in the United Kingdom, first under the guise of 'environmental appraisal', and later, extending its scope to embrace the comprehensive aim of sustainable development. SEA in the UK has been rapidly evolving, and while current practice is variable, the majority of local authorities in the UK (including Scotland) undertake some form of SEA for development plans (Therivel 1998; Curran et al. 1998). Perth and Kinross Council had completed the most recent SEA in the UK at the onset of this study. This case is an example of an appraisal inspired model of SEA.

(ii) **San Joaquin County (California, United States) – Environmental Impact Report for the General Plan**. Since 1970, the California Environmental Quality Act (CEQA) has provided the regulatory and institutional basis for environmental assessment for both plans and projects. Planning in California has been increasingly supported by development fees as a result of the stringent CEQA requirements for comprehensive assessments for development projects (Olshansky 1996). This case reflects many of the features of an EIA inspired model of SEA. The San Joaquin County EIR has been awarded as the "Outstanding Environmental Document Of the Year" in 1992 by the Association of Environmental Professionals in California.

(iii) **Waitakere District (New Zealand) – Section 32 Analysis of the District Plan.** New Zealand revolutionized its approach to environmental assessment and planning in 1991 with major reforms that saw the abolition of over 50 pieces of legislation (including the

Town and Country Planning Act), and the implementation of the Resource Management Act. While there is no specific mention of SEA in the RMA, there is a requirement found in Section 32 which outlines the duties of local government to consider alternatives and to assess benefits and costs. The Waitakere District Plan was identified as the "Best Quality Plan" in New Zealand by a planning team preparing a report for Government. This case closely resembles the integrationary model of SEA.

Table 1 Characteristics of case studies

	Scotland (United Kingdom)	California (United States)	New Zealand
Selected Local Community	Perth and Kinross Council	San Joaquin County	Waitakere District
Model of SEA	Equivalent, or Environmental Appraisal	Standard, or EIA-based	Integrated, or Environmental Management
Type of Assessment	Sustainability Appraisal	Environmental Impact Report	Section 32 Analysis
Type of Plan	Structure Plan	General Plan	District Plan
Year of Assessment	Plan – 2001 Assessment – 2002	Plan and Assessment-1987-1992	Plan and Assessment-1996-2003
Justification	UK has a decade of experience in sustainability appraisal. Perth and Kinross Council had the most recently completed appraisal at the onset of this study.	California has over three decades of experience in SEA. San Joaquin County's EIR was awarded the "Outstanding Environmental Document of the Year (1992) by the Association of Environmental Professionals, California Chapter.	In New Zealand, SEA and planning are strongly integrated through the Resource Management Act. Waitakere District was identified as the "Best Quality Plan" in New Zealand by a team preparing a report for Government (Ericksen et al. 2002)

1.5 Terminology

1.5.1 Strategic Environmental Assessment

Definitions of SEA usually refer to a systematic and comprehensive process that involves a written report on the environmental and other impacts of a policy, plan or program. These basic requirements are frequently fulfilled by assessments that are not formally called SEA. Therefore, it was decided to include any assessment of the environmental impacts of a comprehensive plan. This also included assessments that were integrated into the planning process. Many assessments that are the basis for formal SEA currently have different terminology from SEA, such as 'sustainability appraisal' (UK), 'environmental impact report' (California), and 'section 32 analysis' (New Zealand).

1.5.2 Comprehensive plans

The units of analysis in this thesis are the SEA systems of comprehensive plans in three selected case studies. The term *comprehensive plan* is used generically in this thesis to refer to all types of plans that set out the desirable future physical development of a community. Terminology varies between case studies, such as 'development plan' or 'structure plan' (UK), 'general plan' (California), and 'district plan' (New Zealand). In Scotland, the Town and Country Planning (Scotland) Act requires the preparation and implementation of development plans. A development plan comprises mandatory structure plans (for the wider area) and local plans (for smaller cities and towns). Structure plans and local plans contain a number of objectives and policies. In California, state law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (California Government Code Section 65300). Similarly, the district plan in New Zealand is mandatory

and must conform to the mandatory regional policy statements and optional regional plans for the area. In keeping with the direction set by the Resource Management Act, the district plan's general approach is to control the effects of activities, rather than the activities themselves.

1.6 Thesis Outline

This thesis is divided into seven chapters. *Chapter Two* provides an overview of the evolution and current trends in planning for sustainability at the local level. Concepts of sustainability within a local planning context are explored, along with a discussion of the methods used to evaluate 'sustainability'. Both Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) are examined in depth.

Chapter Three provides a discussion of the research design, including the rationale for the case study approach and the methods employed for the collection and analysis of the data. The chapter concludes with a discussion on the validity and reliability of the research.

An evaluation framework, along with associated criteria, is introduced in *Chapter Four,* against which the performance of a SEA system of comprehensive plans can be tested. A discussion of the concepts of *effectiveness* as well as the rationale for the evaluation criteria is provided, supplemented by references from the literature and from the practice of SEA in other countries. Four elements of the framework are then outlined: policy, institutional, procedural and methodological. For each of the elements of the framework, criteria is selected that will evaluate the effectiveness of a SEA system both *substantively*, and *procedurally.* The chapter concludes with a discussion of the strengths, weaknesses and transferability of the framework.

Chapter Five presents a description of the political and institutional contexts of each of the case study jurisdictions, as well as the SEA practices and methods used in relation to comprehensive plans.

In *Chapter Six*, the performance of the SEA system for comprehensive planning in each of the three case studies is analyzed against each criterion of the evaluation framework, both *procedurally* and *substantively*. A discussion of the results is organized by the level of the framework.

Chapter Seven discusses the implications of the case study results. Major conclusions reached as a result of this study are provided. Two sets of recommendations are advanced for improving SEA systems. The first set is offered to overcome the common shortcomings identified in Chapter Six to improve the overall understanding of SEA practice in relation to comprehensive plans. The second set is directed towards the individual case studies. The chapter concludes with a discussion on future research opportunities and closing remarks.

Chapter Two
Planning for Sustainability at the Local Level: A Review of the Literature

2.0 Introduction

This chapter focuses on six areas derived from the literature to provide the context for a discussion on sustainability planning at the local level. First, an overview of sustainable development is provided. This discussion is linked to the question of how sustainable development principles can be introduced in the decision-making process. Second, the role of planning in the transition to sustainability is examined. Third, the approaches to sustainability planning is presented. This discussion follows the evolution of environmental planning, beginning with the early attempts by planners to integrate environmental considerations into planning and decision-making processes, and moving on to the more recent recommendations by both the Brundtland Commission and the World Conference on Environment and Development in Rio de Janeiro to develop methods to measure and assess progress toward sustainable development. Fourth, environmental impact assessment (EIA) at the development project-level is investigated as a tool to examine the sustainability of decision-making, focusing on both the achievements and limitations of EIA. Fifth, a discussion is provided on the need for assessment at higher levels of planning and policy-making, strategic environmental assessment (SEA). SEA is defined, accompanied by a discussion of its benefits, principles, and approaches. The chapter concludes with an examination of SEA at the local level, focusing on the influence of the new European Union Directive on SEA and the recent efforts at a integrated approach.

2.1 Context of Sustainable Development

2.1.1 Introduction

As highlighted by the Brundtland Commission and confirmed by the United Nations' Conference on Environment and Development (also known as the *Rio Earth Summit),* local communities have a significant role to play in the advancement of sustainable development. To set the context for planning for sustainability at the local level, this section will investigate the history and definitions of sustainable development within both a global and a local context; the principles of sustainability and the challenges of implementing these principles into practice; the role of planning in the transition to sustainability and the tools available for planning; and evaluating sustainability at the local level.

2.1.2 Definitions of Sustainable Development

Fifteen years have passed since the Brundtland Commission popularized the term sustainable development[3] as "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, 43). This definition is only one of many used to describe sustainability. While many definitions suggest that sustainability is influenced by the interrelationship between social, economic and environmental components, the emphasis placed on each varies according to interpretation. The concepts of ecological carrying capacities, human quality of life, and equity concerns between generations figure prominently in the more common definitions of sustainable development.

One of the earliest attempts at defining sustainable development emerged from the World Conservation Strategy (IUCN/UNEP/WWF, 1980):

[3] For the purposes of this thesis, sustainable development and sustainability are used inter-changeably.

> *For development to be sustainable, it must take account of social and ecological factors, as well as economic ones; of the living and non-living resource base; and of long-term as well as the short-term advantages and disadvantages of alternative action.*

Although somewhat verbose, this definition highlighted a number of key issues to be considered when planning for development. Several years later, the consideration of environmental factors in decision-making became part of the World Bank policy: "...environmental issues must be addressed as part of overall economic policy rather than project-by-project" (World Bank 1987).

The World Conservation Union, the United Nations Environment Program and the World Wide Fund for Nature emphasize both human quality of life and ecological carrying capacity in their definition: "Improving the quality of human life while living within the carrying capacity of supporting ecosystems." (IUCN/UNEP/WWF 1991). Similarly, Byrne and Hoffman (as cited in Massam and Dickinson 1999, 210) focus on the ecological element within sustainability, claiming that true sustainability requires the recognition that we cannot grow endlessly to meet our needs: "We must, instead, develop within our ecological means, meeting the needs of the present and future generations".

The concept of equity in both present and future generations is a recurring theme in many definitions of sustainable development. The Rio Declaration's *Principle 3* provides the equivalent of the more popular Brundtland definition: "to equitably meet developmental and environmental needs of present and future generations" (UNCED 1992a). Emphasizing the role of local governments as builders and maintainers of infrastructure and as service providers, the International Council for Local Environmental Initiatives (ICLEI 1996, 4) redefined sustainable development as "...development that delivers basic environmental,

social and economic services to all without threatening the viability of the ecological and community systems on which these services depend."

2.1.3 Principles of Sustainable Development

Common principles found throughout these definitions are those of ecological carrying capacity, human quality of life and equity between present and future generations. The focus on the earth's carrying capacity has been the foundation for many environmental planning approaches and tools, such as ecological footprint analysis (Wackernagel and Rees, 1995), natural carrying capacity (Woollard and Rees, 1999; Daly 1999; Rees 1990), and bioregionalism (Aberley 1994; Andruss et al. 1990).

Generational equity principles have been a more recent addition to sustainable development theories (George 1999; Counsell 1999; Selman 1996). George (1999, 178) suggests that these principles – inter-generational equity and intra-generational equity - may be regarded as the "twin pillars of sustainable development". *Inter-generational equity*, or "futurity", implies that each generation should "hand on the earth to the next generation in at least as good a condition as it inherited it" (Selman 1996, 11). *Intra-generational equity*, or "social justice", requires that sustainable development focus on the principle of human needs (Selman 1996, 11). Selman (1996) and Counsell (1999) identify a third fundamental principle of *transfrontier responsibility* infers that sustainability in one area "cannot be achieved at the expense of environmental conditions elsewhere" (Selman 1996, 11).

In order to move toward sustainability, the Rio Declaration also brought to the forefront several other important principles to deal with these themes: the *Precautionary Principle* and the *Polluter Pays Principle.* Rio Principle 15 - the Precautionary Principle

(UNCED 1992a) provides some guidance with respect to ensuring development that is sustainable:

> *...where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*

The principles discussed here provide a framework for sustainable development in several common theme areas, including the conservation of non-renewable resources, replenishment of renewable resources, reduction of pollution, promotion of a harmonious relationship between the natural and built environments, protection of environmental quality, and social equality (Woollard and Rees 1999; Selman 1996; Blowers 1993).

2.1.4 Operationalizing Sustainability Principles

Although the concept of sustainable development has been widely accepted and common principles have been identified, there appears to be a lack of understanding about what sustainable development actually means. Blowers (1993, 5) suggests that the "uncertainty over impacts, the often contradictory nature of competing interests and objectives of any specific action, and the lack of knowledge regarding the sensitivity of the baseline environment" results in difficulties in the implementation, or operationalization, of the concept of sustainable development.

Similarly, Sadler (1994, 5) contends that a "key innovation in the transition to a sustainability agenda...[is]...translating the principles of environmental sustainability into operational terms." Other authors have also expressed this challenge (e.g., Counsell 1999; Selman 1996; Blowers 1993). Discussion has centred on the theoretical constructs of sustainability and the translation of the concept and its principles has been difficult to apply in practice. The literature highlights two fundamental reasons for this: (i) the lack of an overall

consensus on what sustainable development means; and (ii) that the identified 'core' principles of sustainable development are more suited as lofty visions rather than measurable goals (Counsell 1999; Selman 1996; Blowers 1993).

Trying to apply the notion of ecological planning has been difficult because "the thresholds at which development becomes unacceptable cannot easily or scientifically be identified" (Healey and Shaw 1993). Counsell (1999) claims that these thresholds are socially determined, and thus, are based on the different values which communities place on different aspects of the environment. Therefore, the determination of societal values becomes a key component of operationalizing sustainable development.

Operationalizing sustainable development principles within the planning system framework is particularly challenging. With respect to Great Britain, Counsell (1999, 46) argues that the use of sustainable development themes or principles is "heavily constrained by the nature of the UK planning system, as they are typically dealt with as aims and objectives." He suggests that greater innovations has been shown in "making operational a series of secondary themes and principles, concerned with the protection of resources (environmental capacity, environmental capital, the precautionary principle) and socio-economic issues (social equity, policy integration, participation), more clearly allied to planning in the UK." (Counsell 1999, 47).

Table 2 Bellagio Principles

1. **Guiding Vision and Goals**
   Assessment of progress towards sustainable development should be guided by a clear vision of sustainable development and goals that define that vision
2. **Holistic Perspective**
   Assessment of progress toward sustainable development should:
   - include review of the whole system as well as its parts
   - consider the well-being of social, ecological, and economic sub-systems, their state as well as the direction and rate of change of that state, of their component parts, and the interaction between parts
   - consider both positive and negative consequences of human activity, in a way that reflects the costs and benefits for human and ecological systems, in monetary and non-monetary terms
3. **Essential Elements**
   Assessment of progress towards sustainable development should:
   - consider equity and disparity within the current population and between present and future generations, dealing with such concerns as resource use, over-consumption and poverty, human rights, and access to services, as appropriate
   - consider the ecological conditions on which life depends
   - consider economic development and other, non-market activities that contribute to human/social well-being
4. **Adequate Scope**
   Assessment of progress towards sustainable development should:
   - adopt a time horizon long enough to capture both human and ecosystem time scales thus responding to needs of future generations as well as those current to short term decision making
   - define the space of study large enough to include not only local but also long distanced impacts on people and ecosystems
   - build on historic and current conditions to anticipate future conditions – where we want to go, where we could go
5. **Practical Focus**
   Assessment of progress toward sustainable development should be based on:
   - an explicit set of categories or an organizing framework that links vision and goals to indicators and assessment criteria
   - a limited number of key issues for analysis
   - a limited number of indicators or indicator combinations to provide clearer signal of progress
   - standardizing measurement wherever possible to permit comparison
   - comparing indicator values to targets, reference values, ranges, thresholds, or direction of trends, as appropriate
6. **Openness**
   Assessment of progress toward sustainable development should:
   - make the methods and data that are used accessible to all
   - make explicit all judgements, assumptions, and uncertainties in data and interpretations
7. **Effective Communication**
   Assessment of progress toward sustainable development should:
   - be designed to address the needs of the audience and set of users
   - draw from indicators and other tools that are stimulating and serve to engage decision-makers
   - aim, from the outset, for simplicity in structure and use of clear and plain language
8. **Broad Participation**
   Assessment of progress toward sustainable development should:
   - obtain broad representation of key grass-roots, professional, technical and social groups, including youth, women and indigenous people – to ensure recognition of diverse and changing values
   - ensure the participation of decision-makers to secure a firm link to adopted policies and resulting action
9. **Ongoing Assessment**
   Assessment of progress toward sustainable development should:
   - develop a capacity for repeated measurement to determine trends
   - be iterative, adaptive, and responsive to change and uncertainty because systems are complex and change frequently
   - adjust goals, frameworks, and indicators as new insights are gained
   - promote development of collective learning and feedback to decision-making
10. **Institutional Capacity**
    Continuity of assessing progress toward sustainable development should:
    - clearly assign responsibility and providing ongoing support in the decison-making process
    - providing institutional capacity for data collection, maintenance and documentation
    - supporting development of local assessment capacity

Hardi and Zdan 1997

The Brundtland Commission and Agenda 21 both called for the development of new ways to measure and assess progress toward sustainable development. In 1996, an international group of measurement practitioners and researchers came together in Bellagio, Italy to review progress and to synthesize insights from practical ongoing efforts, resulting in the *Bellagio Principles* (Table 2) (Hardi and Zdan 1997). These principles have provided the foundation for many research initiatives in the measurement and evaluation of sustainable development (e.g., indicators). Other relevant research initiatives include sustainability indicators and targets (refer to section 2.3.4). Recently, local authorities in the United Kingdom are attempting to operationalize sustainability through *sustainability appraisals* of their development plans – assessing individual policies against a selected set of sustainability criteria (DoE, 1993). This will be discussed in more depth in section 2.6. These initiatives all exemplify the focus that local authorities world-wide are currently placing on methods to move toward sustainability.

2.2 Role of Planning in the Transition to Sustainability

Many authors identify local communities and local governments as having a significant role to play in the transition to sustainability through the land-use planning system (e.g., ICLEI 1996; Selman 1996; Blowers 1993; UNCED 1992b). Local authorities

> *...construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and sub-national environmental policies. At the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development.* (ICLEI 1996, 4)

In many jurisdictions, local planning systems facilitate the movement toward sustainability. Selman (1996) discusses several key elements. First, the regulation of the development of land (not including farming or forestry) can ensure that land is not wastefully

used and that certain critical land resources are substantially protected. Second, many planning acts require the inclusion of public comments in the preparation of plans and in some development decisions. Third, land use plans typically adopt a long-term planning timescale (some as many as twenty years). Finally, the planning system allows for the integration of various land interests in a 'horizontal' perspective, cutting across professions such as engineering, ecology and economic development.

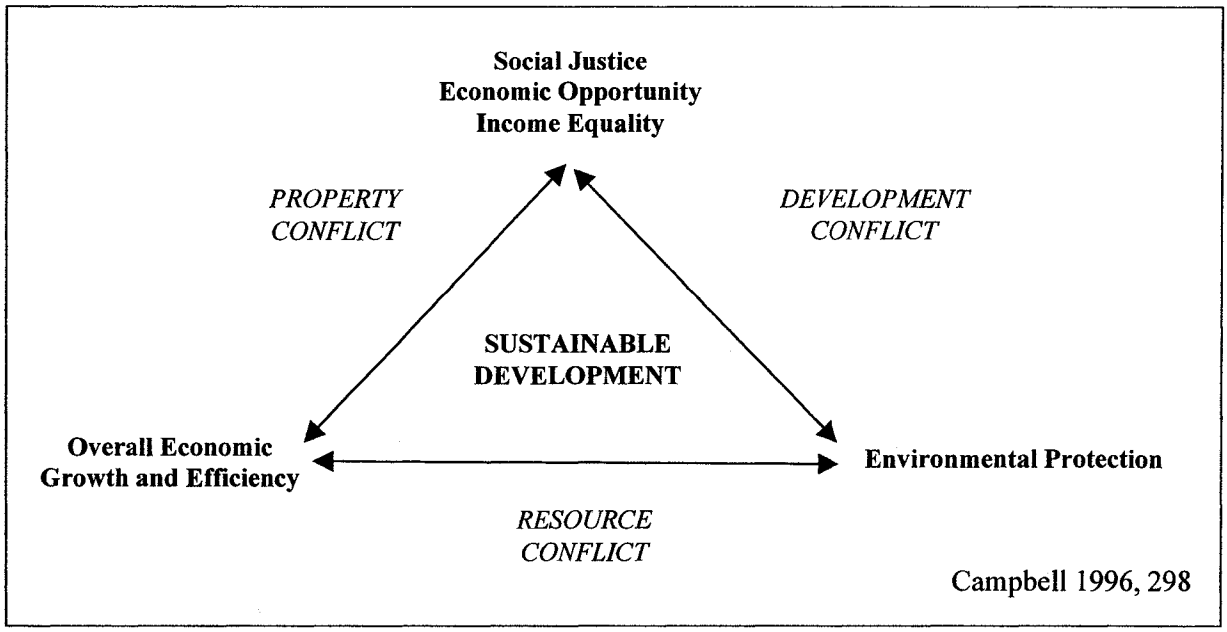
2.2.1 Sustainability within the Traditional Planning System

Within the traditional planning system, it has been customary to integrate environmental issues with those of social concerns. The three broad goals of comprehensive planning, in particular appear to be incorporated within the overarching framework of sustainable development: (i) economic growth and efficiency; (ii) environmental protection (natural and built); and (iii) social justice and equity (Hodge 1998, 433). Therefore, comprehensive planning should provide an excellent vehicle for sustainable development initiatives. However, evidence suggests that economic concerns have received priority attention by planners, calling into question the feasibility of balancing the three components of sustainability. Some definitions of sustainable development have followed this emphasis. For example, the *Local Agenda 21* action plan for sustainable development defines the concept as "...a program of action for local and global economic reform" (ICLEI 1996, 1). While the environment is mentioned as one of the goals of the action plan, its exclusion in the definition of sustainable development implies that environmental goals are minor when compared to economic goals.

2.2.2 Inherent Conflicts within Sustainable Development

The emphasis on the economic component of sustainability has been highlighted by several authors as an inherent conflict that needs to be reconciled (George 1999; Ravetz 2000; Campbell 1996). Campbell (1996) suggests that sustainable development can be conceptualised as three points of a triangle, in which each point (or goal) is linked to the other two (Figure 1). Campbell identifies these three conflicts as: (i) the *property conflict* between economic growth and social justice; (ii) the *development conflict* between environmental protection and social justice; and (iii) the *resource conflict* between economic growth and environmental protection (Campbell 1996, 296).

Figure 1 Inherent conflicts in sustainable development



The ideal position for the planner, the *sustainability position*, is at the centre of the triangle, balancing each of the goals. Campbell (1996, 296) states that

> *this centre cannot be reached directly, but only approximately and indirectly, through a sustained period of confronting and resolving the triangle's conflicts. To do so, planners have to redefine sustainability, since its current formulation romanticizes our sustainable past and is too vaguely holistic.*

Campbell (1996) argues that planners need to manage and resolve conflict, while promoting creative technical, architectural and institutional solutions – a very tall order, indeed.

2.2.3 Local Agenda 21 Processes

This role of local communities in the advancement of sustainable development has also been highlighted by Agenda 21, one of the products of the Rio Earth Summit. Chapter 28, better known as *Local Agenda 21* (LA21) calls on 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." (UNCED 1992b). Many of the signatory nations have undertaken LA21 processes and plans within their local jurisdictions (e.g., Finland, the Netherlands, Sweden, and the United Kingdom).

In particular, the United Kingdom has taken a strong leadership role in the promotion of sustainable development initiatives, including the formulation of national sustainable development strategies, Local Agenda 21 plans and sustainability appraisals of development plans. The UK Government "now sees the planning system as a key instrument in the delivery of sustainable development" (Selman 1996, 116). This has been accomplished through the use of non-statutory Planning Policy Guidance (PPGs) in England and Wales, and through Scottish Planning Policies (SPPs), formerly known as National Planning Policy Guidelines (NPPGs)[4] in Scotland. These planning policies include advice on the inclusion of sustainability considerations in local authority planning practice (Selman 1996, 30).

[4] National Planning Policy Guidelines (NPPGs) in Scotland are currently being replaced by Scottish Planning Policies (SPPs). The term SPPs will be used in this thesis from this point on.

2.3 Approaches to Planning for Sustainability

The land use planning system has been identified as a key factor in the transition to sustainability at the local level (McDonald 1996; Selman 1996; Blowers 1993). This section will examine the tools available for planning, managing and evaluating sustainable development at the local level. Within an environmental planning and management framework, a number of these tools are discussed in this section: ecological footprint analysis (Wackernagel and Rees 1995), natural and social capital and carrying capacities, and bioregionalism. The section following will focus entirely on the tools of environmental impact assessment, strategic environmental assessment and sustainability appraisal.

2.3.1 Environmental Planning

Environmental planning developed from the need to link sustainable development to traditional 'town planning'. The roots of the traditional town planning system are based in concerns about the unhealthy and crowded industrial cities. In an attempt to reconcile economic prosperity with acceptable standards of human living conditions and social development, two distinct approaches emerged. One approach centred on the problem of the deterioration of living conditions; the other viewed the problems as a result of the deterioration of the physical appearances of the cities themselves.

Out of the first approach emerged Ebenezer Howard's concept of Garden Cities. The *Garden City Movement* promoted a harmonious and interdependent relationship between people and their surroundings, accomplished through the development of a strong town centre, concentration of population, agricultural belts and the provision of open green space. The *City Beautiful Movement* emerged from the second approach - a resurgence of Renaissance design principles that were revived by the 1893 Chicago World Fair. Critics have argued that

this movement resulted in 'mere adornment' and failed to address the real problems of city housing and sanitation (Hodge 1998, 59). Although these two movements failed to achieve any lasting momentum, they have contributed to environmental and regional planning as we know it today. Patrick Geddes, a Scottish biologist and planner, has been recognized as the first among contemporary planners to sense the need for regional planning, as well as promoting the need to understand the interdependencies that exist between humans, the natural environment and the built environment (Hodge 1998, 311).

During the 1920s, planning concerns shifted to the need to conserve resources and to preserve open spaces. Since the 1960s, the concept of sustainable development began to appear. The planning focus then shifted to the need to protect entire ecosystems and biological diversity. Blowers (1993) suggests that one of the reasons for the emergence of environmental planning is a greater understanding of the earth's services. Scientists are beginning to understand more about the earth's limits and its functions. Evidence suggests that the earth's resources provide three essential functions: as a *source (*supplier of natural resources), as a *sink* (assimilator of wastes) and as a *service* (provider of atmospheric, hydrological and other essential life support) (Selman 1996; Rees 1990).

Blowers (1993, 14) discusses environmental planning as a comprehensive approach with three basic features: (i) it considers future uncertainty by a *precautionary approach;* (ii) it reflects the *integrated* nature of environmental processes and policies; and (iii) it takes a *strategic* view of decision-making. These features share similar characteristics to those discussed for sustainable development as discussed in the Brundtland Report.

2.3.2 Carrying Capacity and the 'Ecological Footprint'

One of the main objectives of environmental management is to maintain the environment's carrying capacity on behalf of sustainable development. This focus on the earth's carrying capacity has been advocated by ecologists and ecological planners as necessary to move toward sustainable cities (Woollard and Rees 1999; Wackernagel and Rees 1995; Blowers 1993). Blowers (1993) suggests that understanding the earth's carrying capacity (the upper limits that can be supported before the system deteriorates) is integral to moving towards sustainable communities:

> *Development is often confused with growth. Growth conveys the idea of physical or quantitative expansion of the economic system. Development is a qualitative concept incorporating notions of improvement and progress. Sustainable development requires that we have regard to the earth's regenerative capacity, the ability of its systems to recuperate and maintain productivity. Thus the conservation of resources is a strong component of sustainable development.* (Blowers 1993, 5)

Woollard and Rees (1999, 29) claim that *human carrying capacity*[5] is at the heart of the sustainability crisis. They acknowledge that human carrying capacity is a controversial premise; conventional theory states that the concept of a human carrying capacity is irrelevant because humans can "continuously increase our own carrying capacity by eliminating competing species, by importing locally scarce resources and through technology" (Woollard and Rees 1999, 31).

Ecologists and ecological planners argue that carrying capacity should be the fundamental basis for demographic accounting (Woollard and Rees 1999; Hardin 1991; Rees 1988) and view humans as biological entities and their economy as "an embedded subsystem of the ecosphere, therefore constrained by real ecological limits" (Woollard and Rees, 1999,

[5] Carrying capacity is defined as the maximum population of a given species that can be supported indefinitely in a defined habitat without destroying the habitat (Woollard and Rees 1999, 31).

31). In support of this theory, Wackernagel and Rees (1995) have developed and applied the concept of the 'ecological footprint', an accounting tool that can estimate the resource consumption and waste assimilation of a community in terms of corresponding productive land area. According to Wackernagel and Rees (1995, 51-52):

> *The Ecological Footprint of a specified population or economy can be defined as the area of ecologically productive land (and water) in various classes – cropland, pasture, forests, etc. – that would be required on a continuous basis (a) to provide all the energy/material resources consumed, and (b) to absorb all the wastes discharged by that population with prevailing technology, wherever on Earth that land is located.*

One of the strengths of the 'footprint' analysis is that it can be applied at any level. For example, an 'activity' can be building a new settlement, the environmental impacts of a university or the aggregate of environmental impacts from a whole city. The ecological footprint analysis has been undertaken for many cities worldwide. Levett (1999, 146) notes that some attempts to use 'footprint' analysis as a tool at the city level has had some difficulties in obtained local data. For example, in Barcelona and Santiago de Chile, data had to be prorated from national and regional data which makes the incorrect assumption that the footprint per person in the city is the same as the regional or national average (Levett 1999, 146).

While 'footprint' analysis can be a powerful tool for raising awareness of over-consumption, Levett (1999, 145) notes that it must be used with caution. First, it is only concerned with the biological productivity of land and does not adequately reflect other benefits or uses of land such as landscape, recreation, cultural and historical aspects. Second, some environmental risks such as radioactive contamination from nuclear power where there is no straightforward way to translate the risk of damage into an area of land is not adequately illustrated. Third, using equal share per head as the basis for allocating 'footprints' does not

adequately consider the disparities between developed countries and developing countries. Developing counties complain that the developed world has been consuming more than its fair share for a long time and should now have less to compensate; developed countries assert that it takes more energy to support life in some places than others (e.g., northern Canada). As with many other methods for measuring sustainability, political or value judgments are inevitable.

2.3.3 Bioregionalism

Bioregionalism is more than simply an approach to sustainable development or environmental planning, but offers an overall philosophy to life based on a fundamental set of ideas. Bioregionalism calls for human society to be more closely related to nature (hence, 'bio') and more conscious of its locale or region (the 'region') (Andruss et al. 1990, 2). The concept is based on 'bioregions' – biologically and culturally defined regions – as the most appropriate spatial scale for human governance and development (Aberley 1994, 8). Communities live within the bioregion's limitations, as well as using the region's resources for its benefit. Implicit within the bioregionalism concept is a form of governance which includes political decentralization, self-determination and a commitment to social justice (Aberley 1994, 8).

Bioregionalism emerged from a grassroots social movement in North America and Europe in the early 1970s in response to the escalating resistance against the prevailing scientific world view and in the regionalism of Patrick Geddes, Lewis Mumford, and Howard Odum (Aberley 1994, 8). Theories of regional planning espoused by planners such as Jane Jacobs, Ian McHarg and E.F. Schumacher have also been influential in the development of

bioregionalism (Baker and Booth 1998). While enthusiastically touted as an idyllic objective, bioregionalism has not been widely implemented.

2.3.4 Sustainability Indicators

The identification and implementation of sustainability indicators was recognized as a key goal in Agenda 21, which observed that "indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels" (George 1999, 175). Sustainability indicators are increasingly viewed as a way to operationalize sustainable development principles. They are "definable, measurable features of the world whose absolute values or rate and direction of change are intended to reveal whether the world (or a city) is becoming more or less sustainable" (Partidario and Moura 2000, 35). Significant activity in the development of indicators has been seen across the globe (e.g., Oregon Benchmarks Project, 2000; European Sustainability Index Project, 1997; Local Government Management Board's Research Project on Sustainable Indicators in the United Kingdom, 1995; and Sustainable Seattle Project, 1992).

Sustainability indicators have played a role in both environmental impact assessment and strategic environmental assessment, but these efforts have primarily been devoted to retrospective analysis of past developments (George 1999). Further, George (1999, 176) argues that "the development of indicators has resulted in considerable complexity, which has made it difficult to derive suitable criteria for environmental assessment".

Within the last couple of years, there have been several research efforts to identify frameworks and methods to develop and implement sustainability indicators within the environmental assessment realm (e.g., Partidario and Moura 2000; Thissen 2000). One of these methods, *strategic sustainability assessment (SSA)*, was initially developed as an attempt

to address sustainability in a more operational way within a strategic environmental assessment framework. Partidario and Moura (2000, 35) define this procedure as "an integrated approach which defines sustainability priorities and criteria at the policy level and translates these into measurable indicators". In this approach, indicators of sustainability are used to relate policy objectives to sustainability, while thresholds and targets enable the quantifiable measure of the strategy's (the policy, plan or program) effectiveness in achieving sustainability (Partidario and Moura 2000, 30).

2.4 Environmental Impact Assessment (EIA)

2.4.1 Introduction

Environmental impact assessment (EIA) refers to "the evaluation of the effects likely to arise from a major project (or other action) significantly affecting the natural and man-made environment" (Wood 1995, 1). In theory, EIA should lead to either the avoidance of actions that are environmentally unacceptable, or to the mitigation to the point of acceptability of environmental impacts that are approved (Wood 1995). EIA can be (and has been) viewed from several perspectives: as a planning process, as a decision-making process, and as a technocratic process. As a planning tool, EIA serves to inform interested parties of the likely environmental impacts of a proposed project and its alternatives (Ortolano and Shepherd 1995, 3). EIA also serves as an aid to decision-makers by providing necessary information about the impacts and the consequences of a proposed development project and its alternatives. As a technocratic process, EIA forecasts and evaluates the impacts of a proposed project and its alternatives. In the technocratic mode, studies are undertaken such as cost-benefit analyses, computer simulations, scenario modelling and other methods of impact analyses.

Environmental impact assessment (EIA) was initially developed in response to concerns about the impacts of development projects on the bio-physical environment. The first legislated EIA process was implemented more than thirty years ago in the United States with the implementation of the National Environmental Policy Act (NEPA) in 1969. Within the next decade, Canada, Australia, and many European countries followed suit with EIA regulations and/or legislation. Currently, EIA is used to evaluate project impacts in most developed countries and many developing countries. At the international level, the Convention on Environmental Impact Assessment in a Transboundary Context (1991), also known as the *Espoo Convention*, came into force in September 1997. The Espoo Convention has two major obligations of the Parties: (i) to assess the environmental impact of certain activities at an early stage of planning; and (ii) to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries (UNECE 1991). Both the United Kingdom and the United States governments signed the Convention, but only the United Kingdom ratified it. New Zealand was not a signatory to the Convention.

2.4.2 Achievements of EIA

Ultimately, the goal of EIA is to ensure that environmental impacts of proposed development projects are either mitigated or avoided in an effort to move towards sustainable development. Although it is difficult to determine to what extent that this has occurred, it is evident that EIA has changed the way project proponents and government agencies do business.

The most evident change is the inclusion of measures in project proposals to mitigate adverse environmental effects. A less common but significant project-level change is where

EIAs have affected project type, size and location. EIA processes have also encouraged inter-disciplinary and multi-disciplinary approaches, resulting in the involvement of new players, new perspectives and new methods. Particularly, the inclusion of academic disciplines such as ecology and anthropology, nongovernmental organizations and the public have been positive achievements (McDonald and Brown 1995).

2.4.3 Limitations of EIA

Despite the achievements of EIA, the effectiveness of EIA at the project level is hampered by a number of institutional, technical and political factors. EIA practice is limited by several weaknesses: the narrow definition of 'environment'; the failure to adequately address cumulative impacts; the inability to link policy, planning and assessment; and the site-specific nature of assessment.

2.4.4 Narrow Definition of "Environment"

Although definitions of EIA include within its scope the bio-physical, the social and the economic aspects of the environment, the primary focus has been on the bio-physical, or natural, environment. To address the assessment of the social consequences that may follow from project development, the process of social impact assessment (SIA) emerged. Burdge and Vanclay (1995, 32) note that "while SIA is normally undertaken within the relevant national environmental policy framework, it is not restricted to this...". Often, EIA and SIA have operated as parallel, but separate, processes, thereby limiting the potential for moving toward true sustainable development.

2.4.5 Failure to Address Cumulative Impacts

The need to address cumulative impacts – the combined environmental impacts of a number of activities – is a "structural inadequacy of the conventional project and site-specific application of the EIA process" (McDonald and Brown 1996, 486). There is a need for EIA to promote or regulate multiple developments within a specified geographical area (e.g., development plan or land-use plan), or within a particular sector (e.g., energy, transport, forestry or tourism operations) (Lee and Walsh 1992, 130).

Small-scale developments are frequently excluded from the process, which by themselves may not have a significant environmental impact, but may have a cumulative impact when combined with a number of other projects in the region. Efforts have been made to extend project-level EIA to encompass certain types of large-scale projects and the incremental effects of numerous small-scale actions of similar type, however, these are often difficult to address without a strategic framework (Dalal-Clayton and Sadler 999).

2.4.6 Inability to Link Policy, Planning and Assessment

By the point that EIA is applied, "higher-order questions of whether, where and what type of development should take place have been decided, often with little or no environmental analysis" (Dalal-Clayton and Sadler 1999, 5). The types of projects that are subject to an imposed requirement for EIA are often limited (projects that are often exempted include defence or security-related developments, forestry, and agriculture) (Therivel et al. 1992). EIA has also been accused of only a means to justify decisions once they have already been made. In many instances, the decision to go ahead with a development has already been committed to by a company or government, and the economic costs of not going ahead are too great in terms of jobs, revenues, and taxes. Mitigation measures are not often followed, and

once a decision to go ahead has been made, efforts to ensure that monitoring and mitigation measures are being followed are not done at all.

2.4.7 Site-Specific Nature of Assessment

A common criticism of EIA is that it is only applied at the development project level, addressing only a single project at a specific site. The influence of EIA could be far greater if it were applied at higher levels of decision-making – policies, plans and programs. EIA at these levels is referred to as *strategic environmental assessment.* Strategic environmental assessment, or SEA, emerged as a response to the limitations and criticisms of EIA. Many authors have argued that project-level EIA cannot lead to the comprehensive protection of the environment itself (e.g., Partidario 2000; Sadler and Verheem 1996; Lee and Walsh 1992; Therivel et al. 1992), and that EIA needs to operate within an integrated framework of environmental decision-making.

2.5 Strategic Environmental Assessment (SEA)

2.5.1 Introduction

The limitations of EIA have been well documented (e.g., Dalal-Clayton and Sadler 1999; Sadler and Verheem 1996; McDonald and Brown 1995; Ortolano and Shepherd 1995; Lee and Walsh 1992; Therivel et al. 1992). The principal reasons are that EIA starts too late, ends too soon, and is too site-specific. EIA reacts to development proposals rather than anticipating them. Additionally, it does not steer developments towards environmentally resilient locations or away from sensitive areas or even to suggest alternatives. It only allows for proposals to be accepted or rejected. SEA evolved in part in response to these criticisms.

In contrast to project-level EIA, SEA considers a broader scope of impacts (such as cumulative, secondary and indirect impacts). SEA also uses the concept of 'tiering' - higher-level EIAs (or SEAs) can cover general issues before major project-level decisions. SEA can incorporate sustainability principles throughout decision-making: from policies, plans and programs down to the level of projects. These arguments are not intended to imply that SEA should replace project EIA, but rather, refer to the potential for SEA to strengthen project EIA (Partidario 2000).

Generally, SEA refers to a higher-order type of environmental assessment at the level of policies, plans and programmes and is set in the context of the overall vision and within a specified set of goals and objectives for a region (Noble 2000). The principles and processes of SEA has evolved significantly since it was first discussed in the literature in the early 1990s.

Therivel et al. (1992) provides one of the earliest definitions of SEA, focusing on only the environmental component of sustainable development:

> *[SEA is] a formalised, systematic and comprehensive process that evaluates environmental effects of plans, policies and programmes, considers alternatives, includes a written report on the findings in publicly accountable decision-making.* (Therivel et al. 1992, 12).

Several years later, Sadler and Verheem (1996) provided a definition that stressed the need to incorporate economic and social impacts in addition to environmental ones, resulting in one of the most complete definitions available in the literature:

> *[SEA is] a systematic process for evaluating the environmental consequences of proposed policies, plans or programmes initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations.* (Sadler and Verheem 1996, 27)

This definition highlights the key attributes of SEA, focusing on the need for a process which evaluates the *economic, social and environmental impacts* of decisions, at the *earliest* possible stage.

SEA has emerged onto the international stage through the efforts of the European Commission to build on its earlier directive for environmental impact assessment. The recent adoption of the Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment (also known as the *EU SEA Directive*) in June 2001 requires the EU Member States to implement legislation for SEA for plans and programmes (including comprehensive plans). A supplement to the Espoo Convention (1991) is the Protocol on Strategic Environmental Assessment - also known as the Kiev (SEA) Protocol – signed by 35 countries on May 21, 2003 in Kiev (UNECE 2003). The United Kingdom is one of the signatories to the protocol, however, neither the United States nor New Zealand signed. Once in force, this Protocol will require its Parties to evaluate the environmental consequences of their official draft plans and programmes. In contrast to the EU SEA Directive, this protocol is not legally binding.

2.5.2 Rationale for SEA

The literature identifies three primary objectives for SEA: (i) to strengthen project-level EIA; (ii) to address cumulative and large-scale effects; and (iii) to incorporate sustainability considerations into all stages of policy formulation (Sadler and Verheem 1996; Therivel & Partidario 1996; Wood & Djeddour 1992). These objectives are compatible with those recommended through Agenda 21.

SEA is not intended to replace project-level EIA, rather it is meant to strengthen it, or to 'add value' to the decision-making process (Partidario 2000; Lee and Walsh 1992). SEA can incorporate sustainability considerations by addressing the cause of environmental problems at their policy source, rather than just treating the symptoms or impacts (Sadler 1996). SEA can also serve as an early warning mechanism to identify cumulative effects recognizing these are best dealt with on a regional level rather than on a project-by-project basis.

2.5.3 SEA's Relationship with EIA

EIA and SEA have a similar objective – to integrate environmental considerations into the decision-making process (Partidario 1996; Sadler 1996; Sadler and Verheem 1996; Lee and Walsh 1992). However, as McDonald and Brown (1996) point out, project-level environmental assessments are generally applied too late in the decision-making process and often are used to justify decisions already made. SEA has the potential to address this deficiency. While SEA and EIA differ fundamentally in scope and in the nature of their approach, there is room for collaboration. The framework within which SEA is carried out is encompasses a larger scope and context than project-level EIA does. Additionally, it enables the consideration of *alternative options,* rather than simply looking at *option alternatives*, as is the case with project-EIA currently. Refer to Table 3 for other comparisons.

In principle, SEA and EIA can and should be tiered or vertically integrated (Sadler, 1996). It has been widely suggested that project-level EIA can operate more effectively within the 'tiered', or hierarchical, nature of the SEA framework (e.g., Noble, 2001; Partidario 1996; Sadler 1996; Lee and Walsh 1992; Therivel et al. 1992; Wood and Djeddour 1992).

Table 3 EIA and SEA compared

EIA	SEA
Is usually reactive to a development proposal.	Is pro-active and informs development proposals.
Assesses the effect of a proposed development on the environment.	Assesses the effect of a policy, plan or programme on the environment, or the effect of the environment on development needs and opportunities.
Addresses as specific project.	Addresses areas, regions or sectors of development.
Has a well-defined beginning and end.	Is a continuing process aimed at providing information at the right time.
Assesses direct impacts and benefits.	Assesses cumulative impacts and identifies implications and issues for sustainable development.
Focuses on the mitigation of impacts.	Focuses on maintaining a chosen level of environmental quality.
Has a narrow perspective and a high level of detail.	Has a wide perspective and a low level of detail to provide a vision and overall framework.
Focuses on project-specific impacts.	Creates a framework against which impacts and benefits can be measured.

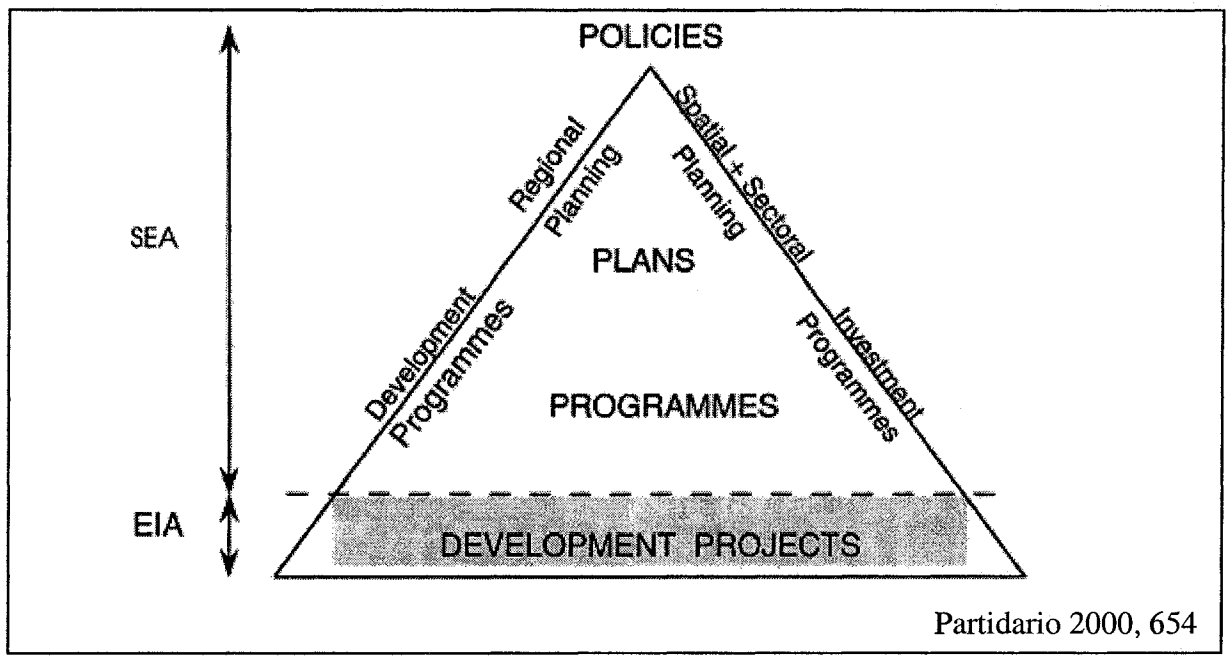
Dalal-Clayton and Sadler 1999, 3

Therivel et al. (1992, 22) suggest that:

> *In theory, sustainability requires that a proactive approach to the environment and development be taken. This would encompass a wide range of human activities and environmental factors which need to be made an intrinsic part of all policies. Sustainability would be implemented by being 'trickled down' through plans, programs, and ultimately projects.* [emphasis mine].

Noble (2000, 217) notes that in a typical tiered-forward process, actions at one stage are conditioned by actions in previous stages; as decisions and developments progress to later stages of the process, feasible alternatives to the proposed action become increasingly limited. Partidario (2000) illustrates the tiered-forward process in Figure 2.

Figure 2 SEA as a tiered-forward process



Partidario 2000, 654

2.5.4 Principles of SEA

The concept of the 'strategic' element has been identified by many authors as a key element to effective SEA (e.g., Noble 2001; Partidario 2000; Therivel et al. 1992). This encompasses the need for a proactive assessment within a broader framework. Noble (2000, 211) argues that SEA "must be a proactive assessment, set in the context of broader visions, goals and objectives, leading to a strategy for action, and considered a wider range of alternatives to determine the preferred option".

Many authors have identified various principles to provide the rationale for SEA as well as to guide its implementation (e.g., IAIA 2001; Partidario 2000; Sadler 1998; Sadler 1996; Sadler and Verheem 1996; Therivel et al. 1992). In the widely dispersed final report for the International Study of the Effectiveness of Environmental Assessment, Barry Sadler (1996) identifies thirteen "Guiding Principles". These principles have been selected to form the basis of this thesis because of the relative frequency of citations within the literature

(Table 4). Sadler (1996, 150) notes that these reflect "those developed earlier but with modifications from the guidelines in force in the countries and international organizations reviewed".

Table 4 Guiding Principles of SEA

- initiating agencies are accountable for assessing the environmental effects of new or amended policies, plans and programmes
- the assessment process should be applied as early as feasible in proposal design
- scope of assessment to be commensurate with the proposal's potential impact or consequence for the environment
- objectives and terms of reference should be clearly defined
- alternatives to, as well as the environmental effects of, a proposal should be considered
- other factors, including socio-economic considerations, to be included as necessary and appropriate
- evaluation of significance and determination of acceptability to be made against policy framework of environmental objectives and standards
- provision should be made for public involvement, consistent with potential degree of concern and controversy of proposal
- public reporting of assessment and decisions (unless explicit, stated limitations on confidentiality are given)
- inclusion of environmental factors in policy making
- tier processes, where possible, to subsidiary SEA and project EIA
- monitoring and follow-up of measures, including tracking proposals that initiate further actions
- need for independent oversight of process implementation, agency compliance, and government-wide performance.

Sadler 1996, 151

2.5.5 Approaches and Models of SEA

Approaches

Two distinct approaches to apply SEA to strategic decisions can be identified in the literature: (i) the *top-down* (or policy-based) approach and (ii) the *bottom-up* (or EIA-based) approach (Partidario 2000; Partidario 1996; Shepherd and Ortolano 1996). In the top-down approach, sustainability principles are established and they trickle down to policies, plans and programs, and then to projects. This is the approach that has been taken in New Zealand with the Resource Management Act, and in Denmark's SEA of government bills.

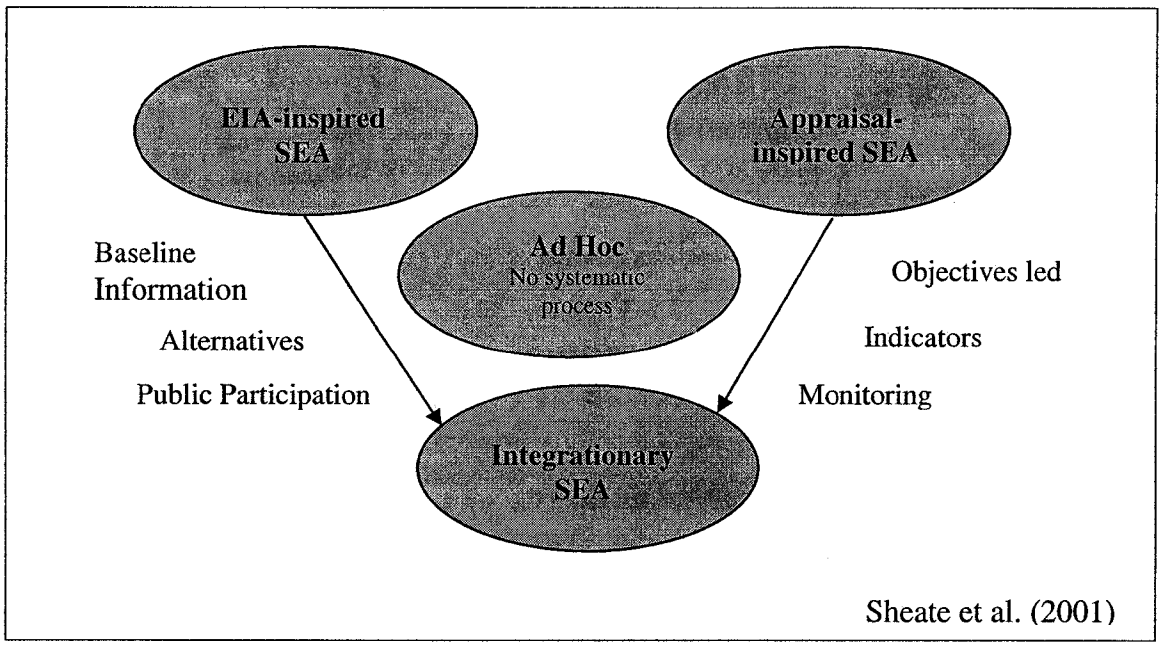
In the bottom-up approach, project-level EIA's limited scope is expanded to higher-level assessments of policies, plans and programs (PPPs). This approach has been adopted in the Netherlands and the United Kingdom.

Models

Based on both Sadler (1996) and the European Commission SEA Report (Sheate et al. 2001a), four models of SEA are identified (Figure 3): the standard (or EIA-based) model; the equivalent (or environmental appraisal) model; the integrated (or environmental management) model; and ad hoc mechanisms of environmental integration.

The standard (EIA-based) model is a rational, technical process where the SEA process is designed based on existing EIA processes. This model is inherent in Lee and Walsh's (1992) observation that the principal stages of SEA and EIA procedures are the same. The standard model of SEA is patterned after the EIA process with similar steps and activities but with differences introduced by more fluid policy requirements (Sadler 1996). An example of the standard model is seen in Denmark's SEA of Government Bills.

Figure 3 The relationship between models of SEA



The equivalent (or environmental appraisal) model identifies and evaluates impacts of a preferred option against established objectives. Generally no baseline survey is undertaken, and there is very little direct public participation. This model is often used with regional and spatial land use planning such as the United Kingdom's sustainability appraisals).

The integrated (or environmental management) model is a combination of the first two models discussed. SEA is undertaken as an integral part of a comprehensive policy and plan setting process (Sadler 1996). Impacts are appraised against both environmental baseline information and sustainability objectives. This model emphasizes the need for the early application of SEA in the decision-making process, investigates alternative options of achieving objectives, and promotes the participation of the public. This form of SEA is often found where there is a strong national environmental legislation and policy framework such as with New Zealand's Resource Management Plan.

A number of ad hoc mechanisms of environmental integration form the basis for evaluating environmental impacts of plans, policies, and programmes in many countries today. This collection of independent processes include roundtables, auditing procedures, and state of environment reports. No systematic processes are found that provide links to the developing policy.

2.5.6 SEA Methodologies

Progress in the development of SEA methodology has been relatively slow. The reasons for this lack of advancement is twofold: first, SEA is a new, emerging area of practice and methodology is still evolving (Sadler 1996); and secondly, it has proven to be difficult to develop methods, particularly because the outputs are general and the effects and consequences are difficult to identify and trace (Sadler 1996).

Bridgewater (1989) notes that "SEA methodology has not been adequately developed and attention needs to be focused on the development of an appropriate framework, a set of guiding principles and a set of tested methods." This framework "needs to be highly adaptive and flexible in its methods as it operates within many different contexts, deals with many different societal values and with high levels of uncertainty." (Partidario 2000, 655). Partidario (2000, 655) further states that there is no one universal approach to SEA and no single tool – a family of tools is more appropriate. Practical case studies have illustrated that there is a range of tools and techniques that have been applied in support of EA at all levels of decision-making (Sadler, 1996). The SEA 'tool kit' includes the familiar tools and techniques used in project-level EIA such as checklists, matrices, surveys, case scenarios/studies, interviews, modeling (GIS) or cost-benefit analysis (CEAA 1997; Sadler and Verheem 1996). While these tools are similar to those used in project EIA, they are used in a different context under SEA.

Sadler (1996) makes a distinction between methods of impact *identification* and impact *analysis*. For example, impact analysis methods apply to plans and programs that "initiate projects and where environmental effects are expected to be significant and quantifiable or tangible" (Sadler 1996, 17). Davey (1997, 19) suggest that tools are used to "stimulate discussion of alternatives, thereby influencing the choice of options". However, at the project level, "tools are used more to evaluate impacts of chosen projects, regardless of whether the project itself is sustainable" (Davey 1997, 19).

An additional impediment to the development of SEA methodologies is the need for different tools and techniques for each level of decision-making. For example, many authors have noted that it is becoming apparent that SEA at the plan level is distinct from SEA at the

policy or program level, and therefore, different methods are required for each (Partidaro 2000; CSIR 1996). A method known as *strategic sustainability assess*ment, as advocated by Partidario and Moura (1996), is not a procedure like SEA or EIA, but rather, "it intends to act as an instrument that, while operating in the context of a SEA procedure, provides a framework based on quantifiable approaches (thresholds and targets), and a mechanism to check on the sustainability trends of a proposed, or on-going, strategy (whether policy, planning or program)" (Partidario and Moura 2000, 30). This particular method encompasses both the broader definition of 'environment' to include a wider assessment of sustainability measures, and enables the quantification of strategy effectiveness. A group of methods referred to as *sustainability assessment systems* have been developed for use at the local level (see section 2.6).

2.5.7 European Union's SEA Directive

The European Commission (EC) first prepared a preliminary draft directive on the environmental assessment of policies, plans and programs in 1991. After over ten years of negotiations among the member states, the EC finally adopted the directive in June 2002, and is now referred to as the European Union's SEA Directive 2001/42/EC (2001). The purpose of the SEA Directive is to ensure that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption (CEC 2001).

The directive is clearly modelled on the EIA directive (Curran et al. 1998). It restricts the requirement to undertake SEA to land-use plans and programmes which are formally adopted as part of the land-use decision making process and specifies the sectors to be included (CEC 2001, Article 3). The directive applies to the comprehensive plans as well as

to transport, energy, waste management and other plans and programs where they are prepared by a 'competent authority'.

For the purposes of this Directive, the legal text states that 'plan' and 'programme'...

(i) refer only to town and country planning plans and programmes:
- *which are subject to preparation and adoption by a competent authority or which are prepared by a competent authority for adoption by a legislative act, and*
- *which are part of the town and country planning decision-making process for the purpose of establishing the framework for subsequent development consents, and*
- *which contain provisions on the nature, size, location or operating conditions of projects;*

(ii) include modifications of existing plans and programmes as described in point (i).

(CEC 2001, Article 3)

This definition includes town and country planning plans and programmes in sectors such as transport (including transport corridors, port facilities and airports), energy, waste management, water resource management, industry (including extraction of mineral resources), telecommunications and tourism. The information that is to be included in an environmental statement prepared for these plans must assess the "significant direct and indirect effects of implementing the plan or programme on human beings, fauna, flora, soil, water, air, climate, landscape, material assets and the cultural heritage..." (CEC 2001).

The United Kingdom and Germany were reluctant to agree to the Directive, on the grounds that it did not adequately consider sustainability assessments, encompassing a fairly narrow perspective of the 'environment'. Additionally, the required environmental statement provided less flexibility than the approach currently being taken by the UK in relation to its sustainability appraisals.

2.5.8 Challenges and Barriers to SEA

While SEA has enjoyed widespread support in the literature as a tool to aid decision-making, there are several challenges to its development and application. Some of these have been discussed in previous sections, such as the difficulties with developing methodologies specific to the level of decision-making. Other challenges include: problems of system boundaries (e.g., institutional, administrative, and political contexts); lack of information about existing and projected future environmental conditions; the large number and variety of alternatives to be considered at different stages of policy formulation; uncertainty over public involvement in the policy-making process; and the political nature of the decision-making process (Therivel et al. 1992, 41). It has also been recognized that government agencies do not have the required level of expertise or resources (both human and financial) (Therivel et al. 1992, 57).

Sadler (1996) identified several institutional barriers to introducing and implementing SEA which have been supported by several authors (refer to Table 5).

Table 5 Institutional barriers to introducing and implementing SEA

- *Insufficient political will* – as indicated by low priority given to environmental concerns, by closed processes of decision-making, and by low levels of accountability
- *Limited societal support base* – as indicated by low degrees of activism and of political influence by public and community groups
- *Narrow definition of issues* – reflected in prevailing emphasis on economic growth and failure to consider strategic environmental implications
- *Compartmentalized organization structures* – typically, consideration of environmental matters is curtailed by the sectoral division of political powers and agency responsibilities
- *Bureaucratic prerogatives* – environmental requirements encroach on the "turf and territory" of other sectors which is zealously guarded by officials, especially at the policy level

Cited in Sadler (1996, 148)

Horton and Memon (1997) argue that the implementation of SEA can result in the "uneven development of the environment". Based on the inherent conflict between 'environmental sustainability' and 'economic development', they argue that SEA displaces and defers this conflict by avoiding some sites and promoting others. Arguing along similar lines as Campbell (1996) as discussed in section 2.2.2, Horton and Memon (1997) suggest that if SEA is to contribute to sustainable development, "it must confront directly the conflict of development and the environment, it must resist rhetorical solutions that disguise the conflict, and it must avoid spatial solutions that displace the conflict." (Horton and Memon 1997, 174).

2.6 Strategic Environmental Assessment at the Local Level

2.6.1 Introduction

Many authors advocate the promotion of sustainable development at the local level through impact assessment systems (e.g., George 2001; Devuyst 2000; Devuyst et al. 2000; DoE 1993). Methods and tools to evaluate sustainability at the local level can be termed 'sustainability assessment systems' (Devuyst 2000; Devuyst et al. 2000). The most common means of assessing local sustainability has been through the use of *sustainability appraisals*, as practiced since 1993 in the United Kingdom, as well as several other European countries. More recently, Eggenberger and Partidario (2000) have begun investigating the development of a theoretical framework at the comprehensive planning level to integrate economic, social and environmental factors.

Devuyst (2000) notes that there are two approaches to assess sustainability at the local level: (i) those which check whether local authorities are making progress in general in a sustainable development context (e.g., environmental audits); and (ii) those which check whether specific policy proposal developed are in line with sustainability goals – more in line

with impact assessment systems (e.g., sustainability appraisal). Although Devuyst (2000) discusses the relevance of both approaches to be incorporated in a local sustainability assessment system, the focus in this thesis will be on the second approach.

2.6.2 Developments in Sustainability Appraisal in the United Kingdom

Since 1991, the United Kingdom (UK) has been developing methodologies for environmental appraisal, and then later, sustainability appraisal, in relation to evaluating the impacts resulting from development plans. Sweden, Finland, Germany, France, Norway, the Netherlands and the United States have all had some experience with SEA-type systems at the local level, however, the UK has been instrumental in developing methods for the implementation of theory into practice. Sustainability appraisal is a form of SEA that follows an appraisal, or EIA-based approach, as defined by several authors (Sheate et al. 2001a; Sadler 1996; Partidaro 1996).

The UK Government released its White Paper on the Environment, *This Common Inheritance*, in 1990 (DoE 1990), which stressed the importance of ensuring that environmental considerations were fully incorporated into policy development. This document was followed by *Policy Appraisal and the Environment* (DoE 1991), which was aimed at central government managers to show 'how environmental effects can be taken into account in environmental and other policies'. In 1994, *Environmental Appraisal in Government Documents*, reviewed activities resulting from DoE's 1991 document.

The UK government furthered its influence and commitment to sustainable development into comprehensive planning. The publication of Planning Policy Guidance Note 12 (PPG12), *Development Plans and Regional Guidance* (DoE 1992) marked the beginning of the environmental assessment of local authority development plans

(comprehensive plans) in the UK. PPGs in England and Wales are non-statutory guidance for local authorities and are highly 'encouraged', however, they do not carry the statutory weight accorded to the *Town and Country Planning Act.* In Scotland, sustainability appraisal is promoted through the non-statutory Scottish Planning Policy 1 (SPP 1)[6].

The concept of 'environmental appraisal' was replaced with 'sustainability appraisal', in recognition of the UK Government's four objectives of sustainable development: (i) maintenance of high and stable levels of economic growth and employment; (ii) social progress which recognizes the needs of everyone; (iii) effective protection of the environment; and (iv) prudent use of natural resources (DETR 1996a). In this same vein, the UK government makes a distinction between SEA and sustainability appraisal. SEA is considered to focus more narrowly on environmental impacts, whereas sustainability appraisal has a broader scope, including social and economic factors in addition to environmental ones (DETR 1999a).

Sustainability appraisal of a development plan is quite distinct from that an assessment of a trade agreement or a national energy policy (George 2001; CSIR 1996). If a planning system has adopted the concept of sustainable development, then the appraisal will evaluate the individual policies against the plan's stated goals and objectives. If not, then the policies (in addition to the goals and objectives) would need to be assessed against a set of identified sustainability criteria. Sustainability criteria can be effectively used to develop the plan's goals and objectives. The literature identifies a number of sets of sustainability criteria (e.g., Berke and Conroy 2000; DETR 2000; Hardi and Zdan 1996; DoE 1993). The Bellagio

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[6] Scottish Planning Policies replaced National Planning Policy Guidelines in 2002.

[8] A *Structure Plan* "should provide a long-term vision (looking forward at least ten years) as part of an area's development requirements, considering the functions and inter-relationship of places, expressing the settlement strategy for the area and identifying priorities for urban and rural regeneration." from Scottish Planning Policy SPP1 (The Planning System), Section 32 (Structure Plans). (Scottish Executive 2002a).

Principles (Hardi and Zdan 1997), discussed in section 2.1.4 and outlined in Table 2.1, present 10 guidelines for the measurement of progress toward sustainable development. Berke and Conroy (2000) present a set of six principles that define and operationalize the concept of sustainable development, based on an extensive search of the literature: harmony with nature, liveable built environment, place-based economy, equity, polluters pay, and responsible regionalism (Berke and Conroy 2000, 23). In the UK, the sustainability appraisal process, as described in the UK government's good practice guide (DoE 1993; DETR 2000), requires that policies are appraised against a range of criteria representing the four objectives of sustainable development in national policy: maintenance of high and stable levels of economic growth and employment, social progress which recognizes the needs of everyone, effective protection of the environment and prudent use of natural resources. This is often referred to as an "objectives-led" approach.

George (2001, 103) argues that the objectives-led approach can lead to a lack of clarity between what is appraisal and what is planning. He contends that if the planning process aims to deliver sustainable development, "it must itself define objectives for sustainable development, and evaluate the interacting social, economic and environmental factors that contribute to that goal." Sustainability appraisal, then, is an evaluation of the plan in relation to its own objectives for sustainable development. George (2001, 100) presents an alternative "criterion-based" approach to appraisal, claiming that the definition of a set of criteria against which the planning process may be judged is an important part of applying sustainable development principles in practice. George (2001, 100) suggests that the Rio Declaration's Principle 3 (which establishes the twin principles of inter-generational and intra-generational equity) is a good place to begin. Then, other principles (specifically the 'precautionary

principle' and the 'polluter pays principle') and international commitments (specifically the Climate Convention and the Biodiversity Convention) can follow. Sustainability appraisal then judges whether the planning process complies with Rio's sustainable development objectives.

2.6.3 Sustainability Assessment Systems

Devuyst (2000) provides examples of both forms of sustainability assessments: those that attempt to measure progress toward sustainability after implementation (essentially an auditing function), and those that try to assess the sustainability of policy proposals before they are implemented (more in line with impact assessment). Devuyst et al (2000) support the integration of sustainability indicators and targets as an important component of sustainability assessment in local systems. Rather than promote a universal methodology to assess sustainability at the local level, Devuyst et al. (2000) identify a number of different forms of assessments currently in use in several municipalities world-wide. For example, the Dutch city of Tilburg has developed a sustainability check called DOTIS in 1997. It consists of a set of questions which make it possible to assess if certain sustainability goals and measures for sustainable development are present in the policy proposals developed by the city government. The City of Ottawa in Canada introduced an environmental assessment system, called the Municipal Environmental Assessment Process (MEEP) which reviews development applications for potential environmental effects. MEEP was unique in Canada in that it is the first environmental evaluation process established at the municipal level that addresses all lands and activities within the municipality (Devuyst 2000).

Devuyst and van Volsem (1999) have developed *sustainable lifestyle assessment (SLA)* to predict, analyze, and evaluate the impacts of all long-term, mid-term and short-term –

or routine – decisions made over a lifetime, making use of sustainability goals as a point of reference (Devuyst and van Volsem 1999, 11).

2.6.4 Integration Framework

The relevance of integration has received much attention in recent years, particularly in relation to sustainability and planning. According to Kirkpatrick and Lee (1999),

> *Integration has become a favoured means of increasing the effectiveness of environmental assessment and social and economic appraisal in decision making in order to promote sustainable development (Kirkpatrick and Lee 1999).*

Eggenberger and Partidario (2000) have initiated research to develop a framework to assist the integration of environmental, social and economic issues in comprehensive planning. There is evidence of planning traditions where it is customary to integrate environmental issues and concerns into the planning process. This has resulted in some practitioners claiming that SEA procedures are not required in comprehensive planning, as the plans already cover EIA requirements (Partidario, 1996). However, Eggenberger and Partidaro (2000, 202-203) ask,

> *Are such planning traditions actually carrying out systematic identification and integrated assessment of alternatives, in participatory contexts, in a way that is informative, and accountable... [?]*

The focus of comprehensive planning is still strongly oriented towards economic efficiency and the management of economic growth, and ultimately, comprehensive planning has to adopt "the role of anticipating development, proposing alternatives and measures, and co-ordinating sector activities" (Eggenberger and Partidario 2000, 203). This leads to the identification of a new challenge for planning – the management of change and uncertainty –

which can only be achieved if integration is the guiding principle in devising planning approaches (Eggenberger and Partidaro 2000).

2.6.5 Challenges and Barriers to Sustainability Appraisal

Researchers have identified several barriers to the implementation of sustainability appraisal at the local level. Most prevalent is the additional investment of time and money to develop and implement assessment systems. Many municipal planning departments have limited financial and human resources to expend to such a venture (Therivel 1998; Partidario 1996). There is also a perception on the part of many planners that comprehensive plans already cover EIA requirements (Eggenberger and Partidario 2000). Planners also claim that integration of economic, social and environmental factors have been a tenet of comprehensive planning for a long time. However, there is limited evidence suggesting that this is demonstrated in practice (Eggenberger and Partidario 2000). In many countries, there is a lack of an overall framework at a higher level of decision-making to guide lower level actions (Eggenberger and Partidario 2000). If the political commitment and accompanying legislation do not exist, it is unlikely that local planners will advocate the use of sustainability appraisal.

Noble (2000, 211) argues that most SEAs that have been completed to date around the world are "simply various forms of project, plan or program assessments and appraisals". He maintains that the actual focus of SEA should be on strategic alternatives, and not simply post hoc assessments. In contrast, Sadler (1999, 1) views the move towards environmental or sustainability appraisals "which often document the extent to which development plans move toward or away from sustainability requirements" as "promising developments, especially if they can incorporate more explicit environmental and sustainability indicators."

2.7 Summary

The literature highlights two primary reasons for the development of environmental assessment methods: (i) to gauge the progress of society's transition to sustainability; and (ii) to evaluate the impact of human activities on both the bio-physical and socio-economic environment. Environmental assessment serves as a way to ensure that sustainable development principles are being implemented into practice. Strategic environmental assessment expands on well-established environmental impact assessment processes to ensure that policies, plans and programs are also evaluated, in addition to development projects. In response to SEA's perceived focus on bio-physical environmental factors, sustainability assessment systems have been developed to emphasize the integration of all three components of sustainable development.

Comprehensive planning has been identified in the literature as a potential vehicle for the integration of environmental issues with those of economic and social concerns. Environmental assessment methods at the local level have been ad hoc at best and have included sustainability roundtables, environmental audits, and state of the environment reports. The literature describes several cases of current assessment practices, however, these cases lack a consistent framework and fail to explain which conditions are required to facilitate SEA and which factors can make SEA successful.

In the following chapter, the research design is presented. The rationale for the case study approach and the methods employed for the collection and analysis of the data are discussed.

Chapter Three
Research Design and Methods

3.0 Introduction

The preceding chapter presents a general theoretical framework from the literature for the analysis of sustainability within a local planning context and the potential for the implementation of SEA at the local or municipal planning level. A means to examine the research questions outlined in Chapter One was explored using a case study approach. This chapter provides a discussion of the rationale for a case study approach, the units of analysis selected, and the methods for collecting and analyzing the data. Criteria are introduced for the selection of the case studies, followed by a description of the selected cases. The chapter concludes with a discussion on the validity and reliability of the research.

3.1 Research Design

This research comprises both qualitative and quantitative methods, both encompassed within a case study approach. Qualitative inquiry enables the collection and analysis of descriptive information. The qualitative approach involves observing contemporary phenomena in the natural world, with the researcher performing the role of interpreter (Marshall and Rossman 1999). Although this research focuses primarily on qualitative approaches, quantitative methods are used to complement the analysis to 'weight' responses.

3.1.1 Case Study Approach

Yin (1994, 23) defines the case study as:

> *...an empirical inquiry that investigates a contemporary phenomenon within its real-life context when, the boundaries between phenomenon and context are not clearly evident, and where multiple sources of evidence are used.*

The case study approach is appropriate to this thesis research because of the researcher's decision to cover contextual conditions, as they have significant relevance to the phenomenon under study. Multiple sources of evidence are used in case study research which contributes to both the *validity* and the *reliability* of the research.

This approach is used by researchers primarily in three circumstances: (i) when the researcher has access to, but not control, over the subject of study (Yin 1994); (ii) when research questions are asking "how" or "why" certain events or practices occur (Yin 1994); and (iii) when the researcher is seeking a general understanding and believes that insight may be gained into a question by studying a particular case or cases (Stake 1995). This thesis incorporates all three of the above statements. First, the researcher has access to the academic literature as well as the government documents and reports relating to the case studies, but remains an unobtrusive observer and interpreter. Second, this research is exploring *how* SEA has been applied to comprehensive planning and *how* effective these SEA systems have been. Third, this research seeks a general understanding of how SEA has been applied to comprehensive plans by examining three cases in depth that have been identified as 'good practice' SEA in the academic literature or by practitioners.

Yin (1994) discusses several types of case study research designs. The research design can include a *single case* that is investigated in depth, or can comprise *multiple cases* that are compared by identified criteria. Furthermore, both the single and the multiple case designs can be further distinguished as either *holistic* (single unit of analysis) or *embedded* (multiple sub-units of analysis). This thesis has employed a multiple case study design, with embedded units of analysis. The units of analysis of a case study define what exactly is being studied. Although case studies may commonly be about people, organizations or communities, Yin

(1994, 22) notes that case studies have also been done about decisions, programs, implementation processes, and even organizational change. In this thesis research, the units of analysis are the components of the SEA systems of the individual cases.

3.2 Methods

The case study approach often involves collecting a variety of data and observations from different sources. The use of multiple sources of evidence contributes to the validity and reliability of case study research, also known as *triangulation.* This thesis study uses three primary methods: (i) a literature review; (ii) the development of evaluation criteria against which to describe and analyze the case studies; and (iii) post-hoc analysis, which includes document reviews and interviews (see Figure 4).

3.2.1 Literature Review

An extensive review of the literature was conducted using both the academic juried literature, as well as the so-called 'grey literature' which consists of unpublished reports and government documents. The purposes of the literature review are threefold: (i) to provide an overall context and rationale for the strategic environmental assessment of comprehensive plans; (ii) to determine which countries and local planning authorities are undertaking strategic environmental assessments of their comprehensive plans; and (iii) to assist with the development of an analytical framework and the identification of evaluation criteria.

3.2.2 Development of Evaluation Framework and Criteria

An analytical framework and a set of evaluation criteria against which the performance of an SEA system for comprehensive planning can be tested is suggested in Chapter Four. This framework is derived from both the academic literature as well as from international

studies (for example, the International Study on the Effectiveness of SEA and the European Union's SEA Report). The framework comprises five reference levels of analysis: (i) normative; (ii) policy; (iii) institutional; (iv) SEA process; and (v) SEA methods.

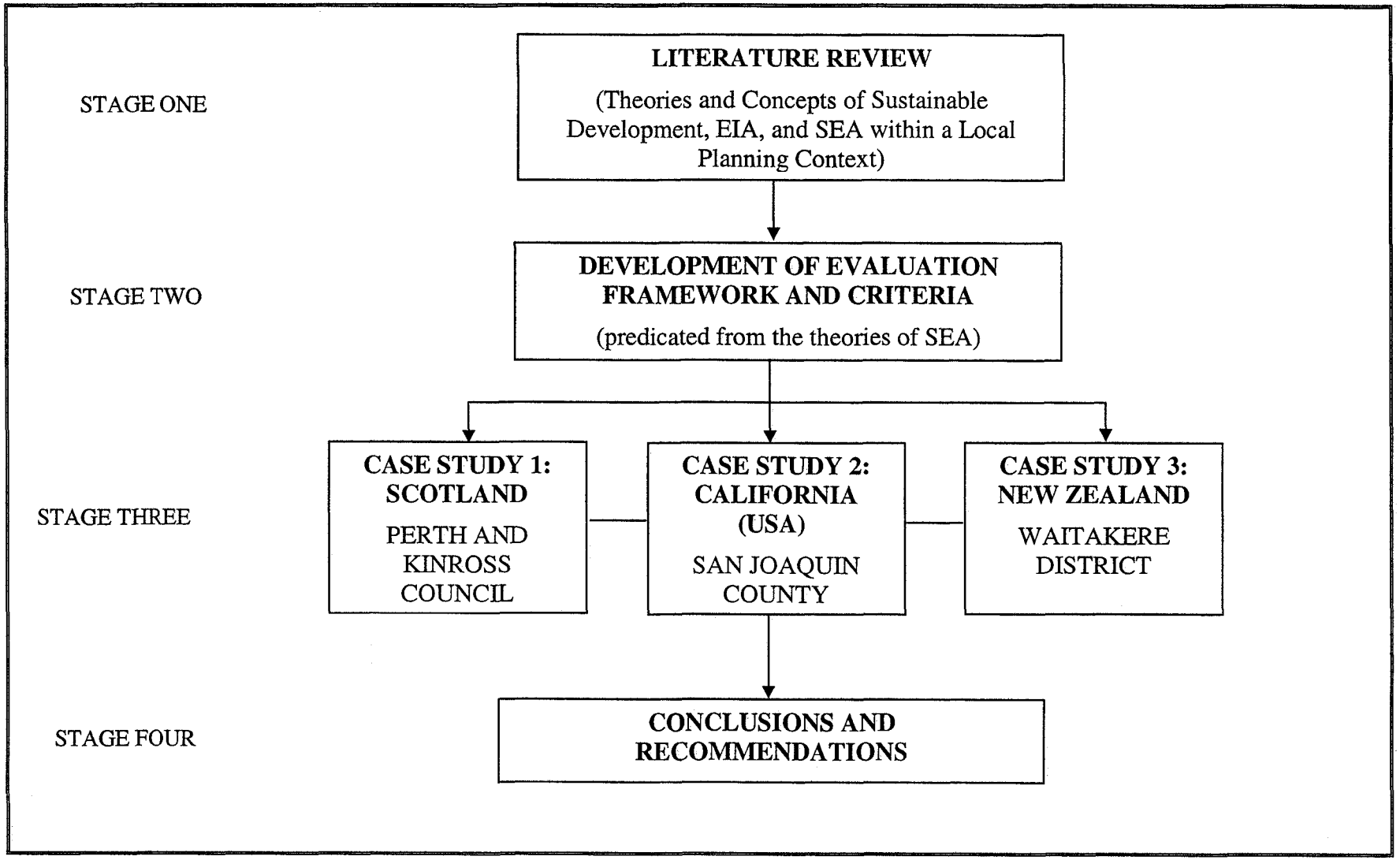
3.2.3 Post Hoc Assessment

The term *post hoc assessment* is a research method generally undertaken to improve resource and environmental planning and management by assessing the strengths and weaknesses of previous experiences (Serafin et al. 1992; Mitchell 1989). *Interactive-interpretive* post-hoc assessment involves reviews of past documentation and uses interviews to look beyond the data in a systematic way, thus providing for the discovery of different perspectives. The interactive-interpretive approach uses a range of 'objective' and 'subjective' information in the assessment (Nelson and Serafin 1995). This mode is pursued in public policy and thesis research. Documentation provided most of the data required for this study. Interviews were conducted to complement the existing documentation, and were intended to "fill in the gaps" as well as to determine the underlying intent and assumptions made in relation to the SEA undertaken for each case.

Document Review

A document review may involve the examination of any relevant literature, including internal reports and archival records (Yin 1994). Documents reviewed for this study included: government legislation and policy directives, government reports, government memorandums, land use and comprehensive plans, and SEA reports. A complete list of the documents reviewed can be found in Appendix B.

Figure 4 Research designs and methods



Interviews

Although the majority of the information collected for this thesis was compiled from written sources, interviews were undertaken with identified planners in each of the case locations to complement the data acquired from the document review. Interviews were conducted in person for the Scotland case study with follow-up questions through electronic mail, and by fax and/or electronic mail for the California and New Zealand case studies. It should be noted that there was some difficulty in obtaining follow-up information from the informant in the Waitakere, New Zealand case study. This resulted in a heavier reliance on the documents.

3.3 Case Studies

3.3.1 Criteria for Selection of Case Studies

The literature review identified both countries and local planning authorities that undertake environmental assessments of their comprehensive plans (for a list of these, refer to Appendix A). In order to examine how SEA is carried out, and to evaluate the extent of its effectiveness, three cases were selected.

The following criteria were used as a basis for the selection of the cases:

- The cases selected were not limited to only those evaluations referred to as "strategic environmental assessments", but included all evaluations of the environmental or sustainability impacts of a comprehensive plan.
- Cases should have a formal basis for evaluation. While SEA does not have to be mandatory, it should have some type of formal structure.

- To reduce difficulties in comprehension and interpretation on the basis of language, only English-speaking countries were included.
- Only those plans with the characteristics of 'comprehensive plans' were considered – must be long-range (at least five years), focused on physical development and land use, be comprehensive, and have a regional focus.
- Information for the plan must be available and easily accessible by the researcher.
- The case study must be recommended as an example of 'good practice' SEA, through the academic literature, by practitioners, or by special recognition (such as awards).

3.3.2 Selection of Case Studies

A number of cases have been highlighted in the literature as examples of 'good practice' SEA in different countries. Based on the selection criteria, the following three cases were selected for further analysis at a more in-depth level. These cases are: (i) the Sustainability Appraisal of the Perth and Kinross Council (Scotland) Structure Plan; (ii) the Environmental Impact Report of San Joaquin County (California, United States); and (iii) the Section 32 Analysis of Waitakere (New Zealand) District Plan. The case studies provide an example of each of the three models of SEA identified by Sadler and Verheem (1996) and the European Commission (Sheate et al. 2001a), respectively: the equivalent (or environmental appraisal) model; the standard (or EIA based model); and the integrated (or environmental management) model.

Perth and Kinross Council (Scotland) – Sustainability Appraisal of the Structure Plan

The European Union Directive on SEA comes into force in July 2004. In view of this impending requirement on Member States to incorporate SEA into national legislation, it is appropriate to select one of the Member States as a case study in this research. The United Kingdom has encouraged a form of SEA, referred to initially as *environmental appraisal*, and currently as *sustainability appraisal*, for development plans since 1993. With over a decade of experience with the environmental assessment of comprehensive plans, the UK provides a leading example to serve as a case study. The SEA model applied in the UK reflects the characteristics of the *equivalent or environmental appraisal model.* In this model, an appraisal is undertaken using expert opinion, with very little or no baseline information. Appraisals can be undertaken quickly and are usually easy to understand (Sheate et al. 2001a). The Perth and Kinross (Scotland) sustainability appraisal of their Structure Plan[8] was one of the most recent appraisals completed in the UK at the time of this study, and was recommended as a good example of the use of sustainability principles to guide a plan's development and appraisal.

The United Kingdom has provided guidance for a form of SEA, referred to as "sustainability appraisal", for development plans since 1993. Although there are currently no legal provisions to undertake SEA, the European Union has adopted a Directive on SEA which will require all member states to incorporate SEA into all legislation concerning plans and programmes by July 2004.

San Joaquin County (California) – Environmental Impact Report of the General Plan.

In the United States, unlike many other nations, government agencies have over three decades of considerable experience preparing environmental assessments of land use plans.

Under the California Environmental Quality Act (CEQA) of 1986, California has one of the strongest regulatory frameworks for SEA of all the states, requiring that local agencies prepare environmental impact reports (EIR) for all actions that may have a significant effect on the environment, including comprehensive plans.

The SEA model as implemented in California represents the *standard or EIA-based model.* In this model, the SEA of a strategic action is generally patterned after project EIA (Sadler and Verheem 1996). However, this case study does not include the heavy dependency on environmental data that is usually associated with the EIA inspired model. Under CEQA, EIRs prepared for plans are subject to the same content and process requirements as project-level EIRs (Bass and Herson 1999). The EIR for the San Joaquin County General Plan[9] has been discussed in the academic literature (Skewes-Cox 1996; Therivel and Partidario 1996; Sadler and Verheem 1996) and the EIR was awarded the 'Outstanding Environmental Document of the Year' by the Association of Environmental Professionals, California Chapter in 1992.

Waitakere District (New Zealand) - Section 32 Analysis of the District Plan

The Resource Management Act (1991) revolutionized environmental management in New Zealand and caught the attention of the world. The Act replaced more than 50 pieces of environmental, resource and planning legislation including the EIA Act and the Town and Country Planning Act. The Environmental appraisal of plans and strategies has been a requirement under Section 32 of the Act (referred to as *Section 32 Analysis*) since 1991 under New Zealand's Resource Management Act. The Act reflects the philosophy that local

[9] A *General Plan* is to act as a basis for rational decisions regarding a city's or county's long-term physical development; it expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. General Plan Guidelines. (OPR 2002).

communities should take greater responsibility for the environmental consequences for their decisions, and as such, implementation of the Act rests largely in the hands of local and regional authorities (Dixon 2002). The Waitakere Council District Plan[10] was identified by Ericksen et al (2001) as an example of a 'good quality' plan in New Zealand.

This model of SEA closely corresponds to the features of the *integrated or environmental management model.* In this model, SEA is undertaken as part of a comprehensive policy and planning framework (Sadler and Verheem, 1996). The RMA provides a framework integrating national, local and regional institutions and systems dealing with resources, so that the environment can be managed as a whole.

3.4 Methods of Analyses

3.4.1 Comparative Analysis

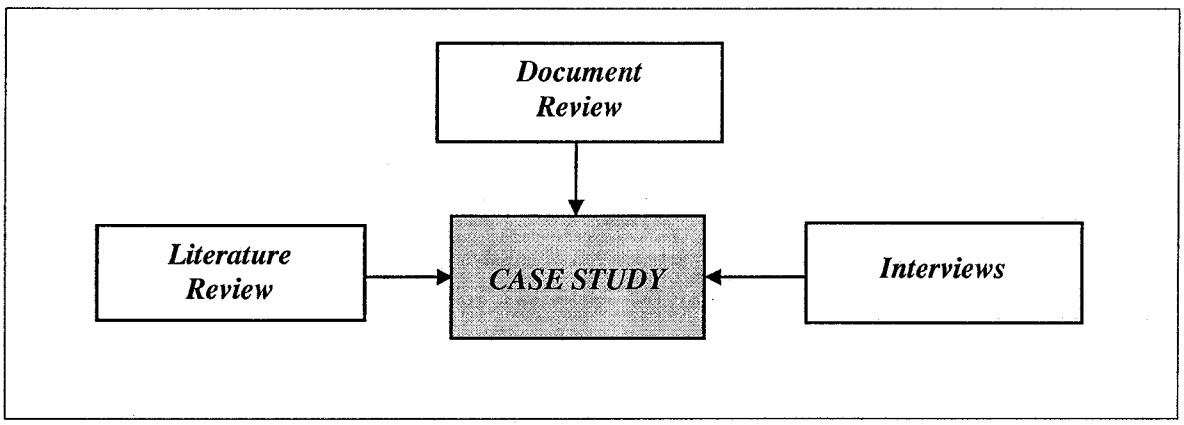
Comparative analysis is used to determine the effectiveness of SEA application in each of the case studies. The information collected from each research method (the literature review, the document review and the interviews) provides the validation of how SEA was applied in each case (see Figure 5). This information was then subjected to comparative analysis. Analysis across SEA systems provides a means of better understanding practice any particular jurisdiction. Some SEA systems perform better than others and comparative analysis may reveal the factors which are essential to the success of SEA processes. Comparative analysis assists to accomplish four tasks. First, comparative analysis was used to identify criteria to measure the effectiveness of SEA application. Second, it highlights the enabling conditions and prerequisites necessary for effective SEA application. Third, it

[10] A *District Plan* describes the district's significant resource management issues, and sets out objectives, policies, methods, and rules (similar to zoning bylaws) to address these issues. (MfE 2002).

identifies the barriers to effective SEA application. And fourth, comparative analysis provides the basis for recommendations to improve the effectiveness of SEA application.

The evaluation framework and criteria (discussed in Chapter Four) is used as an instrument for comparative analysis. The type of comparative analysis undertaken in this research is *parallel demonstration of theory* which is used primarily for comparing case studies to a theory to demonstrate its ability to place order on the evidence (Skocpol and Somers 1980). The three case studies are compared to theory – as described in Chapters two and three – concerning what principles and objectives a SEA system should achieve.

Figure 5 Triangulation among data sources



Possible responses to each of the criteria in the evaluation framework are "yes", "no", or "partially". Each of the criteria is weighted, where "yes" = 2, "partially" = 1, and "no" = 0. Scores are totalled and related to the possible maximum score for each of four levels of the framework. This is discussed further in Chapter Four.

3.4.2 Limitations in Trans-National Comparative Research

There are a number of limitations to undertaking comparative research in a trans-national context. These include: data availability, common basis for comparison, data

collection and language problems. First, data availability in different countries might not be the same (Marr 1997, 13-15) and PPPs might not always be directly comparable (Flynn 1993, 62). In the three chosen countries, comprehensive planning systems were fairly similar, based on traditional British town and country planning. Second, even though knowledge of practice in one country might encourage innovation in another country (Masser 1984, 151), different planning traditions and political, institutional and cultural circumstances might require adaptation to different environments. Thus, it might not be possible to transfer practice from one country to another, as

> *the danger of proposing change in practice in the light of experience abroad is that practice may be independent for its success upon a chain of circumstances which does not apply at home (Booth 1986, 1).*

These chains of circumstances depend, in particular, on political and organization structure. The context of SEA application therefore needs to be highlighted. Once differences are explained, proposals can be made for improving practice.

Third, problems may arise with terminology having different meaning in different countries. As discussed in Chapter One, the concept of *strategic environmental assessment* is known as different names in different countries. In the United Kingdom, SEA is practiced as *sustainability appraisal* in relation to development plans. In California, the form of SEA used is referred to as an *environmental impact report (EIR).* The term *environmental assessment* is used to describe the evaluation for policies, plans and projects. In this thesis, the concept of SEA comprises the many different names that exist for procedures that have the attributes of SEA. Comprehensive planning for physical development is also known by different names in different countries. In this research, the focus is on district land-use plans: in Scotland, structure plans are prepared by district councils; in California, general plans are prepared by county planning authorities; and in New Zealand, district authorities prepare district plans.

Fourth, the use of different languages can be a potential problem when comparing practice in different countries. In order to avoid problems connected with language, the selected case studies had English as their official language.

3.5 Issues of Validity and Reliability

Internal validity indicates whether an observation or procedure is sound and that it measures what it is intended to measure (Babbie 2001). The measuring tool in this research is the evaluative criteria within the framework that is used to evaluate the case studies. The selection of the evaluative criteria was based on several similar research initiatives illustrated in the literature (e.g., Eggenberger and Partidario 2000; Fischer 1999; Therivel 1995). The strength of the evaluative criteria is that it is based on a strong theoretical foundation. The weakness of the criteria is that it can be a subjective measurement, based on the researcher's interpretation of whether or not the case studies' units of analyses exhibit the specified criteria. To counter this limitation, criteria are chosen that are relatively easy to obtain through existing documents and interviews. For example, a criterion used to determine the effectiveness of the institutional framework may be the existence of clear, legal provisions for SEA for comprehensive plans.

External validity refers to how representative the findings of the research are and how well they can be generalized among the general population (Babbie 2001). In case study research, the goal is not to generalize conclusions among the general population, but to understand the particular case(s) under study and to expand and generalize theories (Stake 1995; Yin 1994). Thissen (2000) has suggested that we learn from the successes and failures experienced by case study subjects and determine what conditions are favourable and what barriers may exist. One of the purposes of this thesis is to examine the effectiveness of SEA as

applied to comprehensive plans. By examining three case studies in different jurisdictions, factors that contribute to an effective SEA system can be highlighted, providing guidance to local authorities and decision makers at all levels.

Reliability in research refers to the ability of other researchers to duplicate the steps of the research and come to similar conclusions (Babbie 2001; Yin 1994; Stake 1995). In case study research, there are several methods that can contribute to reliability: the creation of a case study database and the maintenance of a chain of evidence (Yin 1994). A case study database was developed and maintained throughout the course of this research and included items such as documents, interview notes, government reports and legislation, comprehensive plans, and academic literature. The chain of evidence comprises the steps taken to collect and analyze the data, as well as the declared goals and objectives of the research. This practice enables another researcher to follow the same procedures and arrive at the same conclusion.

In the following chapter, a framework is introduced to measure the effectiveness of SEA for comprehensive plans at the local level. The framework uses evaluation criteria that are based on SEA procedural and contextual principles and is intended to be applied to municipal plans (e.g., development plans, comprehensive plans, physical plans).

Chapter Four
A Framework for Evaluating SEA Effectiveness for Comprehensive Plans

4.0 Introduction

The effectiveness of *environmental impact assessment* (EIA) has been of interest to researchers over the past decade (e.g., Sadler 1996; Wood 1995; Gibson 1993; CEARC 1988), however, it is only recently that the effectiveness of *strategic environmental assessment* (SEA) has been considered (e.g., Therivel and Minas 2002; Gibson and Walker 2001; Marsden 1998a; Marsden 1998b; Lawrence 1997; Sadler and Verheem 1996). As noted by Sadler and Verheem (1996, 18), the concern with evaluating effectiveness is with "how well SEA actually works, which components and activities contribute to or detract from success, and what realistically could be done to improve process(es) under review". These reviews focus on SEA for policies, plans and programs as a whole, rather than examining the effectiveness of SEA specifically for comprehensive plans.

Every EA and SEA system operates within a political, legal and administrative context peculiar to the jurisdiction concerned. There is a need for an evaluation framework for comparing the formal legal procedures, and the arrangements for their application and practice in SEA systems. Sadler (1996, 39) suggests that one way to evaluate 'effectiveness' is to compare EA theory with practice, "contrasting what should be done according to the established norms of law or science with what is done, either in general or within a particular jurisdiction". The purpose of this chapter is to introduce and explain an evaluation framework that considers the political context, the institutional arrangements, the SEA processes, and the SEA methods that contribute to the effectiveness of a SEA system for comprehensive plans.

To provide the background for the development of the evaluation framework, this chapter begins with a discussion on how effectiveness can be measured, and how a greater

understanding of context may contribute to measuring the effectiveness of SEA. Then, an evaluation framework is introduced to analyze the effectiveness of the SEA system by evaluating the effectiveness of the SEA system both *substantively* (the extent to which the objectives of SEA are met) and *procedurally* (the extent to which the SEA process conforms to the established provisions and principles for SEA). The chapter concludes with a summary of the strengths and weaknesses of this framework.

4.1 Concepts of Effectiveness in EA and SEA Systems

Gibson and Walker (2001, 454), building on earlier work by Gibson (1993), describe seven basic principles for effective application of the environmental assessment: (i) respect uncertainty; (ii) adopt sustainability as the central objective; (iii) set clear rules for application and implementation; (iv) assess needs and alternatives; (v) ensure transparency and openness and public participation; (vi) monitor the results and apply the lessons; and (vii) be efficient.

The increasing attention that has been given to the evaluation of the performance of EA processes provided the impetus for the International Study into the Effectiveness of Environmental Assessment. The following statement made in a presentation by the President of the Canadian Environmental Assessment Agency to the International Association of Impact Assessment (IAIA) Conference in Shanghai in 1993 formally launched the study:

> *Has environmental assessment achieved its goal of helping...reach better decisions? This is the fundamental question that all...practitioners must begin to address systematically.* (Dorais 1993, 1)

In the study's final report, the meaning of *effectiveness* was considered extensively. The term *effectiveness* refers to "how well something works or whether it works as intended and meets the purposes for which it is designed" (Sadler 1996, 37). In the Final Report, Sadler (1996) describes three dimensions of effectiveness – substantive, procedural and

transactive (Sadler 1996). *Substantive effectiveness* determines the extent to which EA performance achieves the "established purpose(s), goals and objectives" (Sadler 1996, 39). From a substantive aspect, how an EA implementation policy works is the extent to which it meets established objectives such as the impact of the EA on decision-making, and the amendment of the activity. *Procedural effectiveness* determines whether the EA conforms to the "accepted provisions and principles" (Sadler 1996, 39). For example, how an EA implementation policy works from a procedural aspect is the extent to which it meets accepted principles such as clearly defined objectives, provision of support and guidance, application to socio-economic effects and provision for monitoring. *Transactive effectiveness* refers to the extent that procedural principles deliver the substantive objectives at the least cost and in the minimum time possible. In this thesis, only procedural and substantive effectiveness will be further examined because of time and resource constraints.

A number of researchers have examined the effectiveness of SEA (e.g., Therivel and Minas 2002; Thissen 2000; Fischer 1999; Marsden 1998; Lawrence 1997). Therivel and Minas (2002) examine effectiveness in relation to the environmental and sustainability appraisals of development plans that have been undertaken in the United Kingdom for the past ten years. Based on four questionnaires of UK planning authorities carried out between 1994 and 2001, they note that an "effective SEA" identifies possible changes to the strategic action which are sustainable or environmentally benign and are included in the strategic plan, as well as involving people from different disciplines, particularly those that have knowledge of sustainability issues (such as LA21 officers). They summarize the evolution and current status of UK development plan appraisal and consider likely changes that will result from implementing the European Union's SEA Directive in 2004.

According to Thissen (2000), a strategic action (a policy, plan or program) is compared before and after the SEA is carried out, noting any sustainability or environmentally-related changes. SEA has to identify the sustainable or environmental ramifications of implementing the action and suggest possible changes. SEA's direct outcomes must be the integration of the changes into the strategic action.

Fischer (1999) completed research to determine the extent to which current assessment practice of transport infrastructure-related policies, plans and programs (PPPs) results in certain benefits of SEA in three European Union regions: North West England (United Kingdom), the administrative region of Noord-Holland (The Netherlands), and the planning region of Brandenburg-Berlin (Germany). Fischer (1999) linked SEA principles to commonly perceived SEA benefits (based on a number of different authors), and introduced a set of evaluation criteria. Fischer (1999) concludes that current assessment practice of transport infrastructure-related PPPs in the study regions results in SEA benefits to differing extents, and no assessment results in high scores.

Marsden (1998a) applied effectiveness criteria to the Government of Canada's SEA Directive for Policy and Program Proposals and its context. Using the Guiding Principles of SEA as defined by Sadler (1996), Marsden (1998a) examined three sets of federal government regulations (Pulp and Paper Regulations, Yukon Timber Regulations and Endangered Species Protection Act) to determine compliance with the provisions of the Directive ("the Blue Book") and to determine compliance with the Guiding Principles of SEA. Marsden (1998a) suggests that to enhance the process, a need exists to renew commitment, improve guidance, and provide better coordination and management of the process.

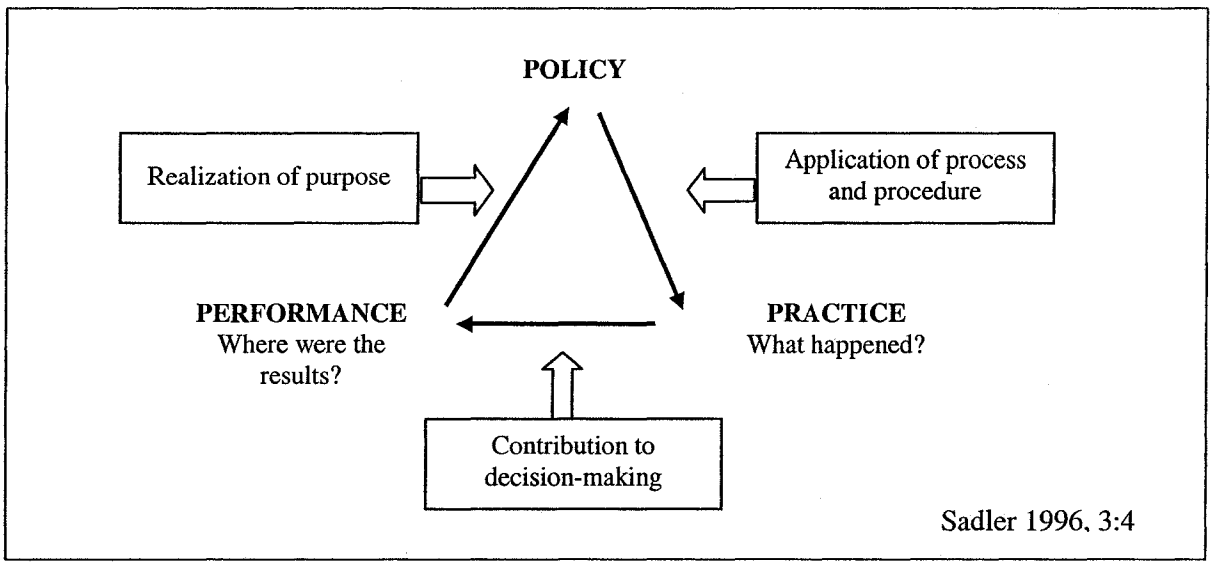
Lawrence (1997) proposes a distinction between "quality" and "effectiveness". Quality is used to assess the "goodness" of institutional arrangements and methods, while effectiveness is concerned with the consequences of the arrangements and methods. Consistent with this evaluation method, Bonde and Cherp (2000) evaluated the quality of SEA reports based on criteria derived from formal SEA provisions, general objectives and principles of SEA and reports of good SEA practice. Lawrence (1997) relates "effectiveness" to both direct and indirect outcomes. Direct outcomes refer to the achievement of identified goals, realization of impacts as forecast, quality of proposals, compliance with regulations and provisions, and maintenance of environmental quality. Indirect outcomes may be assessed as contributions to environmental management principles, administrative and research.

A supplementary report to the International Study on EA Effectiveness focuses on SEA (the 'SEA Report') and describes only the first two dimensions of 'effectiveness' (substantive and procedural), focusing primarily on procedural effectiveness. The lack of focus on the transactive component of effectiveness discussed previously by Sadler (1996) may be attributed to the relatively small number of SEA cases analysed.

Sadler (1996, 40) uses the concept of an 'Effectiveness Triangle' (Figure 6) to illustrate the cyclical relationships between the policy, the application (practice), and the results (performance): "The focus is on relating policy to practice to performance, and relating the implications of performance back to policy adjustments and process development." Baker and McLelland (2003) have expanded this framework in their research on EA policy effectiveness as it relates to participation. The policy is placed at the centre, surrounded by several aspects of effectiveness. Borrowing from Sadler's 'effectiveness triangle', the elements of procedural (practice), substantive (performance), and transactive (proficiency)

effectiveness are included; a normative (purpose) aspect is a further addition. Within each of these four dimensions of effectiveness, adjustments are made to the policy to improve how it works in future applications, and "overall policy effectiveness is reflected by the extent to which the policy works from all four aspects" (Baker and McLelland 2003, 9).

Figure 6 Effectiveness Triangle



Evaluation of EA performance can take place on a number of different levels (Sadler 1996; Lee et al 1994; Ortolano 1993): *system-wide reviews; decision audits*; and *activity or component-specific evaluations.* System-wide reviews evaluate a number of EA/SEA processes over a given period of time and indicate the overall results in terms of the extent to which policy or institutional goals were supported (Sadler 1996). For example, an evaluation of SEA processes within European Union countries during the past ten years would be a system-wide review. Decision audits evaluate the application of a given EA/SEA process from start to finish in one or a number of cases, such as an evaluation of the European Union SEA Directive for a number of different plans and programs. Component specific evaluations evaluate particular stages or activities of an EA/SEA process. This can either involve a 'step

by step' analysis as part of the EA/SEA process or as a separate exercise. For example, an EA/SEA process may be reviewed for such things as procedural compliance (e.g., Marsden 1998a), completeness and quality of EA/SEA documentation (e.g., Bonde and Cherp 2000), or adequacy of methods used to assess public involvement (e.g., Baker and McLelland, 2003).

4.2 Importance of Context

The importance of context is critical in SEA application (Marsden 1998b; Partidario 1996) as strategic decisions are guided by the internal political, legal and administrative framework in a particular jurisdiction. The prevailing political or organization culture and structure of decision-making will determine whether and under what circumstances SEA can be introduced; the existing policy and planning frameworks will determine how SEA is applied (Sadler 1996, 76).

Previous approaches to measuring effectiveness for EIA have focused primarily on the existence of identified procedural elements (such as scoping, screening and the consideration of alternative options). Although sound procedures and appropriate methods and techniques are also important requirements for SEA, the effectiveness of a SEA system is defined "...above all, [by] a reasonably supportive political culture" (Sadler and Verheem 1996, 117). Every SEA system is unique and a product of the political, legal and administrative context within its particular jurisdiction. Contextual frameworks enable comparisons to be made across jurisdictions, providing a means of better understanding SEA practice in any particular jurisdiction. Some SEA systems work better than others and step-by-step comparative analysis may help to throw more light on the factors which are essential to the success of SEA processes (Wood 1995).

In order to develop a contextual framework, criteria need to be identified and selected to evaluate the enabling conditions and prerequisites for effective SEA application to comprehensive plans. The evaluation criteria not only can highlight the key factors for success, but can also identify the obstacles that can be encountered. A framework to evaluate the effectiveness of SEA application to comprehensive plans is presented in the following section.

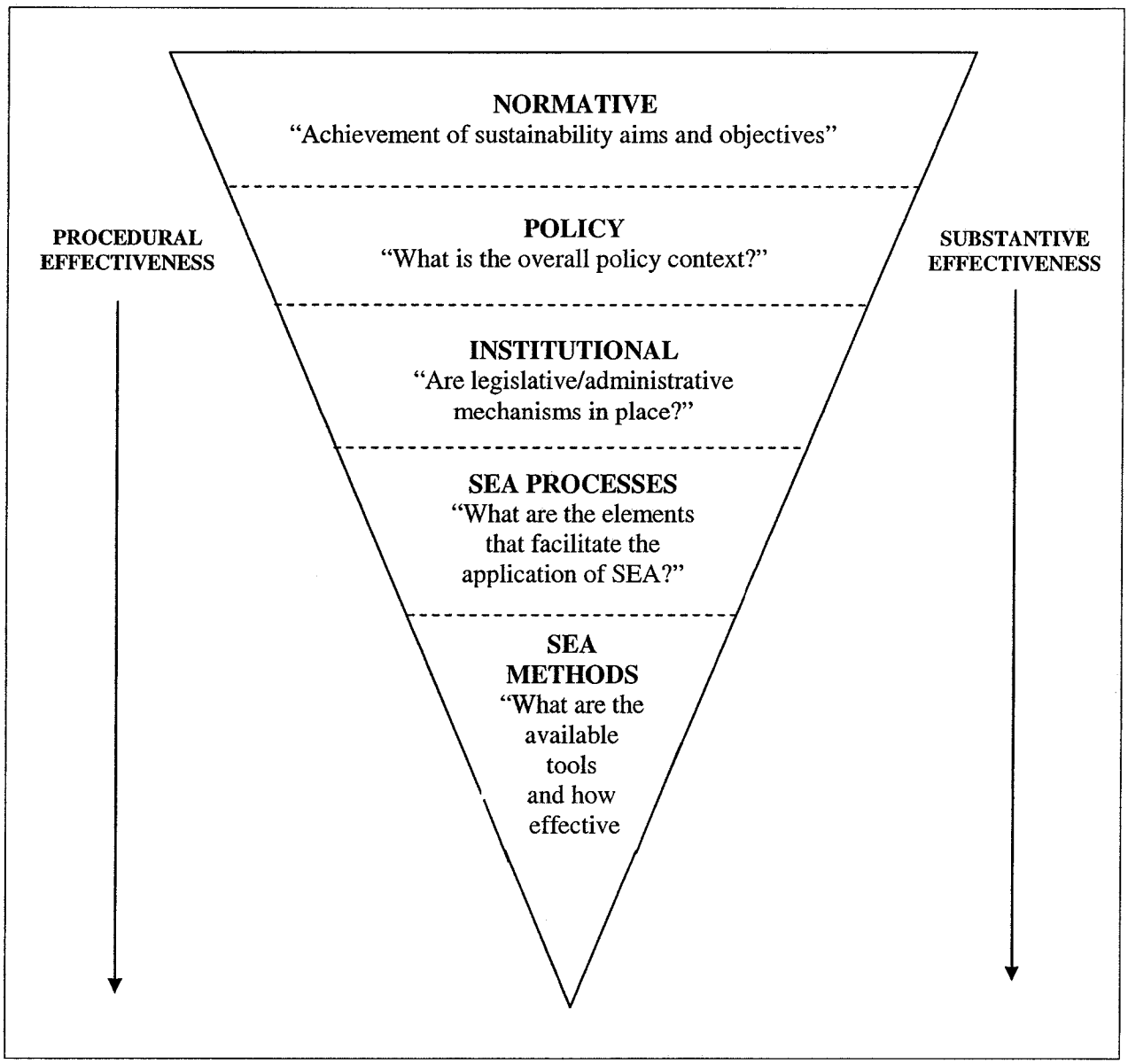
4.3 A Framework for Evaluating SEA Effectiveness for Comprehensive Plans

As discussed in the introduction, this thesis examines the effectiveness of SEA to comprehensive plans. The evaluation framework presented in this section has been derived from several sources: Eggenberger and Partidario (2000), Partidario (1996) and Sadler and Verheem (1996). The framework comprises five components, or reference levels: (i) normative; (ii) policy context; (iii) institutional arrangements; (iv) SEA processes; and (v) SEA methods (Figure 7). These components do not operate in isolation from one another; rather, there are opportunities for transition and integration between them.

This evaluation framework assists with two primary objectives: (i) to evaluate the effectiveness of a SEA system *substantively* (the extent to which the objectives of SEA are met) and (ii) to evaluate the effectiveness of a SEA system *procedurally* (the extent to which the SEA process conforms to the established provisions and principles for SEA).

In this thesis, four of the five elements of the framework are evaluated for effectiveness, both substantively and procedurally. The normative level of the framework is not considered in this study as it is very difficult to assess whether or not the plan is achieving sustainable development. This particular question demands its own research investigation, and could be the subject for future research opportunities.

Figure 7 Evaluation Framework



Marsden (1998a, 243) considers only the procedural effectiveness of SEA in his research, noting that substantive effectiveness is "a secondary concern" and that "the nature of higher-order decisions is such that SEA's role in change simply may not be practicable". In contrast, however, this thesis follows the recommendations stated by Sadler (1998, 36) and investigates both dimensions of effectiveness:

> *Concerns with methodology and procedure often dominate discussion on SEA. Unquestionably how this process is carried out influences the results. However, far greater attention needs to be given to whether or not the objectives of SEA are being achieved; e.g., via monitoring and evaluation of the impact of the process on decision-making and on protection of the environment. [emphasis mine]*

Substantive effectiveness is determined in this thesis by evaluating the extent to which the SEA system under study has met the aims, objectives and benefits of SEA, as commonly identified in the literature (Fischer 1999; Partidario 1996; Sadler 1996; Shepherd and Ortolano 1996) (Table 6).

Table 6 Aims and objectives of SEA

- Integration of environmental considerations into PPP decisions
- Provision of information on environmental effects
- Strengthen and streamline project EIA by:
  - early identification of potential impacts and cumulative effects
  - addressing strategic issues, re: justification and location of proposals
  - reducing time and effort to assess individual schemes
- Promote or achieve sustainable development by:
  - integrating environment and development decision-making
  - designing environmentally sustainable policies and plans

Sadler (1998)

Procedural effectiveness in this thesis is determined by evaluating the SEA system for compliance with the legal provisions of the jurisdiction under study and with the Guiding Principles of SEA contained within the Final Report of the International Study of the Effectiveness of Environmental Assessment (Sadler 1996, 151) (Table 7).

Table 7 Guiding Principles of SEA

- initiating agencies are accountable for assessing the environmental effects of new or amended policies, plans and programmes
- the assessment process should be applied as early as feasible in proposal design
- scope of assessment to be commensurate with the proposal's potential impact or consequence for the environment
- objectives and terms of reference should be clearly defined
- alternatives to, as well as the environmental effects of, a proposal should be considered
- other factors, including socio-economic considerations, to be included as necessary and appropriate
- evaluation of significance and determination of acceptability to be made against policy framework of environmental objectives and standards
- provision should be made for public involvement, consistent with potential degree of concern and controversy of proposal
- public reporting of assessment and decisions (unless explicit, stated limitations on confidentiality are given)
- inclusion of environmental factors in policy making
- tier processes, where possible, to subsidiary SEA and project EIA
- monitoring and follow-up of measures, including tracking proposals that initiate further actions
- need for independent oversight of process implementation, agency compliance, and government-wide performance.

Sadler 1996, 151

4.4 Evaluation Framework Criteria

4.4.1 Normative

The *normative* component is the highest, or most strategic level of the framework, and purports the 'ideal', with respect to what the policy or plan intends to achieve, such as sustainable development (Gibson and Walker 2001). A normative vision provides guidance on what *should* be done, rather than what *is* done (Sadler 1996, 39). The normative vision comprises an ideal *substantive* outcome as well as an ideal *process.* The normative level of the framework will not be considered in this thesis as it is difficult to measure whether or not sustainable development has indeed been achieved as a direct result of the plan.

4.4.2 Policy Context

The policy context element of the framework considers the overall policy context within which the case study exists. EA effectiveness is associated with "changing political regimes and with the changing level of support for the EIA process" (Wandesforde-Smith 1989, 165). Sadler (1996, 1) notes that a SEA process "can only be fully understood and comprehensively evaluated in relation to the national or jurisdictional framework of decision-making within which it operates". Similarly, Eggenberger and Partidario (2000, 202) state that, to be effective, SEA needs to be "integrated as far as possible into the existing policy, institutional and organizational framework and coordinated with initiatives sharing complementary goals (for instance, LA 21)". Procedural principles, substantive objectives and evaluation criteria are outlined below in Table 8.

Table 8 Principles and evaluation criteria for the policy context

Procedural Principles for Policy Context:	Evaluation Criteria:
1. Political will and support for sustainable development initiatives at higher levels of government (Partidario 1996)	• Cabinet responsibilities for sustainable development; government-wide initiatives
2. Systematic, integrated policy framework for considering sustainability/environmental principles to guide assessment (Sadler and Verheem 1996; Partidario 1996; Shepherd and Ortolano 1996)	• National sustainable development strategies, objectives and indicators
3. Commitment to sustainability at the local level	• Sustainability initiatives in case study
4. SEA integrated into planning process	• SEA is integrated into the comprehensive planning process
Substantive Objectives for Policy Context:	**Evaluation Criteria:**
1. SEA findings are a central determinant of decision	• Legislation or policy requires that SEA findings are the central determinant of decision
2. Integrates SEA recommendations into final plan (Sadler 1998; Therivel and Minas 2002; Partidario 1996)	• Personal opinion by local planning authority about how SEA results are considered in decision making
3. Promotes or achieves sustainable development by integrating environmental or sustainability considerations into plan decisions (Sadler 1998)	• Sustainability/environmental considerations integrated into plan

4.4.3 Institutional

The institutional arrangements component of the framework examines the legislative, administrative and organizational structures and arrangements that are in place that can facilitate the implementation of SEA. Sadler (1996) highlights an appropriate institutional framework with quality controls (e.g., clear requirements, procedural guidance, and provisions for independent review) as one of the enabling conditions for sound SEA practice. Table 9 provides the procedural principles, substantive objectives and evaluation criteria for the institutional context.

Table 9 Principles and evaluation criteria for institutional contextarrangements

Procedural Principles for Institutional Arrangements:	Evaluation Criteria:
1. Comprehensive plan based on clear legal provisions	• Legislative requirements for comprehensive plans
2. Clear legal provisions for SEA (Sadler and Verheem 1996; Partidario 1996)	• Statutory and binding requirements in law for both comprehensive plans and SEA
1. Administrative body exists to oversee SEA process	• Separate agency in place with responsibility for SEA
2. SEA subject to interagency review	• Process in place for other government departments and agencies to review and SEA and provide input prior to decision making
3. Guidance, training and support provided	• Written guidance, training workshops and financial support provided to carry out SEA
4. Visible linkages to decision making (Fischer 1999)	• Approvals or permitting by government department or agency based on submission of SEA report
5. Independent oversight of the SEA (Sadler and Verheem 1996; Fischer 1999)	• Opportunities for review of quality by independent parties
Substantive Objectives for Institutional Context	**Evaluation Criteria:**
1. Strengthens project EIA through 'tiering' to carry sustainability principles from plans to projects (Sadler and Verheem 1996; Ortolano and Shepherd 1996)	• SEA leads to an acceleration of project EIAs • SEA substitutes parts of project EIA • SEA and EIA assess different issues

4.4.4 SEA Processes

The SEA processes employed are the 'building blocks' that facilitate the application of SEA in comprehensive planning. While the processes followed varies among jurisdictions, there are certain steps identified that constitute 'good practice' SEA (Sheate et al. 2001; Fischer 1999; Sadler and Verheem 1996; UNECE 1992): screening, scoping, evaluation and comparison of alternatives, public participation, outside review, documentation and monitoring. Evaluation criteria is outlined below in Table 10.

Table 10 Principles and evaluation criteria for SEA processes

Procedural Principles for SEA Processes:	Evaluation Criteria:
1. SEA based on an objectives-led approach (Sadler and Verheem 1996)	• Environmental, social and economic objectives defined in order to evaluate significance of impacts
2. Effective scoping process in place	• Comprehensive scoping process that involves biophysical and socioeconomic issues as well as the identification of stakeholders involved
3. Opportunities provided for public involvement (Fischer 1999; Sadler and Verheem 1996; Shepherd and Ortolano 1996)	• Significant opportunities for public involvement beyond the provision of information after the process
4. Mitigation measures identified on SEA level (Marsden 1998)	• Mitigation measures identified during the process
5. Separate SEA report required with prescribed content	• Separate SEA report provided to decision makers prior to decision
6. Public reporting of SEA (Verheem and Tonk 2000; Fischer 1999; Sadler and Verheem 1996)	• SEA results and decision made available to the public
7. Provisions for monitoring and follow-up (Verheem and Tonk 2000; Fischer 1999; Sadler and Verheem 1996)	• Monitoring program and indicators developed as part of SEA process
Substantive Objectives for SEA Processes:	**Evaluation Criteria**
1. Proactive assessment (Fischer 1999; Sadler and Verheem 1996; Partidario 1996)	• SEA applied early in the process
2. Sustainability-led process (Verheem and Tonk 2000; Fischer 1999; Sadler and Verheem 1996)	• Sustainability objectives adopted and guide SEA process
3. Cumulative impacts considered	• Identification and evaluation of cumulative impacts related to plan
4. Alternative options identified and evaluated	• Identification and evaluation of alternative options for plan

4.4.5 SEA Methods

The methods and techniques used to evaluate plans in SEA application are at the most operational level of the framework. The type of methods used to evaluate comprehensive plans are identified in the case studies, and compared against those methods suggested in the literature and by practitioners. Table 11 provides the evaluation criteria for this element of the framework.

Table 11 Principles and evaluation criteria for SEA methods

Procedural Principles for SEA Methods:	Evaluation Criteria:
1. Suitable methods used for scoping	• At least two of the following methods: checklists, literature surveys, comparisons, overlay maps, public consultation and expert judgment
2. Scenarios used to identify and evaluate alternative options	• Should also include the 'worst-case' scenario
3. Information on the affected environmental baseline conditions collected and described	• Should include an inventory of conditions, as well as carrying capacity
4. Impacts evaluated as to their significance, with reference to scope, duration and likelihood of occurrence	• Type of weighting system used to evaluate significance or severity of impact (such as ordinal scale)
Substantive Objectives for SEA Methods:	**Evaluation Criteria:**
1. Integration of multi-disciplinary approaches	• Bio-physical and socio-economic approaches and methods used in evaluation of plan
2. Integration of qualitative and quantitative methods	• Qualitative and quantitative methods are used in evaluation of plan
3. Information presented in a non-technical summary that was easy for decision-makers to understand	• Textual summary used

4.5 Evaluation of Significance

Data was collected during the case studies for all criteria presented in the tables in this chapter. Possible answers to a criterion are "yes" (strong compliance), "partially" (weak compliance), and "no" (no compliance at all). Each of the criteria introduced is weighted for

significance, with "yes" scoring 2 points, "partially" scoring 1 point, and "no" scoring 0 points. All criteria are weighted equally. Scores are totalled and related to the possible maximum score for each reference level of the framework (i.e., policy, institutional, processes, and methods). For ease of evaluation and analysis for all criteria at each level, the following four categories have been identified: (i) under 50 per cent (considered 'poor'); (ii) 50 per cent to 74 per cent (considered 'adequate'); (iii) 75 per cent to 89 per cent (considered 'good'); and (iv) 90 per cent to 100 per cent (considered 'excellent').

4.6 Summary

Strengths

The evaluation framework presented in this chapter has several important strengths. First, it is built upon a carefully constructed theoretical foundation and based on the key academic literature. As the literature itself is fairly consistent, the framework can be considered valid from both a normative and empirical perspective. Second, the framework incorporates the importance of the policy and institutional contexts within which SEA operates. A greater understanding of the context helps greatly in measuring the effectiveness of a SEA system. Third, consistent with the SEA literature and practitioners, the framework is flexible and adaptable, as it leaves room for further interpretation. It does not advocate a prescriptive approach, but directs the practitioner to consider a range of mixed stakeholders, different societal values, and high levels of uncertainty in terms of expected outcomes.

Weaknesses

The framework also has a number of weaknesses. The most significant of these is the researcher's own inherent biases which contributed to its development. As noted by Sadler (1996), all cases of evaluation of performance and judgement about success will be subjective.

In addition, evaluation is subject to the following conditions (Sadler 1996, 38):

- *the EA/SEA process operates in an open ended, decision-making context;*
- *it is taken forward and influenced by actions of numerous participants;*
- *the outcomes of the process are not always clear or apparent;*
- *in these circumstances, cause-effect relations cannot be measured or quantified; and*
- *often, proponents and opponents of EA differently interpret the utility of the process.*

These weaknesses are inherent in the concept of sustainable development; however, policy-makers, planners and researchers need to continue to find ways to operationalize sustainability principles and to further integrate environmental considerations into decision-making.

Transferability

One of the main purposes of this thesis is the development of a framework that can assist practitioners applying SEA processes in comprehensive planning. The theoretical elements of the framework are transferable to all forms of SEA in all jurisdictions. As noted earlier in this chapter, the use of such a step-by-step comparative analysis of current practice can help to throw some light on the factors which are essential to the success of SEA processes. The policy and institutional levels of the framework ensure that the appropriate context is considered for a particular jurisdiction. While analysis across SEA systems provides a means of better understanding practice in any particular jurisdiction, caution must be taken when applying the lessons learned in one country to another (Marsden 1998a, 1998b; Booth 1986; Masser 1984). In Chapter Five, three case studies are described based on four perspectives: the policy context, the institutional arrangements, the SEA processes followed, and the SEA methods employed.

Chapter Five
Overview of the Case Studies

5.0 Introduction

This chapter provides an overview for each of the three case studies to facilitate a better understanding of the policy, institutional, procedural and methodological contexts within which SEA occurs in each case study jurisdiction. A summary of the characteristics of the case studies is provided in Table 12. The policy and institutional contexts for each case are examined through the national perspective, as the extent of political support and the availability of appropriate institutional controls to facilitate the application of SEA are primarily defined at this level. The policy and institutional contexts establish an overall framework within which SEA processes and methods operate at the local level. The institutional context comprises organizational structures, the regulatory framework, and administrative mechanisms.

The status of SEA practice is examined from the national perspective as well as at the local level. SEA practice is explored through the scope of application, the opportunities for public involvement and outside review, the basic steps followed, the integration of SEA with project EIA, and provisions for monitoring. The range of SEA methods and techniques used in the assessment of plans in the case studies are then discussed. This chapter concludes with a brief summary of the understanding of the contexts and the practices surrounding the case studies.

Table 12 Summary of case study characteristics

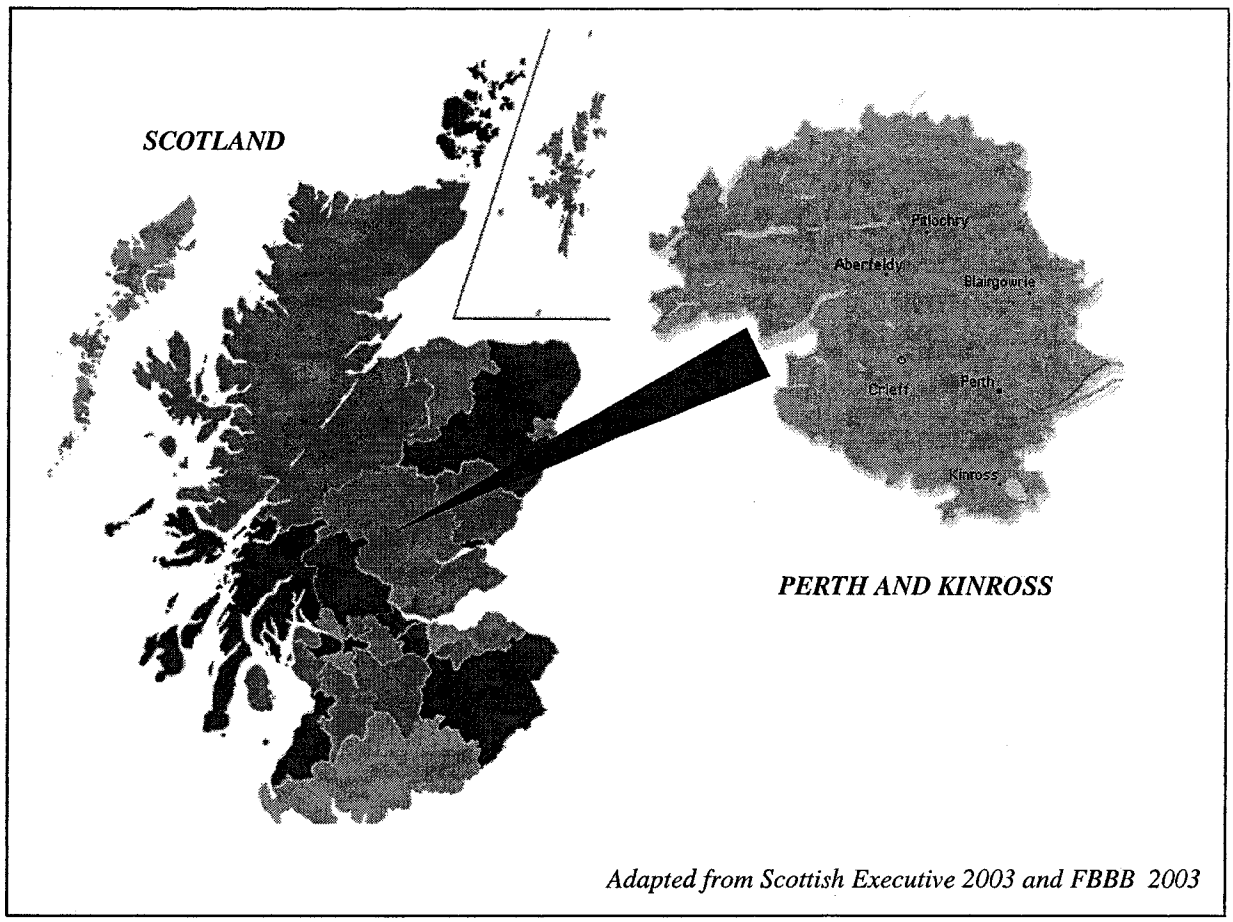
	Scotland Perth and Kinross	California, USA San Joaquin County	New Zealand Waitakere District
Population* *based on 2002 estimates	Scotland: 5,000,000 Perth and Kinross: 134,000	California: 33,871,648 San Joaquin: 578,600	New Zealand: 3,737,280 Waitakere: 168,750
Land Area	Scotland: 78,000km^2 Perth and Kinross: 5,311 km^2	California: 40,397 km^2 San Joaquin: 3,621 km^2	New Zealand: 268,000 km^2 Waitakere: 1,391 km^2
System and Legal Form of Government	UK: Parliamentary Scotland: Scotland Act (1998)	USA: Presidential California: Governor	New Zealand: Treaty of Waitangi (1840)
Head of State	Queen of England	President of the United States of America	Queen of England
Head of Government	UK: Prime Minister Scotland: First Minister	USA: President California: Governor	Prime Minister
Local Government	35 unitary authorities	58 counties 456 cities	12 regional councils 74 territories (15 city councils and 59 district councils)
Elected Local Officials	Mayor and Council	Mayor and Council	Mayor and Council
Major Centres in Case Study Area	Perth (main), Kinross, Aberfeldy, Blairgowrie, Crieff, Pitlochry	Stockton (main), Escalon, Lathrop, Manteca, Ripon, Tracy	Waitakere City (main), Hobsonville, Henderson, Ranui, Swanson, Massey North/Westgate, Glen Eden, New Lynn
Comprehensive Plan	Development Plan (Structure Plan + Local Plans) – Mandatory	General Plan - Mandatory	District Plan – Mandatory Regional Plan – Voluntary
Legal Provisions for Comprehensive Plans	Town and Country Planning (Scotland) Act 1974	California Government Code Section 65100	Resource Management Act (1991), Part 5
Minister/Department Responsible for Comprehensive Planning	Minister with Responsibility for Planning, Scottish Executive	Governor's Office of Planning and Research	Minister for the Environment, New Zealand Government
Legal Provisions for SEA	Scottish Planning Policy 1, 2002 (formerly National Planning Policy Guideline 1, 1994) – voluntary	California Environmental Quality Act (CEQA) 1969 – mandatory	Resource Management Act (1991) - mandatory

5.1 Scotland – Perth and Kinross District

Scotland is one of four constituent nations that form the United Kingdom, and is located on the northern part of the island of Great Britain. The district of Perth and Kinross is located at the geographical center of Scotland, straddling the boundary between the Scottish highlands and lowlands (see Figure 8 for a map of the area). Perth and Kinross covers 5,311 km^2, and houses 134,000 inhabitants, 70% of which are rural dwellers. Perth City is the major population centre; other smaller communities include Kinross, Aberfeldy, Blairgowrie, Crieff and Pitlochry. On the national level, Scotland's industry has shifted from the traditional reliance on coal, shipbuilding, and textile production to tourism and high technology. Distilling and oil and gas production still remain important to Scotland's economy. The service industry is the focus in Perth and Kinross, particularly in distribution, hotels, catering, banking and finance (Perth and Kinross Council 2001).

The passing of the Scotland Act (1998) allowed for the Scottish Parliament to be created in 1999, the first time that Scotland has had its own Parliament in 300 years (Scottish Executive 2001). Up until that time, Scotland was governed by Westminster Parliament in London. The Scottish Parliament is responsible for most of the issues of day-to-day concern to its citizens including health, education, justice, transport and planning (Scottish Executive 2001). The Scottish Executive, the devolved government for Scotland, was established in 1999 following elections to the Scottish Parliament and is led by a First Minister. The national parliament in Westminster (London) retains responsibility for areas such as defense, foreign affairs and taxation.

Figure 8 Map of Perth and Kinross, Scotland



However, Scotland still closely emulates the policy directions that the UK sets, and therefore, discussion here will also include many aspects of the UK's progress. The European Parliament in Brussels, Belgium exercises certain powers vested in the European Union including trade, environmental issues and regional development.

5.1.1 Political Context

The United Kingdom has come a long way since its reputation as 'the dirty man of Europe' (Lowe and Ward 1998, i). Since becoming a member of the European Union in 1973, British approaches to environmental management and protection have been severely challenged and in many respects reformed. With new environmental standards set by the

European Union, the UK has been forced to integrate environmental initiatives into its regulations and policies. Over 80 per cent of British environmental legislation emanates from Brussels (Lowe and Ward 1998, i).

The UK produced a sustainable development strategy soon after the Rio Earth Summit, as part of the commitments the country made at the conference. This strategy was criticized for its focus on economic issues; it was revisited and re-released as "A Better Quality of Life" in 1999, highlighting four priority areas: i) maintenance of high and stable levels of economic growth and employment; (ii) social progress which recognizes the needs of everyone; (iii) effective protection of the environment; and (iv) prudent use of natural resources (DETR 1999a). This strategy is coupled with "Quality of Life Counts", a set of 147 sustainability indicators, organized under 15 headline indicators (DETR 1999b). The United Kingdom released its first progress report on sustainable development in "Achieving a Better Quality of Life" in January, 2001.

In 1991, the UK government produced "Policy Appraisal and the Environment", which encouraged all departments to appraise their policies based on potential impacts to the environment. This evolved into 'environmental appraisal', a form of environmental assessment used in the UK in the early 1990s, primarily for development plan. Although environmental appraisal was not legally required, it was encouraged through guidance produced by the Department of Environment (DoE) and through Planning Policy Guidance (PPGs). In 1996, environmental appraisal became sustainability appraisal to reflect the sustainability pillars as outlined in the UK's sustainable development strategy. Sustainability appraisal considers social and economic effects as well as environmental ones. The process

tends to be less detailed and more qualitative than many forms of environmental assessment (ODPM 2003).

Previous to the Scotland Act in 1999, Scotland was governed by these UK initiatives. While Scotland continues to be a partner in many of the UK's sustainable development initiatives, devolution has provided an opportunity to tune policies to the specific needs of Scotland. The main issues central to sustainable development have been devolved to the Scottish Executive. The Scottish Executive determined that Scotland needed to adopt its own strategies and related indicators matching its own priorities. To this end, the Scottish Parliament debated sustainable development soon after its creation in February 1999, and passed a motion placing sustainable development at the heart of its work (Scottish Executive 2000, 1:1). The Scottish Executive's sustainable development strategy was released in December 2002, but did not follow the UK's lead with respect to social progress, resource protection and economic progress, focusing primarily on the environmental component, grouping priority issues into three areas, often called either the three pillar or the W-E-T approach (waste/resource use, energy and travel): *waste/resource use* (protect ecosystems from over-use of resources and reduce use of non-renewable resources); *energy* (reduce demand for energy from non-renewable resources); and *travel* (reduce use of non-renewable resources for travel) (Scottish Executive 2002b).

Closely aligned to this strategy, a draft set of 40 sustainability indicators has been developed corresponding to the areas of waste, energy and travel ("Meeting the Needs: Priorities, Actions and Targets for Sustainable Development in Scotland"). Social and economic indicators have been published separately in "Social Justice: A Scotland Where Everyone Matters".

The Scottish Executive released its 'Greening Government' policy in September 2001, again following a similar initiative in the UK several years earlier that had failed for a number of reasons. The 'Green Ministers' in the UK government did not have power to make major policy decisions. They focused on internal activities, met infrequently, and had a very low status (Voisey and O'Riordan 1997). The 'Greening Government' initiative in Scotland also focuses primarily on internal activities and have set out nine objectives to promote environmental improvement (consistent with the W-E-T priorities of the Scottish Executive) by reducing the impact of their operations on the environment. The Scottish Executive publishes annual reports on its environmental performance. This was followed up by "Building a Sustainable Scotland: Sustainable Development and the Spending Review" in December 2002. Each government department was asked to produce a draft of aims, objectives and targets for their portfolios with detailed assessment of spending and were asked to demonstrate how the aims, objectives and targets related to the four Scottish sustainable development priority areas.

The general concept of sustainable development is further embedded into government policy through the creation of a Cabinet Sub-Committee on a Sustainable Scotland ("Sustainable Scotland"), comprised of several cabinet ministers and deputy ministers, as well as environmental leaders[11], that is responsible for discussing the integration of the environment and the principles of sustainable development into the workings of the Parliament. Other key groups include: the Sustainable Development Commission (an advisory, non-departmental public body that is jointly appointed by the four UK

[11] The Sub-Committee on Sustainable Development includes: the Minister for Environment and Rural Development, the Minister for Finance and Public Services, the Deputy Minister for Environment and Rural Development, the Deputy Minister for Enterprise, Transport and Life Long Learning, the Deputy Minister for Social Justice, the Friends of Earth Scotland, and the University of Aberdeen)

administrations, which advises on sustainable development across all sectors in the UK) and the Sustainable Scotland Network (a local government initiatives that comprises members from all 35 local governments in Scotland).

At the local level, sustainability initiatives have been promoted in the UK through Local Agenda 21 (LA21) activities. UK Prime Minister Tony Blair challenged all local authorities to produce LA21 strategies by the end of 2000 to outline how they plan to promote sustainable development in their local area (UN General Assembly, New York, 21 June 1997). The Scottish Executive supported this challenge, requesting its own local authorities to produce LA21 strategies. All 35 local authorities in Scotland have developed LA21 strategies.

5.1.2 Institutional Context

Organization of Planning

As a devolved matter, planning and the overall management of the comprehensive system in Scotland is centrally guided and controlled by the Scottish Executive (under the responsibility of the Minister of Social Justice). The Town and Country Planning (Scotland) Act (1997) governs comprehensive planning in Scotland, and similar to the UK, there are statutory requirements for all 35 local authorities to prepare development plans to provide the basis for decisions on planning applications. Development plans comprise both the structure plan (prepared by the district council) and the local plans (prepared by the local councils located within the district). The structure plan takes a long-term view of development, considering its general scale, and broadly where development should be located. Local plans are often for smaller areas, and must be consistent with the approved structure plan covering their area. Local plans set out detailed policies and proposals to guide development. Public consultation is an important component of both types of plans. Approval of all plans rests

with the Secretary of State for Scotland (the representative of Scotland in the United Kingdom government at Westminster).

Non-statutory planning guidance is provided for local authorities in the form of Scottish Planning Policies (SPPs), formerly known as National Planning Policy Guidelines, and Planning Advice Notes (PANs) (Table 13). SPPs set out policy on nationally important land use and other planning matters, covering issues such as transport, natural heritage, land for housing, shopping centres, and town centres. PANs give advice on how best to deal with matters such as local planning, rural housing design and improving small towns and town centres. SPP1 details the role of the planning system in promoting sustainable development. SPP 1, PAN 37 and PAN 49 all provide guidance on the environmental appraisal of development plans.

The organization and structure of planning in Scotland is proposed to change. A review of strategic planning in Scotland was undertaken by the Scottish Executive soon after taking office in 1999. One of the main proposals within this review was the preparation of a National Comprehensive Planning Framework for Scotland, a non-statutory planning policy that is to identify how Scotland will develop over the next 25 years. Stakeholders recommend that the framework should focus on a limited number of key spatial issues of genuine national importance such as transport, economic development, energy, water and telecommunications infrastructure. The framework is to be completed by the end of 2003. Other key changes emerging from the review include renaming National Planning Policy Guidelines as Scottish Planning Policies; having only one tier of plans – development plans – essentially abolishing structure and local plans; requiring second tier of plans only for the four city regions (Glasgow, Edinburgh, Aberdeen and Dundee).

Table 13 Scottish policies on environmental appraisal

National Planning Policy Guideline 1 – The Planning System (paras. 27 and 31):

"Special attention should be given to ensure that the strategic policies now in place are consistent with broader environmental objectives and sustainable development, in line with current national policy and any wider international obligations...All plans should be regularly reappraised to ensure that policies are consistent with broader environmental objectives..."

(The Scottish Office Environment Department, 1994)

Planning Advice Note 37 (revised 1996) – Structure Planning (para. 7):

"It is important that those involved in preparing structure plans recognize how a long term settlement strategy and the policies and proposals in the plan can contribute to achieving the sustainable development of an area...To help in assessing a structure plan's contribution towards the sustainability of development, the Department expects to issue good practice advice on the environmental appraisal of development plans in the near future"

Scottish Executive 1996b

Planning Advice Note 49 – Local Planning (para. 48):

"The matters to be covered in a local plan are for the local authority to decide...But there are likely to be a number of core topics like the environment... sustainable development and environmental appraisal..."

Scottish Executive 1996a

Planning Advice Note 49 – Local Planning (Annex 1, para. 7):

"...project-based environmental assessment is not enough on its own to ensure that we move towards sustainable development. The environmental appraisal of development plans involves testing a plan's aims, policies, and proposals against the aims of sustainable development to identify their likely consequences. It is now recognized as a policy means of helping to achieve development and growth which is sustainable."

Scottish Executive 1996

Regulatory Provisions for SEA

Currently, there are no legal provisions for SEA, or the appraisal of development plans in Scotland, although this process is encouraged through non-statutory planning guidance. However, the European Union's Directive on SEA is driving the development of new methods and processes, along with widespread application of sustainability appraisal for plans and programs. This Directive must be reflected in national legislation by July 2004. The United Kingdom prepared and distributed a consultative draft for the implementation of the Directive for England and Wales in October 2003; the Scottish Executive released a similar document in August 2003.

Administrative Mechanisms

Although the planning department, housed within the Ministry of Social Justice, is responsible for providing guidance and practical support for development planning in Scotland, it is the Secretary of State that must provide official approval. The planning department also provides the guidance for sustainability appraisal, but there is no public body that has responsibility for the administration of sustainability appraisal. This could change once the Directive comes into effect. Local planning authorities have primarily relied on three sources of guidance: (i) the 'good practice' guidance issued by the UK's Department of Environment (1993); (ii) guidance specific to Scotland devised by consultants David Tyldesley & Associates (DTA 1995a and 1995b); and (iii) sustainability appraisals prepared by other Scottish and English local authorities (Walsh and Brand 1998).

5.1.3 SEA Process

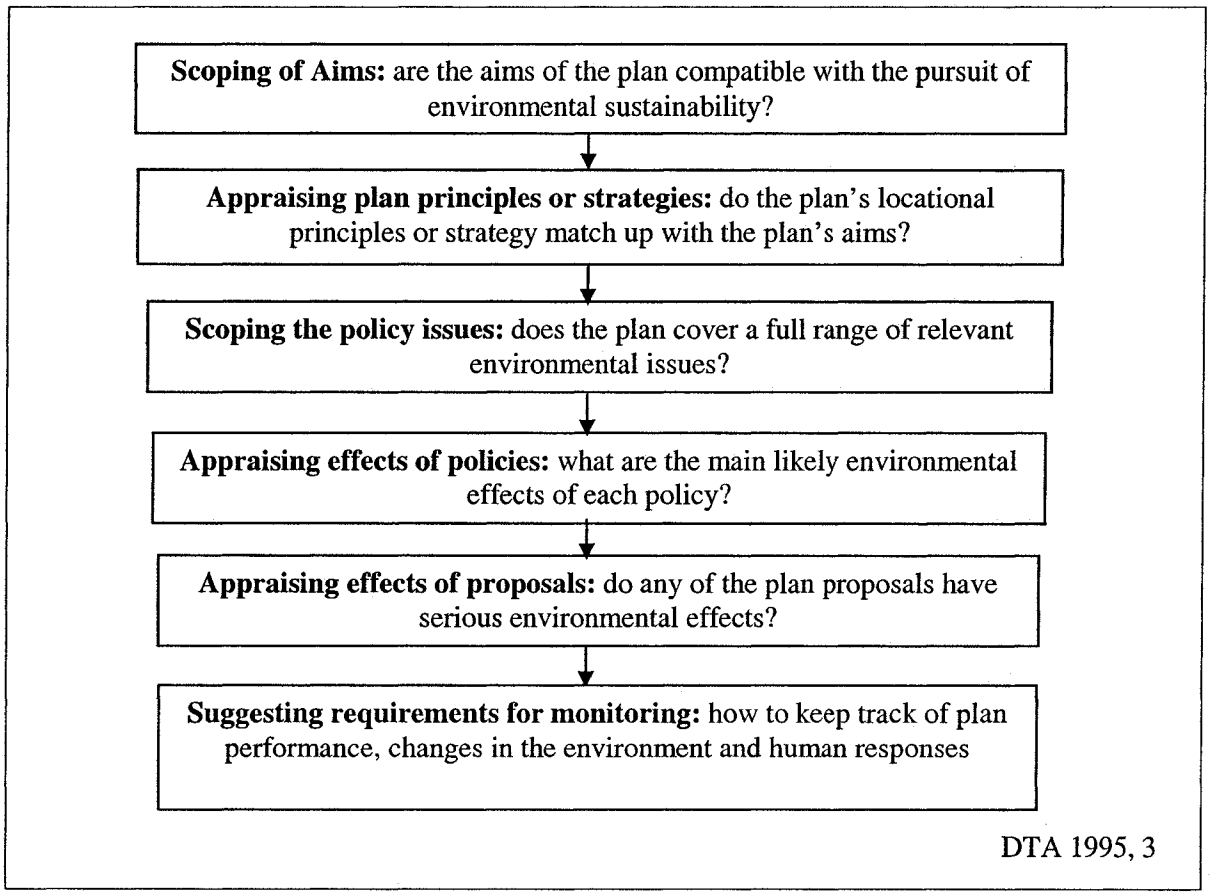
Scotland

Although there are no legal provisions for SEA in Scotland, most local planning authorities voluntarily make the decision to evaluate their development plans. The evaluation can occur at various points of the process: at the beginning, during the process, or after the draft plan is complete, but before adoption. Some have even occurred once the plan had been adopted. There is a wide range of practices among planning authorities as to how they carry out appraisals. Some are prepared in-house, either by a single appraisal planner, a team of planners that were not part of the plan preparation, or less desirably, by the team of planners that prepared the plan. Often, consultants are retained to undertake the task.

The UK guidance suggests three steps for good practice: i) characterize the environment (identify existing baseline conditions); ii) scope the plan (ensure that appropriate

policies are in place to cover all aspects of sustainability; and iii) appraise the plan (evaluate each policy against a set of identified sustainability criteria (DoE 1993). Figure 9 illustrates the six steps of appraisal as recommended for Scottish local authorities.

Figure 9 Steps in sustainability appraisal in Scotland



In Scotland, the appraisal of the plan's principles and/or strategies is generally evaluated against a set of identified sustainability criteria. If the plan's principles are compatible with the aims of sustainability, it is expected that the rest of the plan will be as well. Scoping serves to ensure that there are no gaps in coverage among the plan's policies. A list of sustainability issues appropriate to the local level is compiled using information from other sustainability appraisals, from government documents, and from the academic literature. The plan is then scanned to ensure that there are policies covering all aspects of local

sustainability. Any gaps are identified, and revisions are recommended. Recently, new guidance for SEA in Scotland has been prepared to provide suggestions on how to comply with the EU SEA Directive (DTA and Scottish Executive 2003). Referred to as *Interim Planning Advice*, an appendix to this guidance lists possible sustainability criteria for local authorities to use in both scoping and plan evaluation.

The processes and methods used to undertake evaluation of comprehensive plans are different among local planning authorities. In some cases, only those plan policies that are deemed to have an impact on sustainability are evaluated (e.g., Aberdeen Structure Plan Sustainability Appraisal 2002), while in other cases (e.g., Perth and Kinross), every single policy contained in the plan is appraised. It has become common practice in Scotland and the UK to prepare a separate sustainability appraisal document to illustrate the appraisal process, the impact matrices and any monitoring plans.

Perth and Kinross

In Perth and Kinross, the task of undertaking the sustainability appraisal of the draft structure plan was put out to a tendering process. The successful bidder was the environmental department of the Perth and Kinross District. An individual from this department was responsible for the appraisal of the plan, with assistance from other members of the department. It was determined that the sustainability criteria against which to appraise the plan would be based on the four themes highlighted in the UK's national sustainable development strategy (i.e., social progress which recognizes the needs of everyone, effective protection of the environment, prudent use of natural resources, maintenance of high and stable levels of economic growth and employment). For each theme, sustainability criteria

were selected – 20 in total[12]. Table 14 illustrates the steps followed in the Perth and Kinross Sustainability Appraisal.

Public involvement was not a visible element of the appraisal process. Once the appraisal was complete, copies of the document were made available to the public on the Perth and Kinross Council website, at the district office in Perth, and through public meetings. Other government agencies were not given an opportunity to review the appraisal. During the appraisal, government agencies or departments may have been contacted for information regarding the analysis of potential impacts, however, this was done on an ad hoc and informal basis.

Table 14 Steps in the Perth and Kinross Sustainability Appraisal

1. ***Scoping the Plan Themes and Strategy***: the plan themes and strategy were assessed against the criteria, with gaps/revisions identified.
2. ***Assessment of Plan Policies and Proposals:*** Every policy/proposal and associated background information was assessed against the sustainability criteria with conclusions, constraints and revisions stated. The grading system used for the assessment is as follows:

++	Significant move towards sustainable development
+	Move towards sustainable development
0	Neutral effect
-	Move away from sustainable development
- -	Significant move away from sustainable development
?	Unknown

3. ***Develop a Suite of Environmental Indicators:*** The indicators were developed to enable the Perth and Kinross Structure Plan to be continually monitored, and have been structured to reflect United Kingdom, Scotland and Perth and Kinross priorities. In this sustainability appraisal the indicators are further streamlined with alternative and additional sources of information identified to enable monitoring to take place.

Excerpt from the Perth and Kinross Sustainability Appraisal, 2002

[12] *Social Progress which Recognizes the Needs of Everyone*: Housing, Access, Training, Participation, Safety; *Effective Protection of the Environment*: Travel, Pollution Prevention, Protect and Enhance Open Space, Landscape and Biodiversity, Built Environment, Cultural Heritage; *Prudent Use of Natural Resources*: Waste, Water, Energy, Land and Soil, Air; *Maintenance of High and Stable Levels of Economic Growth and Employment*: Diversification, Employment, Vitality, Investment, and Entrepreneurship.

The appraisal process was completed and produced in just over a month. The appraisal document comprises 150 pages, including an overview of the process, a list of the sustainability criteria employed, impact matrices for each of the plan's policies, and suggestions for monitoring. The indicators for monitoring the Structure Plan were developed in accordance with national and local priorities, stating sources of relevant data. These indicators are expected to allow for annual monitoring of the Structure Plan to be undertaken.

In the final appraisal document, it was concluded that

> *...the draft Perth and Kinross Structure Plan provided a framework for delivering 'A Sustainable Future' [the title of the Structure Plan]. However, there were still details and gaps that had to be addressed, in order that Local Plans and development on the ground were consistent with the themes of the Structure Plan and adhered to the strategy* (Perth and Kinross Structure Council 2002, 1).

Recommendations for revisions were put forward in the appraisal document; the influence of these recommendations on decision making will be examined in more detail in Chapter Six.

5.1.4 SEA Methods

Methods and techniques for sustainability appraisal in Scotland have been fairly simple – checklists and matrices are used to evaluate the impact of each of the plan's policies against a series of sustainability criteria. In the early days of environmental appraisal in the UK, the use of economic cost and benefit analysis was recommended by the government as part of its policy appraisal initiative (DoE 1991). However, this has not commonly been used in Scotland.

In Perth and Kinross, as in most other Scottish cases, ordinal scales are used to determine the significance of these impacts by assessing whether the policy is a move toward sustainability, away from sustainability, or will have no effect on sustainability. Table 15

illustrates how this information is presented. These evaluations were undertaken through the use of subjective interpretation by the individual carrying out the appraisal, with some input from the environmental department.

Table 15 Example of an impact matrix in sustainability appraisal for a single policy in the Perth and Kinross Structure Plan 2002

Policy: Environment and Resources Policy 12 *(Old Policy 10)*

"Development that would result in the permanent loss of prime quality agricultural land will only be permitted where such land is required for the implementation of the strategy."

SUSTAINABILITY CRTERIA	GRADE	COMMENTARY
Social Progress which Recognizes the Needs of Everyone		
Housing	?	
Access	?	
Training	0	
Participation	-	Through discussion with relevant partners.
Safety	?	
Effective Protection of the Environment		
Travel	0	
Pollution Prevention	?	
Protect and Enhance Open Space, Landscape and Biodiversity	- -	Does not provide adequate protection
Built Environment	?	
Cultural Heritage	- -	
Prudent Use of Natural Resources		
Waste	0	
Water	?	
Energy	0	
Land and Soil	- -	Does not protect land and soil as a non-renewable resource.
Air	0	
Maintenance of High and Stable Levels of Economic Growth and Employment		
Diversification	?	May restrict or enhance diversification opportunities.
Employment	?	
Vitality	?	
Investment	?	
Entrepreneurship	?	

Conclusions:
The policy needs to be strengthened. As it stands presently it does not protect agricultural land and soil as a valuable non-renewable resource.

Constraints:
Where such land is required for the implementation of the strategy

Revisions:
Development will only be permitted where:

- It promotes farm diversification, particularly in rural areas
- There are no suitable alternatives
- It is a scale and standard of design appropriate to its location
- There is overriding public interest and environmental, social and economic (sustainable) benefits.

Code Key:

++ Significant move towards sustainable development
+ Move towards sustainable development
0 Neutral effect
- Move away from sustainable development
-- Significant move away from sustainable development
? Unknown

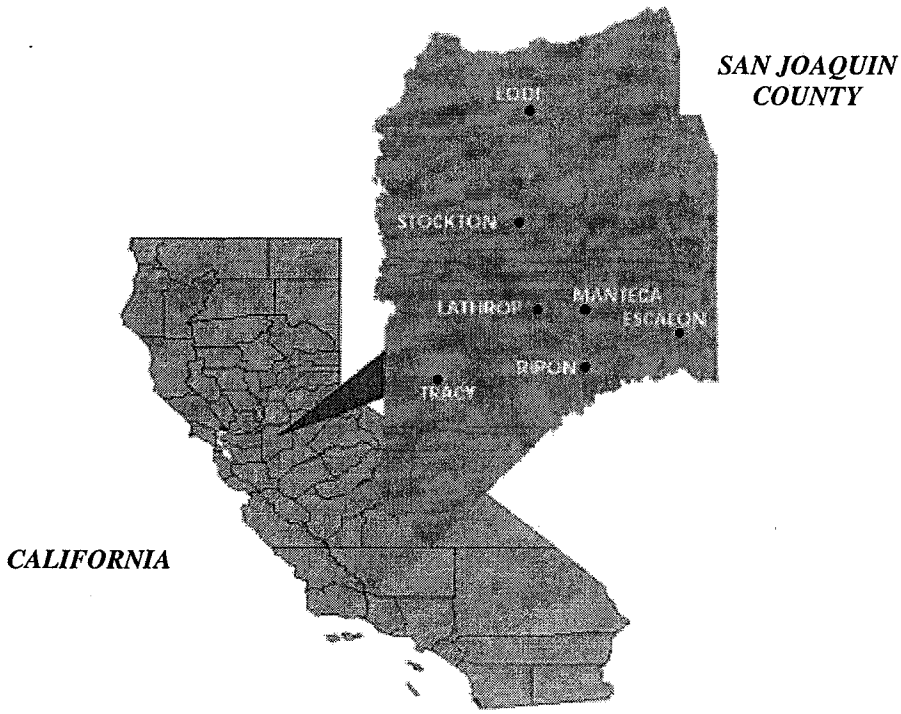
5.2 California, USA – San Joaquin County

In the United States, unlike many other nations, government agencies have considerable experience preparing environmental impact assessments of land-use plans. The National Environmental Policy Act (NEPA), signed by President Nixon in 1970, applies to a variety of federal government activities, including assessment of federal land management plans. The California Environmental Quality Act (CEQA) was passed in 1970 as a "little NEPA" which required state decisions to consider environmental effects. Ironically, the California process has evolved into a much larger process than NEPA in terms of documentation and activity (Wood 1995). CEQA applies to land-use plans prepared by state and local agencies in California. Under both NEPA and CEQA, EIA has become an integral part of the land-use planning process.

San Joaquin County is the 15th largest of the 58 counties in California, with 596,000 people (2002 estimates), and covers approximately 3,624 km^2 in central California. Located in the central valley in northern California (see Figure 10 for a map of the area), San Joaquin County is primarily an agricultural area producing wine grapes, milk, cherries, tomatoes and walnuts. The central valley produces approximately eight per cent of the total United States agricultural sales, while only comprising just over half a per cent of American land in farms. San Joaquin County comprises seven major population centers, with Stockton serving as the county seat. Tremendous growth pressures in the nearby San Francisco Bay area and the Sacramento metropolitan area, coupled with the absence of affordable housing in those cities, have made San Joaquin County a highly attractive location. In 1990, the population of the County was 480,628. The General Plan projected that, by 2010, the County's population could increase up to 864,200, an increase of 80 percent over the 20-year planning period. In

addition, a 64 percent employment growth was predicted during this same time period (from 182,237 jobs in 1990 to 298,794 jobs in 2010).

Figure 10 Map of San Joaquin County, California



Source: San Joaquin County Council of Governments 2002

One of the key issues in preparing the County's General Plan was how to best accommodate this growth. The evaluation of the available options to address this issue, along with many other issues, is required under the California Environmental Quality Act (CEQA). Prior to adoption, all draft General Plans in California are subject to an environmental assessment process, and an Environmental Impact Report (EIR) must be prepared and submitted for approval.

5.2.1 Policy Context

The United States was once a global leader in the early development of policies and regulatory programs to protect environmental quality. Once NEPA was implemented, it became a model for environmental assessment, both internationally and at lower levels of government in the US. However, during the 1980s, the Republican Congress began to respond to complaints of regulatory burdens by business interests (Bryner 2000). Republican leaders in Congress have virtually ignored the idea of sustainable development and the US's commitments made at the Rio Earth Summit (Bryner 2000). There is no strong commitment to sustainable development and the country is far from having in place a comprehensive strategy that integrates sustainability into environmental, social and economic activities (Dernback 1997, 10507, as cited in Bryner 2000, 272).

The President's *Commission on Environmental Quality*, set up by President George Bush during the early 1990s, called for the establishment of a national council on sustainable development. During the latter stages of his administration, President Bill Clinton appointed the *President's Council on Sustainable Development (PCSD).* This council comprised 25 leaders from corporations, foundations and environmental groups, and was tasked with formulating a sustainable development plan for the US. In 1994, the PCSD concluded that

> *...environmental policy has been developed with too little regard for its economic or social consequences; economic policy is made with too little regard for environmental or social consequences; and social policy is made with too little regard for economic and environmental consequences" (Clark 2000, 18).*

The vision laid out by PCSD in "Sustainable Development: The Challenges and Opportunities" (PCSD 1994) incorporates many fundamental principles of environmental impact assessment; however, not one of the eight task forces set up to deal with the integration

of environmental, economic and social issues was established on how to use EIA as a tool to integrate these concerns into decision-making.

California has served as a leader in many aspects of environmental protection, such as in air, water and toxic pollution. In 1999, California became one of the first states to pass legislation codifying environmental justice in state statute (Statutes of 1999, Chapter 690). State law defines environmental justice as,

> *The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies* (Government Code Section 65040.12)

The California Environmental Quality Act promotes concepts of sustainable development in Section 21001 ("Additional Legislative Intent"):

> *...it is the policy of the state to...take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state...to provide the people...with clear air and water...ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations...create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations* (CRA 2002a).

The Governor of California is required to prepare a Comprehensive State Environmental Goals and Policy Report, containing a long-range (20-30 years) overview of state growth and development and a statement of approved state environmental goals and objectives, including those related to land use, population growth and distribution, development, conservation of natural resources, and air and water quality (Government Code Section 65041-65049).

Progress in sustainable development has occurred mainly at the state and local community levels. The *Southern California Council on Environment and Development (SCCED)* was established in 1993 as a local continuation of the process begun at the Rio Earth

Summit. Through facilitating multi-stakeholder dialogue and consensus on programs to protect the environment, strengthen the economy and ensure equality in the Los Angeles area, SCCED supports the creation of sustainable programs, policies and plans for the region. Reports on the State of the Local Environment and Economy have been prepared on an annual basis, along with indicators to chart progress toward sustainability. The *Southern California Association of Governments* (SCAG), representing six counties in and around the Los Angeles area, publishes annual *State of the Region* reports that provide detailed information on environmental quality, economic growth and quality of life.

At the local community level, the *Joint Centre for Sustainable Communities*, established by the National Association of Counties and the US Conference of Mayors, provides examples of counties and cities in all states that are more willing to identify and respond to environmental and sustainability policies, problems and opportunities. For example, Santa Clara County, City of San Jose, City of Davis, and "Sustainable San Francisco" all provide examples of innovation in sustainable city planning and design in California (Bryner 2000; Joint Centre for Sustainable Communities 2003). With the support of the *International Council for Local Environmental Initiatives (ICLEI)*, local governments in the US are working towards improvements in environmental quality and social justice, in addition to economic vitality. A number of counties and cities in California have either explicitly or indirectly created LA 21 processes, for example: San Francisco, San Jose, Santa Cruz County and Santa Monica.

5.2.2 Institutional Context

Organization of Planning

In the US, land use planning is the responsibility of the states and their municipalities. There is no national law requiring land use planning, however, most states have planning laws that delegate responsibility for land use planning to cities and counties (Bass and Herson 1999). As with most states in the US, California does not prepare a state land-use plan. Planning in California falls under the responsibility of the Governor of California's Office of Planning and Research. California state law (California Government Code, sections 65300-65303) requires each of its 456 cities and 58 counties to adopt a General Plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning (California Government Code Section 65300). The General Plan must contain seven elements – land use, circulation, housing, conservation, open-space, noise and safety - but has considerable flexibility as to how they address the required topics. There are an additional 46 optional elements that can be addressed.

Regulatory Provisions

Adopting or amending a General Plan or General Plan element is subject to CEQA and requires preparation of an Environmental Impact Report (EIR). The primary purpose of an EIR is to inform decision-makers and the public of potential significant environmental effects of a proposal, less damaging alternatives, and possible ways to reduce or avoid the possible environmental damage (CRA 2003b; OPR 2002) Guidance for General Plan preparation is provided by the California Office of Planning and Research, and includes suggestions on how to carry out the provisions for CEQA in relation to the General Plan process, as well as suggestions on how the General Plan and its EIR can be consolidated into a single document.

Detailed procedures for preparing EIRs are also described in CEQA Guidelines issued by the California Resources Agency, the administrative arm of CEQA.

There are two types of EIRs in the legislation for the preparation of General Plans: a Programme EIR and a Master EIR. The Programme EIR is the most widely used and can be applied to any type of plan. This is used when the information for future projects is not known. The Master EIR is used only for city and county general plans, urban redevelopment plans and transportation plans. This type is used when the type, density, and intensity of future projects are known. The Master EIR can also be used to evaluate several known projects and their cumulative impacts. Cities and counties can prepare either type of EIR, depending on their circumstances. For example, the City of Santa Rosa prepared a Master EIR to evaluate a number of proposed projects.

CEQA has been the focus of much controversy since its inception over 30 years ago. Its least controversial moment was its enactment – it passed the State Assembly 62-1, and passed the Senate without any dissenting votes (Olshansky 1996). Supporters say that CEQA has been successful at increasing public participation, improving agency decision-making, and causing consideration of environmental values (Thomas 1993, as cited in Olshansky 1996, 11). Detractors say that it creates a process that is expensive, uncertain, time-consuming, and obstructive to needed development projects (Zischke and Kostka 1993, as cited in Olshansky 1996, 11). One thing is for certain – CEQA employs hundreds of planners, technical specialists, consultants and lawyers to implement, interpret and evaluate its provisions (Olshansky 1996, 12).

Administrative Mechanisms

California has a massive institutional framework within which environmental protection occurs. The Office of Planning and Research within the Governor of California's Office oversees land use planning in the state and provides guidelines for the preparation of general plans. The California Resources Agency provides the administrative support for CEQA and provides guidelines for its implementation. The California Resources Agency also maintains resource inventory databases for the state.

At the county level, the Board of Supervisors is the cornerstone of policy formulation, decision-making and implementation. The elected 5-member Board is ultimately responsible for the adoption of the General Plan, for certifying that the EIR meets the requirements of the CEQA, as well as for the regulations, capital improvement programs, administration and review procedures and financial mechanisms that are proposed by the plan (OPR 2002).

5.2.3 SEA Process

California State Level

The most notable observation of the SEA process in California is its significant integration within the comprehensive planning process, running concurrently with the development, review and approval of the General Plan. These processes should be "carefully synchronized so that neither time nor work will be wasted through unnecessary delay or duplication" (OPR 2002, 136). The SEA process is also highly regulated under CEQA, involving a multiple step process, with opportunities for interagency review and participation, a considerable amount of documentation, and an array of complex methods and techniques for impact analysis. Usually, the EIR and associated reports are undertaken by several consultants.

Under CEQA, when a local planning authority embarks on a planning process (a new General Plan, revised elements of an existing General Plan, a new zoning bylaw or subdivision rule), an 'initial study' (a type of screening) must be undertaken to determine if the proposal may have significant effects on the environment. If such impacts are likely to occur from future activities under the plan, the local planning authority must prepare an Environmental Impact Report (EIR). If the local planning authority determines that the proposed plan would not result in significant environmental impacts, it may prepare a 'negative declaration', which is an abbreviated assessment of the environmental implications of the plan. If members of the public disagree with a local planning authority's use of a negative declaration, they may present evidence to show that environmental impacts would occur and may appeal to the courts for a decision. Most of the time, however, the preparation of a General Plan will result in environmental impacts and an EIR will need to be completed.

To call the preparation of an EIR for a General Plan in California a huge undertaking would be an understatement. Olsansky (1996) found that a comprehensive update of a General Plan in the US takes an average of 23 months to complete and costs US$208,000; of this amount, US$164,200 is for the preparation of the EIR. At the conclusion of the General Plan process in San Joaquin County (five years after it first commenced), the county had spent over US$2 million for the preparation of both the plan and the EIRS (US$623,000 was spent on the EIR process) (Skewes-Cox 1996).

CEQA requires certain topics to be addressed in the EIR (Table 16), covering primarily ecological and social issues. While economic considerations are not evaluated within the parameters of the EIR of the General Plan, economic factors can override significant ecological impacts through the preparation of a "Statement of Overriding

Considerations" by the local planning authority. If the significant ecological impacts cannot be avoided, and the economic (or social) factors are considered to be of great importance, the plan can still receive approval. These significant and unavoidable impacts are required to be documented in a separate section in the EIR.

Table 16 Topics that must be addressed in an EIR

• land use and planning; • hydrology and water quality; • air quality; • cultural / archaeological resources; • public health and safety (hazardous waste, electromagnetic fields, etc); • public services (fire and police protection, schools, libraries, hospitals);	• geology / soils/ seismicity; • traffic / transportation; • noise; • visual quality; • waste water treatment and storm drainage; • fiscal impacts (only as related to environmental impacts such as inadequate financing for waste water treatment)

Both public and inter-governmental involvement are integral components of the CEQA process. While preparing a General Plan EIR, the local planning authority involves the public at various stages from the scoping process at the beginning to public meetings during the process and finally, when the draft EIR is prepared. Government agencies have opportunities to comment on the EIR at several points during the process. Once the EIR process has commenced, a "Notice of Preparation" is sent by the local planning authority to all other agencies that have jurisdiction over the proposed activity to give other agencies an early opportunity to provide their input to the plan-making process. Every draft General Plan EIR is circulated by the California State Clearinghouse to interested State agencies and to ensure that their comments are sent to the local planning authority. Both the notice of preparation and the State Clearinghouse review process are valuable mechanisms to foster intergovernmental coordination (Bass and Herson 1999).

Documentation of the EIR process in California is reflected in the Environmental Impact Report. The EIR record must contain the identification, evaluation and mitigation measures for each of the required issues to be addressed. The document must contain:

- description of the existing conditions;
- identification and evaluation of alternative options;
- identification of cumulative impacts of the plan; and
- specification of possible mitigation measures to reduce significant impacts to acceptable levels.

Under CEQA, every time a state or local agency adopts a plan, it must also adopt a monitoring program to ensure implementation of the recommended mitigation measures.

San Joaquin County Level

San Joaquin County's Comprehensive Planning Program comprised three components: (i) a three-volume county General Plan; (ii) a General Plan Map; and (iii) a County Development Title (includes zoning maps). At the onset, the General Plan intended to accommodate the anticipated growth in both population and employment in the county within the seven existing cities (Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy). An EIR was prepared for this scenario by a consulting company (as is the usual case in California), for a total cost of US$70,000, with funding for the EIR coming entirely from the county's general fund. However, the EIR was never certified because the county decided to revise its General Plan to include five 'new towns' that would accommodate the anticipated growth. Therefore, the consultants completed a second EIR. The cost estimate for this EIR was US$525,000, with the developers of the 'new towns' providing all of the cost. At the

conclusion of the process, the county had spent about US$623,000 on the EIR process, with over US$2 million in total for the preparation of both EIRs and the General Plan.

In the San Joaquin General Plan EIR, 20 types of environmental impacts were considered, including: land use, water quality, library facilities, energy, public health and safety. For each impact, a description is provided for existing conditions under a 'setting' section, and the impacts of the General Plan and possible mitigation measures in an 'impacts and mitigation measures' section. The focus of the impact analyses for the EIR is on cumulative, countywide impacts. A variety of mitigation measures were proposed to reduce significant impacts to a level where they are no longer significant; these include changes to policies in the county general plan, to enforceable regulations in the county development title, and to various zoning maps.

Forecasts were made for an 80 per cent population growth (from 480,628 in 1990 to a projected 864,200 by 2010) and a 64 per cent employment growth for the county between 1990 and 2010 (Draft EIR). The initial General Plan proposed areas for new residential, commercial and industrial development in the existing seven urban communities to accommodate about 70 per cent of this anticipated growth. In addition, five new / expanded communities were also proposed to accommodate the remaining 30 per cent of the growth. CEQA requires that alternatives be considered in the EIR, however, there is no minimum number of options stated. The San Joaquin draft EIR considered three alternative options to accommodate the anticipated growth: (I) *no project alternative* (not to build or expand the five new communities); (ii) *city-centred growth* (to concentrate all the population growth on the fringes of the existing urban communities; or (iii) *dispersed growth* (to build or expand the five new communities).

The EIR identified 77 environmental impacts across nineteen different categories. While many of these impacts were termed "less than significant", five were identified as being "significant and unavoidable. These were:

1. *Removal of more than 42,200 acres of prime farmland in both the unincorporated and incorporated areas;*
2. *Increased county-wide vehicle trips resulting in increased frequency of accidents and requirements for major road improvements;*
3. *Degraded air quality due to increased emissions from increased traffic;*
4. *Removal of valuable habitat for biotic resources and special-status taxa; and*
5. *Further lowering of the groundwater table to accommodate increased water demands, resulting in exacerbation of problems of saltwater intrusion, increased pumping costs, and subsidence.* (San Joaquin County 1992, 4).

The county filed a statement of overriding considerations that focused on the benefits resulting from the plan that outweighed these impacts. The EIR also found that the amount of land designated for development was more than was necessary to accommodate the projected population and employment growth, therefore, the General Plan was approved on July 29, 1992 with growth to be accommodated at the edge of the existing communities and approved only two of the five proposed new towns. The final EIR proposed that 74 per cent of the population would be accommodated in the existing seven communities, thirteen per cent of the population would be accommodated in the new or expanded communities, and the remaining thirteen per cent would be living in other unincorporated areas of the County. A monitoring plan was incorporated into the EIR for all recommended mitigation measures, some of which were able to be monitored at the time of the adoption of the plan (i.e., incorporating the recommended revised policies).

5.2.4 SEA Methods

California State Level

One of the benefits of the EIR process in California is the large amounts of environmental information that is gathered during the preparation of General Plans. The methods or techniques to be used by local planning authorities in preparing an EIR of a General Plan are not specifically legislated. Generally, it is expected that the 'carrying capacity' for the area is defined, that baseline surveys are completed, and that maps of 'opportunities and constraints' are produced. The description of the existing conditions in the plan area is a particularly important component of EIR preparation. State regulatory agencies collect and maintain databases of natural resources for this purpose. Scoping and screening tasks are undertaken as part of the 'initial study' element of the EIR process. This is the responsibility of the local planning authority and consists of a checklist of impacts to be compared with the proposed plan.

San Joaquin County Level

The San Joaquin General Plan EIR used a variety of methods and technical tools in order to assess the identified alternative options. However, the primary methods used as the basis for the development of the General Plan were population projections and developers' proposals for new towns (Skewes-Cox 1996). The 'carrying capacity' for the county was not determined and maps of 'opportunities and constraints' were not completed (Skewes-Cox 1996). A baseline survey was completed that included: the quality of agricultural soils, levels of traffic on county roads, air quality data, and data on rare, threatened and endangered species in the county. Technical tools used in the baseline survey included: travel demand models, thresholds of significance, aerial photography, and field surveys.

5.3 New Zealand – Waitakere District

New Zealand is comprised of three main islands in the South Pacific (North Island, South Island and Stewart Island), with a combined area of 270,500 km^2 – slightly larger than the United Kingdom (see Figure 11 for a map of the area). With 3.3 million people, however, its population density is only about five per cent of the United Kingdom's. The economy of New Zealand is largely based on its natural resources – meat, wool, forestry, and fishing. As a result, environmental and resource protection measures have been a priority. In an effort to consolidate the many pieces of local and national legislation, the Resources Management Act (RMA) was passed and implemented in 1991. The RMA provides the basis for most resource management and environmental protection laws in New Zealand. Notable exceptions include fish, energy, and minerals. The RMA devolves responsibility for resource management and environmental protection in New Zealand from national to local governments. Local and regional councils are expected to prepare planning documents that are aimed at achieving sustainable environmental outcomes, rather than regulating resource development activities. This focus on 'environmental sustainability' is distinct from 'sustainable development'. The RMA also recognizes the right of the Maori, the indigenous people of New Zealand, to the nation's natural resources and incorporates the Maori interest in decision-making.

Waitakere District encompasses several main centres (Figure 11): Waitakere City, Hobsonville, Henderson, Ranui, Swanson, Massey North/Westgate, Glen Eden, and New Lynn). Waitakere City is the fifth largest city in New Zealand with a population of 168,750 in 2001, growing at over 2% a year since the mid-eighties. Maori, the indigenous people of New Zealand, form 14% of the City's population. The largest earner and employer in Waitakere is light manufacturing. Within this sector are two niche markets: boat building and wine

production. As well, the service sector is thriving, focusing on the growing leisure market. Nearly half of Waitakere's businesses are in the wholesale or retail trades, construction, restaurants and hotels (Enterprise Waitakere 2002).

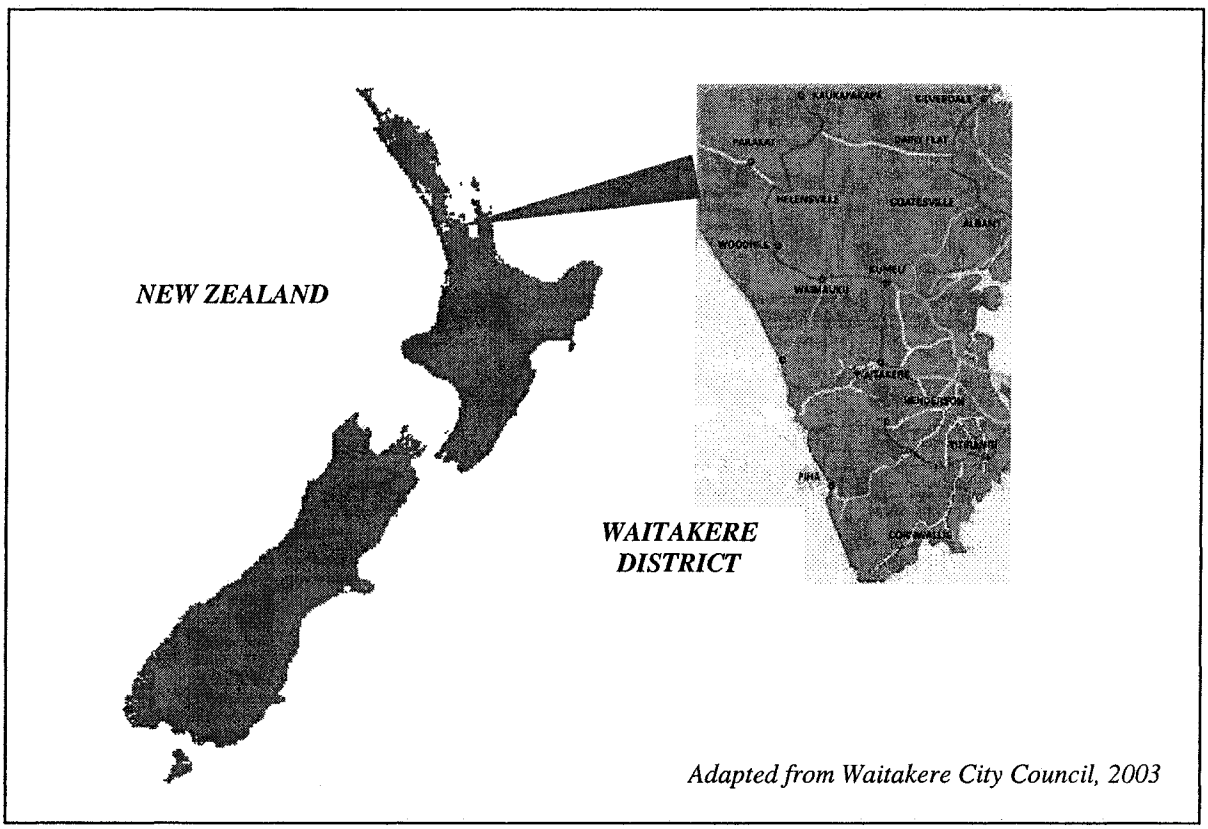
Covering an area of 139,134 hectares in the Auckland region, approximately one third of Waitakere is urban, one third rural and one third wilderness area. More than 40% of the City's land area is in parkland and the Waitakere Ranges. In 1993, as part of Waitakere's eco-city concept, Waitakere Council agreed to implement the goals and programs proposed under Agenda 21 at the local level. Waitakere has prepared a Local Agenda 21 (the Greenprint[13]), stating how their city plans will work towards sustainability in the 21st century.

5.3.1 Political Context

The central government in New Zealand released the "Environment 2010 Strategy" (published in 1994) as a follow-up to the Resource Management Act. This strategy has a long-term vision that outlines the government's five key environmental management goals: (i) integrate environmental, economic, and social policies, (ii) establish and maintain a coherent framework of law, (iii) sharpen the policy tools, (iv) build up the information base, and (v) involve people in decision making. However, this document is primarily focused on the natural and physical environment, with virtually no mention of sustainable development as a concept or a goal.

[13] The Greenprint is structured around seven key focus areas: community empowerment, urban consolidation, a strategy of involvement, a holistic approach to health and safety, traffic reduction and community mobility, a life-cycle approach to energy, resources and waste, and greater economic independence (Waitakere City Council 2003).

Figure 11 Map of Waitakere, New Zealand



Adapted from Waitakere City Council, 2003

In response to the criticisms, the central government announced its intentions to produce a "New Zealand Strategy for Sustainable Development" (NZSSD) in August 2001. Very little progress followed this announcement, and in August 2002, the Parliamentary Commissioner for the Environment (PCE) noted his disappointment in the progress toward sustainable development made by the central government:

> *Our review of the last decade concludes with the view that New Zealand could have been a leading light on sustainable development by now – but we are not. However, I do believe that we have many of the necessary ingredients to make the transition to a sustainable development pathway* (PCE 2002,1*).*[14]

With this hard-hitting statement, New Zealand's Parliamentary Commissioner for the Environment provides several recommendations to the national government, including: the

[14] "Creating our Future: Sustainable Development for New Zealand"; a report produced by the Parliamentary Commissioner for the Environment, August 2001.

establishment of a vision and framework for sustainable development, develop guidelines for local authorities for Local Agenda 21 processes, establish a body to oversee and coordinate the Government's proposed New Zealand Strategy on Sustainable Development, and that methods be identified and introduced to improve skills in integrating environmental, social and economic policy analysis and implementation (PCE, 2002, 4).

It was only after the Parliamentary Commissioner for the Environment issued his report in August 2002 criticizing the lack of progress and leadership by the national government, that action was initiated. In January 2003, the Minister for the Environment released its *Sustainable Development Programme of Action* (the third document issued by the Government to focus and re-orient government policy-making and processes[15]) replacing the proposed NZSSD), which provides a set of guiding objectives and principles to policy and decision-making across the government sector. The initial focus of the plan is on water quality and allocation, energy, sustainable cities, and child and youth development. The action plan will be driven by four ministers – Minister for the Environment, Minister for Social Development, Minister for Economic Development and Minister for Statistics (responsibility for Statistics New Zealand). Statistics New Zealand published "Monitoring Progress Towards Sustainable New Zealand" in August 2002. This was an experimental report and will form the basis for further work on a set of sustainable development indicators.

The central government announced 'Green Packaging' in the annual budget in 1996. This represents the first attempt to prioritize actions to implement the Environment 2010 Strategy and initially included NZ $11 million in additional funding over three years. In 2001, this was increased to NZ $22 million to identify environmental problems and provide practical

[15]"Growing an Innovative New Zealand" (the Growth and Innovation Framework) (February 2002); and "Key Government Goals to Guide the Public Sector in Achieving Sustainable Development" (October 2002).

support for projects. The Sustainable Development Action Programme, as well as the "Key Government Goals to Guide the Public Sector in Achieving Sustainable Development" may be considered first steps towards this process. There is no cabinet-level committee for sustainable development in New Zealand. There is a Parliamentary Select Committee for Local Government and Environment, that comprises several Members of Parliament, one Minister (Customs) and two Associate Ministers (Economic Development and Social Services).

In his report released in August 2002, the Commissioner stated that "it is the 'local initiatives' dimension of sustainability thinking that has made the biggest contribution of awareness of sustainable development in New Zealand" (PCE 2002, 9). Although the New Zealand government has largely ignored the Agenda 21 commitments made in 1992 and have not provided the necessary leadership (PCE 2002), other sectors have made progress with their own sustainability initiatives, including: individual local authorities (e.g., Christchurch City Council, Environment Canterbury; City of Auckland), business organizations (e.g., the New Zealand Business Council for Sustainable Development), and community organizations (e.g., Sustainability Council of New Zealand), have made progress with their own initiatives. As recommended by the PCE, the Minister for Local Government developed legislation and guidelines for local authorities for preparing long-term community council plans consistent with the principles of Agenda 21 (New Zealand Government 2002).

5.3.2 Institutional Context

Organization of Planning

Under the Resource Management Act, all 12 regional councils must prepare a Regional Policy Statement. Regional councils may also develop regional plans, and all 74

territorial councils must prepare a District or City Plan (15 are city councils; 59 are district councils). Responsibility for day-to-day environmental management lies with local governments. Regional councils have responsibility for community resources – water, air, soil, conservation and coasts. District councils have responsibility for effects of activities on land, including noise and the control of subdivision. Recently, the central government strengthened strategic planning by introducing new long term community plans to integrate decision making within councils, provide accountability to the local community and enhance opportunities for community consultation (Dixon 2002, 9). Waitakere has recently adopted such a plan for the district.

Under the provisions of the RMA, the national government may also prepare a National Policy Statement to guide local authorities on matters of national significance, although only one such policy statement has been prepared to date – the New Zealand Coastal Policy Statement 1994 – and this was a mandatory policy statement.

The RMA established a hierarchical, three-tier planning structure (central, regional and local levels), creating both horizontal and vertical linkages. This hierarchy is based on the assumption that decisions should be made as close as possible to the appropriate level of community of interest where the effects and benefits accrue (Gleeson and Grundy 1997). National and Regional Policy Statements establish a directional framework for regional and district plans. Regional Policy Statements must not be inconsistent with national policy statements and must have regard to any planning documents prepared by Maori authorities.

Under the new Local Government Act 2002, every local authority must prepare a Long Term Council Community Plans (LTCCPs) which covers a ten year period. The purpose of LTCCPs is to integrate decision making within councils, provide accountability to the local

community and enhance opportunities for community consultation (New Zealand Government 2001). It is uncertain as to how this new form of plans will interact with the district plans, both of which are statutory.

Regulatory Provisions

Although neither EIA nor SEA is specifically mentioned by name in the RMA, there are provisions for its use. Section 88(4)(b) requires that "an assessment of any actual or potential effects...on the environment" must be undertaken. Every human activity, from mining operations to home improvements, is required to prepare an environmental impact assessment. Appraisal of plans and policies is a requirement under Section 32 of the RMA which charges MfE, regional authorities and district councils with a duty to evaluate their objectives, policies and methods as well as to consider alternatives. The benefits and costs of all the above, as well as alternatives, have to be examined and decisions made relative to their necessity, effectiveness and efficiency in achieving the purpose of the Act before plans are adopted. Section 32 applies to new plans, plan changes, variations to proposed plans, and reviews of whole plans or parts of plans. It also applies to policy statements. Guidance for using Section 32 was first published in 1993 by MfE, and was updated in July 2000.

Administrative Mechanisms

The MfE serves as the public body to ensure that the provisions of the RMA are carried out. The actual implementation of environmental management of community resources rests with the local and regional councils. If a local or regional council is not carrying out its functions, the MfE can undertake these functions and then recover the costs from that council and community.

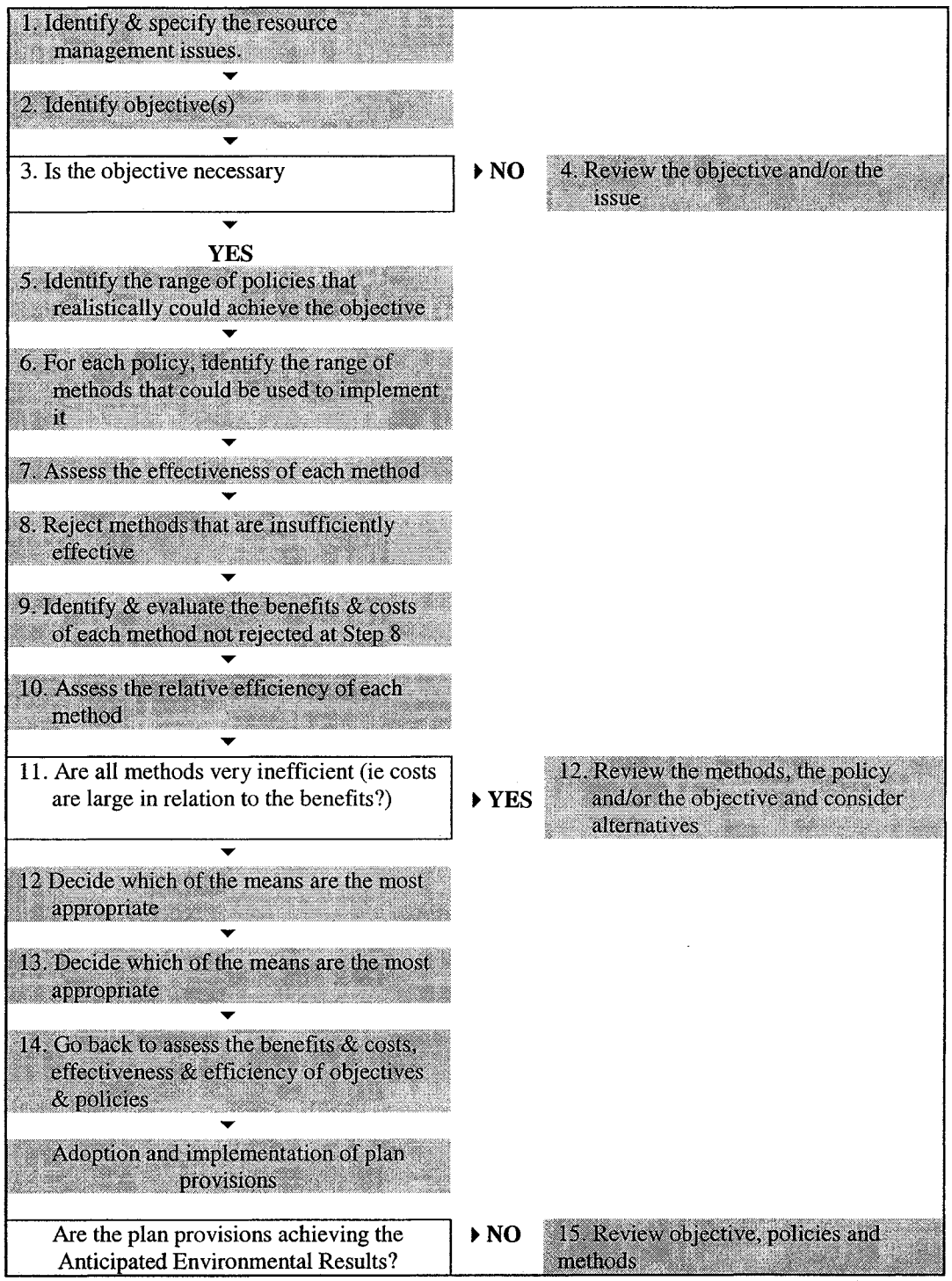
5.3.3 SEA Process

New Zealand at the National Level

A Section 32 analysis (SEA) is initiated when a council prepares a new plan or changes any part of an existing plan. The focus is on the achievement of the purpose of the RMA, that is, the achievement of sustainable resource management. Figure 12 shows the sequence of steps in carrying out a Section 32 analysis (s32 analysis). Often, independent consultants carry out the s32 analysis.

The RMA places an obligation on local councils to consider alternatives and to assess their benefits and costs. Alternative objectives, policies and methods are identified early in the process. All alternatives are appraised simultaneously with significant public input before a preferred option is selected. For example, in order to address the effects of urban growth, a set of methods considered by a council could be rules (zoning), transferable subdivision rights, subsidies for infrastructure or charges for council-provided services, and transport-related initiatives. The "no action" alternative is not specifically mentioned in the RMA nor the guidance.

Figure 12 The sequence of steps in Section 32 Analysis



MfE (2000)

Evaluating the environmental, social and economic benefits and costs are also part of the Section 32 analysis. Consistent with the RMA's sweeping definition of 'effects', the evaluation is expected to consider cumulative, temporal and spatial effects. All actions in the analysis are recorded in a 'Section 32 report'. Although not legally required, the Section 32 guidance recommends that the local council approve the report at the same time that the plan itself is approved. Monitoring for both compliance and environmental outcomes is a requirement of Section 35. The RMA provides for public participation and monitoring, but leaves much flexibility to the local authorities to determine their own requirements and procedures. These requirements, as with all provisions in the RMA, are enforceable by third party appeal to the Environment Court. Indeed, this has been the route taken by many New Zealand citizens and developers. The Christchurch City Plan, for example, was initiated in 1991 and is still awaiting formal adoption in 2003 as a result of third party appeals of many of its policies and provisions.

Waitakere District Level

The Waitakere District Plan was prepared over the period 1993 to 1995, and was publicly notified in October 1995. Council decisions were released in August 1998, resulting in 174 appeals lodged against the decisions. The majority of appeals were settled by agreement, with three issues that needed to go to a Court hearing. While there are still several outstanding appeals, these relate to small parts of the Plan and thus, the Environment Court has allowed the Plan to be made operative on March 27, 2003, apart from those outstanding issues. The plan appeals team originally comprised five full time staff, but this has been progressively reduced as appeals have been resolved, and currently, there are two part time staff working on the remaining issues.

Although not legally required at that time, prior to notification, the Council prepared a 'Section 32 Report' (written by an independent consultant planner). Amendments made to section 32 as part of the RMA Amendment Act (2002) now makes the preparation of a Section 32 Report legally necessary. Subsequent changes to the District Plan must also undergo a section 32 analysis.

5.3.4 SEA Methods

New Zealand at the National Level

Guidance on Section 32 analysis does not prescribe the methods or techniques to be used by local authorities, acknowledging that individual analysts and decision-makers will assess benefits, costs, efficiency and effectiveness in different ways. To assist in the identification of the resource management issues and associated objectives, the guidance suggests the use of public and expert opinion. Checklists and matrices (as illustrated in Table 17) are used to assess the benefits and costs of alternative options. Responses for each cell can be in text format, rankings or quantitative estimates.

Table 17 Example of a checklist for Section 32 Analysis

	TAKE NO ACTION	OPTION 2	OPTION 3	OPTION 4
Effectiveness in achieving the purpose of the RMA and/or the plan objective				
Environmental benefits				
Environmental costs				
Economic costs				
Economic benefits				
Social costs				
Social benefits				
Efficiency				
Appropriateness				

MfE (2000)

5.4 Summary

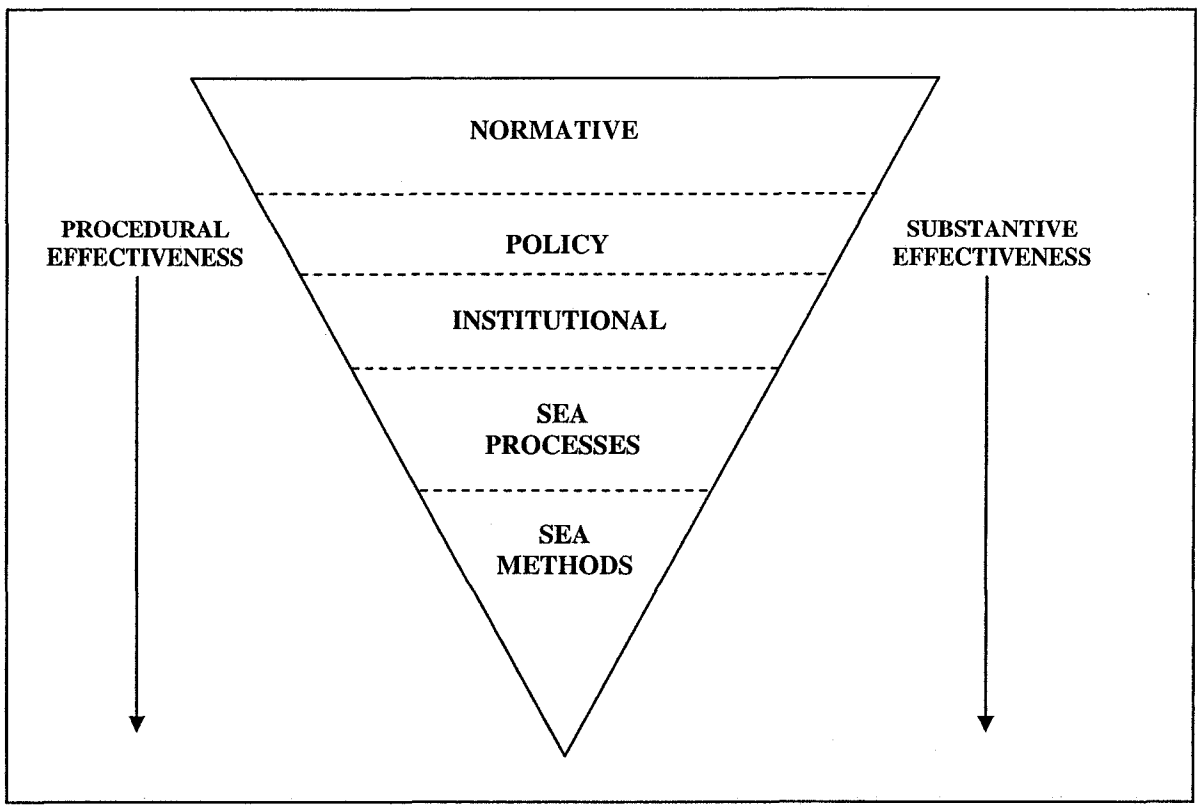
In this chapter, each case study was examined and described in terms of its own distinct contexts. The discussion noted some of the strengths and weaknesses associated with each case. Using the Evaluation Framework developed in Chapter Four as a guide, the cases will be further analyzed for effectiveness in Chapter Six.

Chapter Six
Case Study Results and Analysis

6.0 Introduction

This chapter presents the case study results and discusses the effectiveness of SEA systems in the three case studies. The analysis combines the evaluation framework (Figure 13) and criteria developed in Chapter Four with the case study findings to answer the research questions. As discussed in Chapter Four, only four levels of the framework are evaluated – policy context, institutional arrangements, SEA processes and SEA methods. For each of these four levels, both the procedural and substantive effectiveness is evaluated, using the criteria identified in Chapter Four. This chapter concludes with a summary of the overall effectiveness of the case studies.

Figure 13 Evaluation framework



6.1 Policy Context

Table 18 provides a summary of the procedural and substantive effectiveness of the policy context for each of the three case studies. A discussion of each of the criteria is presented in the following sections.

Table 18 Evaluation of procedural and substantive effectiveness of the policy context

PROCEDURAL EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Is there a supportive political culture at higher levels of government (i.e., national, sub-national)?	Yes. Cabinet Sub-Committee on Sustainable Scotland; Greening Government initiative.	No. Although sustainable development is mentioned in CEQA, this is not reflected in state policy, nor in national policy. Several regional and community initiatives exist in certain areas.	Partially. Progress has been slow by the central government. Support for sustainability exists through the Parliamentary Commissioner for the Environment, and this has recently spurred the central government into action.
2. Is there a systematic, integrated policy framework at higher levels of decision-making for considering sustainability/environmental principles (i.e., national, sub-national)?	Yes. National Sustainable Development Strategies and Indicators for UK and Scotland. Strong focus on sustainable development.	No. At the national level, the President's Council on Sustainable Development produced recommendations in "Sustainable America", however, progress has been minimal.	Partially. Up until very recently, there was no integrated policy framework at higher levels. However, progress has commenced with the "Programme of Action for Sustainable Development" (2003), and the National Environmental Standards which are nearly completed.
3. Is there a commitment to sustainable development initiatives in the local case study?	Yes. Perth and Kinross Council demonstrates strong commitment to sustainable development.	No. There are no initiatives by local authorities in San Joaquin County.	Yes. Waitakere has very strong commitment to sustainability through its Eco-City designation and the Greenprint Strategy, among others.
4. Is SEA integrated into the planning process?	No. Currently, SEA is not integrated with planning process, operating as an 'add on'. May become more integrated once EU Directive is operational.	Yes. SEA is strongly integrated into the planning process, running parallel and simultaneously with it.	Yes. The RMA stipulates that SEA is part of the planning process, and this was the case in Waitakere.
SUBSTANTIVE EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Must the findings of the SEA be a central determinant of final decision-making?	No. Sustainability information is considered, but necessarily a central determinant of decision.	No. The findings of the EIR can be put aside with a Statement of Overriding Considerations, allowing the General Plan to be approved even with significant environmental impacts.	No. RMA makes environmental assessment central to decision, but not given weight in practice.
2. Was the final plan modified according to the recommendations of the SEA?	Yes. According to the appraiser, the conclusions, constraints, and revisions stated in the sustainability appraisal, in most instances, were integrated into the final structure plan.	Partially. Several of the mitigation measures recommended for identified environmental impacts in the EIR were included in the final General Plan.	Partially. Plan was modified based on public input, court decisions and negotiations.
3. Is sustainable development promoted through integrating environmental or sustainability considerations into plan decisions?	Partially. In the opinion of the appraiser, the SEA has done much to create linkages that clearly define relationships between themes. Greater links had to be made to ensure the three principles were interdependent.	No. A Statement of Overriding Considerations was prepared in San Joaquin County which allowed the adoption of the Plan even with significant environmental effects.	Partially. In Waitakere , sustainable development is promoted, decision-making is being affected by appeals to the Environment Court.

Coding Key: Yes = 2 points Partially = 1 point No = 0 points

TOTAL SCORES	SCOTLAND	CALIFORNIA	NEW ZEALAND	TOTALS
Procedural Effectiveness (out of 8)	6 (75%)	2 (25%)	5 (63%)	13 of 24 (54%)
Substantive Effectiveness (out of 6)	3 (50%)	1 (17%)	2 (33%)	6 of 18 (33%)
Overall Effectiveness for Policy Context (out of 14)	9 (64%)	3 (21%)	7 (50%)	19 of 42 (45%)

6.1.1 Procedural Effectiveness

Supportive Political Culture

A supportive political culture is defined in this thesis as one that promotes and supports sustainable development at the highest levels of decision-making. This refers to the creation of government ministries or committees responsible for promoting sustainable development. Based on this understanding, the Scottish case study demonstrates strong political commitment for sustainability including: an active Cabinet sub-committee for sustainable development, a "Greening Government" initiative, and a series of official statements made by the First Minister in support of sustainable development. In contrast, the Governor's Office in the State of California exhibits minimal support for sustainable development. Voluntary and ad-hoc initiatives promoting sustainability have emerged from regional organizations (for example, the Southern California Association of Governments) and from local communities, such as "Sustainable San Francisco". Progress toward sustainable development has also been slow in New Zealand. In his annual report in 2002, the Parliamentary Commissioner for the Environment (PCE) criticized the national government for its lack of progress in the advancement of sustainable development (PCE 2002). Since then, the central government has responded with its sustainable development strategy, the "Programme of Action for Sustainable Development", released in January 2003. A discussion paper was released in November 2002 – "A Framework for Developing Sustainable Communities", developed in discussion with the Department of Internal Affairs, Ministry of Social Development, Child you and Family, and the Community Employment Group. National Environmental Standards are nearly complete. The Resource Management Act provides a framework for the incorporation of sustainable resource management to guide

management and planning decision-making. However, the definition for 'environment' focuses solely on biophysical factors. There are no government departments or committees that oversee sustainable development. Sustainability initiatives that are occurring in New Zealand are emerging at the local level (e.g., Waitakere Eco City and Environment Canterbury).

Systematic and Integrated Policy Framework

A systematic and integrated policy framework for considering sustainability principles to guide assessment has been identified as a key component to the success of SEA (Partidario 1996; Sadler and Verheem 1996). This includes the implementation of national sustainability strategies, objectives and indicators. In the United Kingdom, a national sustainability strategy coupled with associated indicators has been in effect since 1999. Similarly, Scotland has also developed its own sustainability strategy and indicators; however, the Perth and Kinross Council chose to use the framework provided by the UK strategy. No such policy framework exists in California.

In New Zealand, the RMA is intended to provide a systematic and integrated policy framework. Each local authority is also expected to undertake State of the Environment (SOE) reporting which feeds into a national SOE report. Plan-making is guided by the requirements and provisions of the RMA; the s32 analysis is intended to ensure that issues, objectives, policies and methods included within the plan are consistent with the RMA. Although the RMA fails to consider the full range of sustainability principles to guide assessment, s32 analysis is required to evaluate social, economic and environmental costs and benefits.

Commitment to Sustainability at Local Case Study Level

In 1993, Waitakere became New Zealand's first Eco-City under Agenda 21 of the Earth Summit. As an Eco-City, Waitakere is committed to ensuring that the economy, environment and society are sustainable., This direction is outlined in the 'Greenprint", the Council's LA21 strategy, and achieved through the District Plan. Additionally, Waitakere demonstrates strong policy commitment to sustainability initiatives including a corporate sustainability strategy, encouraging residents to 'buy Waitakere', the Ecosourcing Code of Practice, a system of 'Green Networks' for cycling and walking, and the City Wellbeing Strategy. Perth and Kinross Council (Scotland) demonstrates strong commitment to sustainable development in their environment strategy, various planning processes (such as the LA21 plan, the Quality of Life strategy, and the community planning process), as well as the sustainability appraisal of the structure plan. This mirrors the Scottish Executive's commitment to sustainability initiatives. San Joaquin County (California) does not appear to have a similar commitment to sustainable development, reflecting the lack of such initiatives at the state and national levels.

Integration into Planning Process

Only one of the three cases demonstrates effective integration into the planning process. In California, SEA is integrated strongly into the planning process, occurring from the beginning and continuing throughout the entire process. In New Zealand, s32 analysis occurs at the onset of the process, but cannot be considered as effectively integrated into the planning process as it does not continue throughout the process. In contrast, SEA currently is not integrated at all into Scotland's planning process, operating as an "add-on" and occurring only after the plan has been completed.

6.1.2 Substantive Effectiveness

Findings as Central Determinant in Decisions

Although SEA is promoted by the academic literature as a means to improve decision-making, the findings of the SEA are not required to be the central determining factor in decision-making in any of the three cases. This is arguably the most significant weakness in SEA practice today. In California, a plan can be adopted even with significant environmental impacts as long as a "statement of overriding considerations" is filed with the final EIR, justifying the decision. Of the three alternative options in San Joaquin County, it can be said that the most environmentally damaging option was selected (Skewes-Cox 1996). Significant unavoidable impacts associated with the general plan included the removal of prime agricultural land and significant traffic impacts. The county's findings of overriding considerations focused on three elements which were described as "outweighing" the plan's significant, unavoidable environmental impacts (Figure 14).

Figure 14 Findings of overriding considerations in San Joaquin County's EIR

- approval of the general plan was designed to accommodate the projected population growth as long as specific conditions were met by future developments such as provision of adequate water and sewer service, funding of necessary on-site improvements and reduction of environmental impacts to an acceptable level;
- approval of a Development Title (containing regulations) to protect the public's health, safety and welfare; and
- expansion of the industrial, commercial, and housing opportunities for existing and future residents within San Joaquin County.

Skewes-Cox (1996)

In Scotland, the consideration of environmental information is suggested in planning guidance (SPP 1; PANs 37 and 49), but the results of a sustainability appraisal does not need to serve as a determining factor in the adoption of a plan. In New Zealand, the RMA makes environmental assessment central to decision-making. The results of a section 32 analysis do

not always figure prominently in determining the adoption of a plan. Many district plans are held up for many years in the Environmental Court as a result of citizens, organizations and businesses lodging appeals against various components of the draft plans. The resolution of the issues of concern has become the central determining factor in the adoption of plans.

Recommendations Resulting in Plan Modification

One of the most important reasons to undertake SEA of comprehensive plans is for the information and recommendations emerging from the process to be taken into consideration by decision-makers and incorporated into the final plan. According to the appraiser in the Perth and Kinross case, roughly half of the recommendations were integrated into the final plan. In some cases, local authorities deemed that existing policies or practices already addressed the concerns expressed. In San Joaquin County, the plan was modified from its initial draft form, but not primarily because of concerns raised in the EIR. The anticipated growth did not occur in the county due to the general economic recession and slow rate of development throughout most of California (Skewes-Cox 1996). As a result, the new towns never proceeded to the first stage of development of a specific plan. Additionally, staffing at the county department was also reduced due to budget shortfalls, leaving little progress with the implementation of the EIR's recommended mitigation measures. The Waitakere Plan was modified prior to its notification through consultations and analysis (including section 32), and after notification through submissions by the public and appeals to the Environment Court. In New Zealand, the effects of section 32 analysis is more difficult to isolate as it is only one component of many that serve to assess the district plan.

Integration of Environmental Considerations into Decisions

Although one of the primary objectives of SEA is the integration of environmental considerations into decision-making, this was not achieved effectively in any of the three case studies. The guidance and provisions for SEA in all three cases state that the consideration of environmental factors in decisions is a key element, however, this does not always occur in practice. In California, CEQA has potentially conflicting objectives: first, to ensure that environmental considerations are taken into account in decision-making, and second, to allow the local authority to attach a "statement of overriding considerations" to a plan that has significant and unavoidable environmental impacts, seriously challenging the achievement of the first objective.

New Zealand's RMA has a mandate to ensure that sustainable resource management decisions are made. The adoption of nearly all district and city plans has been slowed down in the court system. In some cases, the public may not support the integration of environmental factors in decision making. For example, in Waitakere, there has been public backlash against the "green" focus of the Council perceived to be taking priority over social and economic concerns (Knight 2000). In Scotland, there has been a strong focus on the pursuit of sustainability objectives since devolution. However, recommendations in support of sustainability (or the environment for that matter) are not always finding their way into the adopted plan.

6.2 Institutional Arrangements

A discussion of each of the procedural and substantive effectiveness of the institutional arrangements is presented in the following sections. Table 19 provides a summary of the findings.

Table 19 Evaluation of the procedural and substantive effectiveness of institutional arrangements

PROCEDURAL EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Are comprehensive plans based on clear legal provisions?	Yes. Statutory: Town and Country Planning (Scotland) Act. Non-statutory: Scottish Planning Policies (SPPs)	Yes. Statutory: California Code Regulations. Non-statutory: General Plan Guidelines and CEQA Guidelines.	Yes. Statutory plans are required under the RMA for district and city plans, but regional plans are optional.
2. Is the SEA system based on clear legal provisions?	No. No legal provisions currently, but will need to be in place by July 2004 in compliance with EU Directive. Currently, SEA is encouraged through SPP1.	Yes. CEQA clearly defines SEA process and provides the legal basis for SEA since 1970.	Yes. The RMA provides the legislative basis for SEA since 1991. Broad framework allows local authorities considerable discretion in practice.
3. Is there an administrative body to oversee SEA process (even in the absence of legal provisions)?	No. Once EU Directive is implemented, an administrative body will need to be in place.	Yes. The California Resources Agency (CRA) and the Governor of California's Office of Planning and Research (OPR) oversee the process.	No. The Ministry for Environment (MfE) is responsible, but does not actively oversee the Section 32 process. Increasingly, the Environment Court is being relied upon to solve disputes.
4. Is the SEA subject to interagency review?	No. Review by other governmental agencies and departments is not a binding requirement. In Perth and Kinross, the SEA was subject to review by the public, including agencies. Review of government agencies is generally at the discretion of the appraiser.	Yes. Undertaken by the State Clearinghouse as part of the notification process once draft EIR has been received.	Yes. During plan preparation, Waitakere was required to consult the Minister for the Environment, other central government ministers as to who may be affected, Auckland Regional Council, and *iwi* authorities (through *Tangata Whenu* and *Runaga*)[16]
5. Are guidance, training and support provided?	Yes. Guidance for SEA provided by the UK's DoE 1993), the Tyldesley Report (DTA 1995a and 1995b), Interim Planning Advice (D TA and Scottish Executive 2003).	Yes. Guidance provided by CEQA and OPR.	Yes. Guidance provided by MfE in Section 32 Handbook. Also, the "Quality Plans Project" gives authorities opportunities to share experience and advice on good practice.
6. Are there visible linkages to decision-making?	No. Plan approval is not conditional on the SEA, but is viewed as good practice to undertake one and is left to the discretion of the local authorities.	Yes. Plan approval is conditional on submitting a completed EIR.	No. Although a Section 32 analysis and report are required under the RMA, approval of district plans are not depended upon them.
7. Is there independent oversight of the SEA?	No. Not discussed in the guidance, nor practiced.	Yes. Required under CEQA.	No. Not discussed in guidance, nor practiced.
SUBSTANTIVE EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Is project EIA strengthened through 'tiering' (vertical linkages) to carry sustainability principles from plans to projects?	No. A relationship with project EIA does not generally exist with SEA. In the case study, recommendations were included to highlight the need for an EIA where relevant. Tiering will need to be a part of the legislation under the EU Directive on SEA.	Yes. Tiering is one of the strengths of the CEQA.	Partially. The concept of tiering is an undeveloped area in New Zealand planning practices. Project EAs have largely become a checklist of required outcomes and rules.

Coding Key: Yes = 2 points Partially = 1 point No = 0 points

TOTAL SCORES	SCOTLAND	CALIFORNIA	NEW ZEALAND	TOTALS
Procedural Effectiveness (out of 14)	4 (29%)	14 (100%)	8 (57%)	26 of 42 (62%)
Substantive Effectiveness (out of 2)	0	2 (100%)	1 (50%)	3 of 6 (50%)
Overall Effectiveness for Institutional Arrangements (out of 16)	4 (25%)	16 (100%)	9 (56%)	29 of 48 (60%)

[16] *Iwi* are Maori tribal groups. *Tangata Whenu* are the people of the land, the people who hold the customary authority in an area according to tribal custom. *Runaga* are the local representative Maori groups equivalent of local government.

6.2.1 Procedural Effectiveness

Clear Legal Provisions for Comprehensive Plans

There are clear, legal provisions for comprehensive plans in Scotland (under the Town and Country Planning Act) and in the state of California (through the California Government Code Regulations). Guidance for the preparation of plans is provided through SPPs and PANs in Scotland and General Plan Guidelines in California. In New Zealand, statutory requirements for the preparation of comprehensive plans for districts and cities; regional plans, however, are not mandatory. District and city plans are taking considerable amounts of time to prepare and adopt. For example, Waitakere's plan preparations began in 1995, and the plan was made operative in March 2003. Many developers and private citizens are taking advantage of the opportunity to lodge appeals in the Environment Court against policies contained within the plans.

Clear Legal Provisions for SEA

By far, California exhibits the most comprehensive and enforceable regulatory provisions for SEA of all three case studies. Since 1970, CEQA has clearly defined the SEA process and provides the legislative basis for the evaluation of plans for the state through its Guidelines. Despite the name, these guidelines are legal requirements in California. In New Zealand, the RMA provides a strong legislative framework for SEA since 1991 under section 32. Referred to as "section 32 analysis" (s32 analysis), this directive requires local authorities to undertake an evaluation of the benefits and costs of a plan's policies. Section 32 analysis was not intended to legislate SEA *per se* (SEA is not mentioned by name in the RMA), but to ensure that both the benefits and costs (environmentally, socially and economically) were adequately considered when preparing district and city plan.

The RMA also grants local authorities considerable discretion in the implementation of its provisions. Coupled with a virtual lack of enforcement procedures, this has resulted in uneven application of SEA at the local level in New Zealand.

Currently Scotland has no legal provisions for SEA, although it is strongly recommended in the non-statutory SPPs and PANs. Once the EU SEA Directive comes into effect, then clear, legal provisions for its application will need to be in place throughout the UK. The UK has recently drafted guidance to serve as the legal basis for SEA for England and Wales (ODPM 2003); the Scottish Executive has also developed their own interim planning advice, prepared by David Tyldesley & Associates and the Scottish Social Research branch (DTA 2003). Consultation was undertaken with the Scottish Executive's own Sustainable Development Unit, Scottish Natural Heritage and the Scottish Environmental Protection Agency, amongst others. While the EU directive is limited to legislating SEA within a narrow biophysical environmental focus, the UK and Scottish SEA provisions will continue to embrace a wider scope to include social and economic considerations as well as biophysical ones. It is uncertain as to whether the process will be termed as "SEA", or continue to be referred to as "sustainability appraisal".

Administrative Body to Oversee SEA

The identification of an administrative body to oversee the SEA system provides direction and accountability for the process, even in the absence of a legal framework for SEA. There is no such administrative body in Scotland that oversees the SEA system. The Scottish Executive has issued guidance, however, it does not actively provide direction and accountability for the process. This will most likely change once the EU Directive is implemented. In California, both the California Resources Agency and the Office of Planning

and Research play significant roles in the administration of CEQA and comprehensive planning. The roles of each are clearly delineated in the legislation and include providing guidance and training, distributing draft EIRs to other government agencies and departments, and maintaining numerous databases of environmental information and inventories.

In New Zealand, the Ministry for the Environment oversees and guides the s32 analysis process, however, local authorities are given responsible for the implementation of the analysis. If local citizens believe that the local authority has neglected its duties, they can lodge an appeal with the Environment Court. The court system has increasingly been relied upon to serve as an overseeing body for many aspects of comprehensive planning.

Interagency Review

Review of the SEA by other government agencies and departments is strongly integrated in California, but is minimal in both Scotland and New Zealand. The California State Clearinghouse has responsibility for distributing draft EIRs to all affected government agencies through the "notification" process. In Scotland, the decision to seek input and feedback by other government departments and agencies on the draft SEA is left to the discretion of the local planning authority or the plan evaluator. In Perth and Kinross, interagency involvement was sought on an informal basis to provide technical advice or to provide background information. Under the RMA in New Zealand, local authorities are required to consult the Minister for the Environment, other central government ministers who may be affected, the regional authority for the area, and the Maori (or *iwi*) authorities. Whether effective consultation does indeed occur with indigenous peoples is not known; this subject would require its own in-depth examination.

Guidance, Training and Support

Guidance and training to assist local authorities in applying SEA is available in all three case studies, to varying extents. Of the three, California has the strongest system in place. Both CEQA Guidelines and General Plan Guidelines (treated as regulations in California), with cross-referencing available in both, provide detailed information for SEA. The UK government has provided guidance in undertaking environmental appraisal since 1991 with the "Good Practice Guide" (DoE 1993). This was followed in Scotland with the "Methodology for the Environmental Appraisal of Scottish Development Plans" prepared by British consultants DTA (1995a and 1995b). More recent guidance can be found reviewing SEAs undertaken by local authorities, rather than through government guidance (for example, the sustainability appraisals for Aberdeenshire and Highland). In New Zealand, the Ministry for the Environment has also published detailed guidelines for local authorities in its handbook "What are the Options? A Guide to Using Section 32 of the Resource Management Act" (MfE 2000).

Additionally, the "Quality Planning Project"[17] promotes best practice by sharing knowledge about policy and plan development under the RMA. The website is for council practitioners and consultant planners, environmental managers and others involved in the plan preparation process (QPP 2003).

The cost of undertaking SEA in California is primarily covered through either local general funds or developers' fees. The first San Joaquin EIR was funded completely from the County's general fund. This first EIR was never certified, as the General Plan was revised to include the five new towns; this second EIR was funded totally be the developers of the new

[17] The Quality Planning Project is a partnership between the New Zealand Planning Institute, the Resource Management Law Association, Local Government New Zealand, the New Zealand Institute of Surveyors and the Ministry for the Environment (QPP 2003).

towns. In Scotland and New Zealand, costs for SEA must come out of local authority funds. The devolution of environmental planning and management in New Zealand from the central to local governments has been particularly overwhelming for local authorities with no additional financial or human resources provided.

Visible Linkages to Decision Making

In California, approval of the general plan is based on the submission and approval of the EIR. However, as noted previously, the EIR does not necessarily have to be lacking significant environmental impacts to be approved as long as a "statement of overriding considerations" is included to justify approval of the plan or mitigation measures identified. In Scotland, plan approval is not connected to the submission of a sustainability appraisal. The submission of a satisfactory appraisal document will be required once the EU directive comes into force (DTA 2003).

There are no requirements to submit a s32 analysis report to New Zealand decision-makers along with the district plan. In 1999, appellants lodged a submission asserting that Dunedin City Council's failure to comply with section 32 was so fundamental that the relevant sections should be withdrawn in whole or in part. While the Environment Court appeared to accept that there were significant defects in the section 32 report, noting that there were almost no evaluations in the report (for example, of relevant costs and benefits at least in quantitative or economic terms) and that parts of the section 32 report were unprofessional including handwritten notes and a general lack of justification for the challenged policies and rules. Despite that, the Court ruled that it had no jurisdiction under section 32 to consider whether or not the analysis undertaken by Council complies with the Act. On appeal, the High Court ruled in December 2000 that the Environment Court did have jurisdiction to take

into account the adequacy or even the total absence of a s32 analysis when considering the reference on its merits, and that if the Environment Court held that there had been non-compliance with s32, it did not have the power to direct a Council to undertake the analysis, and would have to do so itself (New Zealand Court of Appeal 2001).

Independent Oversight

The academic literature identifies independent oversight as one of the most important characteristics of an effective SEA system (Partidario 1996; Sadler and Verheem 1996). Yet, this is one of the weakest elements of effectiveness in all three case studies. The concept of independent oversight is encouraged in California through guidance, but is not used effectively in practice as there are no legal requirements for its use. Legal provisions for independent oversight do not exist in either Scotland or New Zealand, and there is no evidence to suggest that it is used on a voluntary basis in either of the case studies.

6.2.2 Substantive Effectiveness

Tiering of Plan-Level SEA and Project EIA

In California and the United States, CEQA and NEPA both encourage agencies to "...tier their environmental studies to avoid repetition of issues and to focus on those [issues] that are appropriate for decision making at each level of planning" (Bass and Herson 1999, 280). Under CEQA, once a Master EIR has been prepared for an area, any subsequent projects that come within the scope of the Master EIR only need to go through an initial screening to ensure that the project has been included, and if so, then no further evaluation is required (Bass and Herson 1999). In theory, this requirement should result in the need for fewer project-level EISs. However, this has not proven to be the case. Many impacts will not be adequately assessed at this level, making it critical that a two-tier approach be applied.

Specific developments must undergo some type of environmental analysis, with a focus on impacts not adequately addressed at the general plan stage (Skewes-Cox 1996). This is evident in the San Joaquin County case study. Each of the proposed new towns will need to prepare a "specific plan", and thus, will require the preparation of an EIR under CEQA. There are no legal requirements that specific plans comply with the county's general plan, as the jurisdiction of the general plan is limited to the unincorporated areas.

SEA and EIA processes are implemented separately in Scotland, with virtually no opportunities for interaction or tiering. The concept of tiering is required in the impending EU Directive; UK and Scottish authorities will need to include this in legislation. The RMA in New Zealand provides for a hierarchical framework of policy and plan making, in that regional plans must conform to both national and regional policy statements, and district plans must conform to both regional plans and policy statements. Nearly every activity in New Zealand, from mining to home renovations, requires an environmental assessment in order to receive a 'resource consent' to proceed. In order to receive a resource consent, an EA must be undertaken and the outcomes must conform to the district plan of the area. In practice, this has resulted in a multitude of cases being heard at the Environment Court.

6.3 SEA Processes

The procedural and substantive effectiveness of the SEA processes for each of the three case studies is provided in the following sections. Table 20 summarizes these findings.

Table 20 Evaluation for procedural and substantive effectiveness of SEA processes

PROCEDURAL EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Is the SEA based on an objectives-led approach?	Yes. Plan is evaluated against sustainability objectives.	No. Plan follows a baseline-led approach.	Yes. Objectives are identified and plan policies are appraised in terms of their ability to satisfy the objectives.
2. Is there an effective scoping process (i.e., applied at onset of process with public involvement to define issues)?	No. Although scoping is one of the steps recommended in both Scottish and UK guidance, its purpose is to identify gaps in policy coverage of issues that have already been identified in the plan.	Yes. Scoping is mandatory under CEQA. Notice of Preparation (NOP) is circulated to government agencies to suggest items for consideration. There are no requirements to include the public in scoping processes.	Partially. Scoping is not required *per se* under RMA, however, the identification of resource issues at the onset of the plan preparation serves as a form of scoping.
3. Do opportunities for public participation exist beyond receiving information after the process (e.g., occurs at several times throughout process; results in the genuine consideration of input)?	No. Public participation is not a binding requirement. In Perth and Kinross, public consultation occurred once the SEA was completed, rather than early in the process. Recent guidance for SEA in Scotland is silent on this issue.	Yes. Public participation is a key feature of CEQA. At a minimum, there are opportunities for review and comment. In San Joaquin County, over 100 public meetings were held during the preparation of the General Plan. CEQA also requires that all public comments be addressed by the responsible authority.	Yes. In Waitakere, consultation with the public did occur. The RMA provides for public participation, but much discretion and flexibility is left with local authorities.
4. Are mitigation measures identified?	Yes. Mitigation measures were identified in the Perth and Kinross case study, however, these measures are not required nor suggested in guidance.	Yes. Mitigation measures must be recommended in the final EIR for all identified impacts. In San Joaquin County, three categories of mitigation measures were included (policies, regulations and land use), as well as the degree of impact (less-than-significant or significant-and-unavoidable).	Yes. The identification of mitigation measures is considered to be one of the main purposes of the RMA.
5. Was a separate SEA report prepared?	Yes. A separate SEA report is not required, however, in the Perth and Kinross case study, a SEA report was produced.	Yes. A separate SEA report (EIR) is required; contents for the report are specified in CEQA.	Yes. A SEA report (s32 Report) has recently been required (2002 amendments to RMA), with prescribed contents.
6. Were the SEA results publicly reported?	Yes. Although not required, the SEA report was publicly available in the case study. Public reporting is part of the comprehensive planning process.	Yes. Local authorities must publicly report results and respond to all comments by the public. The EIR document is available to the public.	Partially. Public reporting is part of the comprehensive planning process, but not specifically required for the SEA component.
7. Are there provisions for monitoring?	Partially. There are no requirements for monitoring. A monitoring plan and indicators were incorporated into the SEA document for the case study.	Yes. Monitoring program is required for when there are mitigation measures identified.	Yes. Section 35 of the RMA requires local authorities to monitor their plans and policies,. However, according to a recent survey of local authorities undertaken by MfE, over on-quarter of local authorities were not complying with these provisions.
SUBSTANTIVE EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Is the SEA a proactive assessment?	No. SEA is undertaken after the plan is drafted.	Yes. Although the EIR process runs parallel to the plan, the developers' proposals for new town development in San Joaquin County guided the process.	Yes. Section 32 appraisal is carried out from the outset of the plan and informs the content of the plan.
2. Is the SEA a sustainability-led process?	Yes. The sustainability criteria ensures that all three components of sustainability are considered. Sustainability objectives and criteria guide the appraisal process.	Partially. Section 21060.5 of CEQA defines environment as physical conditions (including land, air, water, minerals, flora, fauna, noise, and objects of historic or aesthetic significance). However, in San Joaquin County, both environmental and social impacts were considered. Economic impacts addressed are limited to fiscal and financial impacts borne by the County.	Partially. Sustainable resource management issues guide the evaluation process, however, the RMA definition of environment is focused on the biophysical elements.
3. Are cumulative impacts considered?	Partially. Where linkages and cumulative impacts of policies and proposals could be identified and appropriately assessed through the SEA, this was highlighted in the revisions, recommendations and conclusions of the SEA.	Partially. The impacts on the seven cities and the unincorporated areas of the County are all considered. Each city has an identified 'sphere of influence'. Cumulative impacts on neighbouring counties are limited to transportation-related factors.	No. The RMA and guidance does not provide direction for the assessment of cumulative impacts.
4. Are alternative options identified and evaluated?	No. The identification and evaluation of alternative strategies to guide plan development were considered by the planning team at the onset of the process, the SEA itself did not evaluate alternative options. The two processes operated separately.	Yes. Under CEQA, alternatives must be evaluated (including the 'no project' option), but no minimum number of options are suggested. A clear justification of choice must be included. In San Joaquin, three alternative options were considered, including the 'no growth' option.	Yes. EA must contain discussion on alternatives from outset. The 'no action' alternative is not mentioned in legislation nor guidance.

Coding Key: Yes = 2 points Partially = 1 point No = 0 points

TOTAL SCORES	SCOTLAND	CALIFORNIA	NEW ZEALAND	TOTALS
Procedural Effectiveness (out of 14)	8 (57%)	12 (86%)	12 (86%)	31 of 42 (74%)
Substantive Effectiveness (out of 8)	3 (38%)	6 (75%)	5 (63%)	14 of 24 (58%)
Overall Effectiveness for SEA Processes (out of 22)	11 (50%)	18 (82%)	17 (77%)	46 of 66 (70%)

6.3.1 Procedural Effectiveness

Objectives-led Approach

Although an "objectives-led" approach is promoted in much of the academic literature (Sheate et al. 2001a; Sadler 1996; Sadler and Verheem 1996), there are some researchers who favour a "baseline-led" approach. The objectives-led approach is associated with the complete sustainability focus. A baseline-led approach is closely aligned with an EIA-based approach, using more technical and scientific methods and focusing more on the 'environmental' component of sustainability. In this examination, the objectives-led approach as supported by Sadler (1996) and Sadler and Verheem (1996) will be considered the most effective approach in this examination. The objectives-led approach has always been strong in SEA practice in the UK and Scotland. This was evident in the Perth and Kinross Council case study through objective setting which guided plan development and evaluation.

In New Zealand, objective setting is a key component in plan-making. Recently, guidance has been issued by the MfE to assist local authorities in drafting objectives (MfE 2003a). Following the identification of relevant resource issues, objectives are identified associated with particular issues. Plan policies are appraised in terms of their ability to satisfy these objectives. In California, the setting of objectives does not appear to be a strong component of plan making or evaluation. Rather, the state follows a baseline-led approach. The existing environment is first described, and then, the likely future state of each alternative is evaluated against the initial baseline condition.

Scoping

The term "scoping" has slightly different interpretations among the case studies. In all three cases, scoping is employed at the beginning of the SEA process. In Scotland, scoping is used to identify gaps in the range of objectives, issues and policies that are identified and assessed during the appraisal process. This is generally achieved by first, compiling a list of sustainability aims, issues and policies (usually through a literature review or review of other sustainability appraisals and undertaken by the appraiser), and then, by using a checklist, identifying which items are covered within the plan, which items are missing, and what revisions are required in order for all sustainability issues to be included. This was undertaken in Perth and Kinross by the appraiser. The recent draft SEA guidance prepared in the Scotland suggests changes in the way that the UK has approached the scoping process. In order to meet the more stringent requirements of the Directive, scoping will be undertaken at the onset of the planning process and be more prescriptive. In New Zealand, scoping is used at the onset of the assessment process by identifying sustainable resource management issues by the team responsible for the preparation of the plan. Scoping is not required in either Scotland or New Zealand; however, in California, CEQA requires that a scoping process be conducted as soon as the plan preparation process begins. This is usually undertaken by the plan preparation team, the EIR team, and the consultants involved. CEQA and General Plan Guidance suggests that public input be sought as part of the scoping stage.

Public Participation

In SEA, significant opportunities for public involvement should extend beyond the provision of information after the process has been completed. Varying degrees of public involvement occurred in all three cases reviewed. The weakest demonstration of public

involvement occurs in Scotland in the form of information provision only. Once the SEA had been completed in Perth and Kinross, the report was then presented to the public through public meetings and presentations. This is another element of SEA practice that is being strengthened in the UK in order to meet the requirements of the EU Directive. In the draft guidance for SEA in Scotland, it notes that planning authorities will need to take account of public representations on the draft as well as the SEA, but offers no advice on how to undertake this requirement.

California exhibits the strongest degree of public participation of the three cases examined. CEQA requires that only two meetings be held for public comment, but more can be convened by the local authority if desired. In San Joaquin County, over 100 public meetings were held throughout the San Joaquin County. Another requirement of CEQA is that all public comments on the draft EIR must be addressed in writing by the EIR team. In New Zealand, public involvement is considered to be a major component of the RMA, however, this does not extend to s32 analysis. A plan is 'notified' (i.e., available for public viewing and submission of public comments) only after the Council has completed its draft of the plan. Submissions can then be made to the Council, and if the issues are not resolved to the satisfaction of all parties concerned, a submission can be made to the Environmental Court through a 'reference' (also known as an appeal). Section 32 analysis is undertaken by either planning staff or independent consultants with little to no public input at this stage.

Discussions on what the definition of 'public' should include is virtually non-existent in the literature. Rather than examine the different groups (or communities) of people that comprise the 'public', SEA literature relies on the generic concept of the 'general public'. In jurisdictions that are home to visible minority groups, including indigenous peoples, very little

effort appears to be directed at ensuring that these communities have a real opportunity to engage in the process. According to New Zealand law, local governments must consult with the Maori groups in the affected area, however, it is not known how effective these consultations have been. This is a subject that requires further investigation.

Mitigation Measures

Since very few projects are turned down in California, the main aim of CEQA is to identify measures designed to mitigate potential or likely impacts has been required in California since 1986. These measures enable the adoption of the EIR and General Plan even when significant environmental impacts are likely to occur. In San Joaquin County, three categories of mitigation measures were recommended in the final EIR: policies (inclusion of new or revised policies in the Draft General Plan), regulations (inclusion of new or revised regulations in the Draft Development Title), and land use (revisions to the General Plan map). (San Joaquin County 1992b). The level of significance of the likely impacts are assigned a "Degree of Impact" – less-than-significant impact or significant unavoidable impact – assuming all the mitigation measures are implemented. Some of the mitigation measures were able to be monitored at the time of adoption of the General Plan (e.g., incorporation of recommended new or revised policies), while others needed to be monitored at a specific plan stage. Although the identification of mitigation measures is not legally required in New Zealand, it is recommended in s32 guidance. Similarly, mitigation measures are not currently required in Scotland; however, mitigation measures were recommended in the Perth and Kinross sustainability appraisal.

Documentation

A separate SEA report was prepared in all 3 case studies, although its preparation is only required in California and New Zealand. In California, the SEA report is referred to as an Environmental Impact Report (EIR). CEQA prescribes the contents of an EIR. In New Zealand, the preparation of a report – a Section 32 Report – has only been a requirement since the amendments to the RMA in 2002. Waitakere Council prepared a Section 32 Report, although it was not legally required at the time that plan preparations began. In Scotland, a separate SEA report is not required but it has become an accepted practice. A separate report was prepared in the Perth and Kinross case study. The recent interim planning advice provides a list of required contents for the SEA.

Public Reporting

Public reporting on the SEA results, as well as the EIR process and the General Plan process, is a legal requirement in California. In New Zealand, the s32 analysis is generally available for public viewing, comment and appeal. The s32 anlaysis for the Birdwood Urban Concept Plan (a recent addition to the Waitakere District Plan) is currently available on the Council's website. In Scotland, there is currently no requirement or guidance suggesting that the SEA should be reported publicly. However, a majority of the completed SEAs are available on the Internet (e.g., Aberdeenshire, Highlands). The Perth and Kinross sustainability appraisal was available to the public in hardcopy form from the Council office, as well as on a compact disc. It was not available on the Council website, although a number of other plans in the district are offered (e.g., the structure plan, the local plans, community plan and LA21 plan).

Monitoring

In order to ensure that the identified mitigation measures are being applied, it is necessary to establish a monitoring program. In California, a monitoring plan has been required since 1989, once the mitigation measures identified in the EIR have been accepted and form a part of the General Plan. Although there are no formal requirements for monitoring in Scotland, indicators for Perth and Kinross have been developed to enable the structure plan to be continually monitored. These indicators were developed through the sustainability appraisal process, and were structured to reflect UK, Scottish and Perth and Kinross priorities.

Section 35 of the RMA in New Zealand requires all local authorities to monitor the efficiency and effectiveness of policies, rules or other methods of their plans. In practice, there has been a reliance on public complaints to perform this task. Section 35 also requires local authorities to prepare a five-year report of the results of their monitoring. The MfE undertakes a biannual survey of local authorities to determine compliance with the RMA. According to the most recent survey (2001/02), there is less than full compliance with the monitoring requirements. With one hundred percent of local authorities participating in the survey, it was reported that 75% of regional authorities stated that they were monitoring their plans and policies, 61% of territorial authorities (including Waitakere), and 60% of unitary authorities. State of the Environment reports have been prepared by 100% of regional authorities and 80% of unitary authorities, but only by 48% of territorial authorities. There is considerable room for improvement in the enforcement of monitoring provisions in New Zealand. Waitakere Council has identified thirteen sustainability performance measures to

track how it is achieving sustainable outcomes for the City, and reports on these in its Annual Plan. However, these indicators are not linked to the District Plan.

6.3.2 Substantive Effectiveness

Proactive Assessment

Proactive assessment is evident in two of the three cases examined. In both California and New Zealand, SEA is applied early on in the plan-making process. Proactive assessment is not the norm for Scotland. In Perth and Kinross, SEA was undertaken once the draft plan had been developed. By applying SEA late in the process, the evaluation of potential environmental impacts of alternative options is not able to be completed. Only one option is evaluated, with SEA serving primarily as an auditing function. Proactive assessment is required with the new interim planning advice.

Sustainability-led Process

One of the strengths of the Scottish SEA system is its sustainability-led process. Sustainability objectives and criteria were selected that represented all three dimensions of sustainability – environmental, social and economic – to guide the appraisal process in Perth and Kinross. The United Kingdom's National Sustainable Development Strategy themes were selected to guide the assessment of the plan's policies.

In framing the RMA, the New Zealand Government stated that it was rejecting the Brundtland approach to sustainability on the grounds that this "embraced a very wide scope of matter including social inequities" and that it was "inappropriate for legislation of this kind to include such goals" (MfE 1991, cited in Gleeson and Grundy 1997, 299). The mandate of the RMA, therefore, avoided meeting head on the challenge of integrating environment and development in regional and local planning (Gleeson and Grundy 1997). In the 2002

amendments to the RMA, the words "economic" and "social" were removed from the definition of sustainable resource management, justified by the Ministry for the Environment on the grounds that some councils were using the existing definition to justify the development of district plans that seek to achieve social planning objectives (Morgan 1999). Waitakere is an exception to this direction, initiating many sustainable development activities.

In California, CEQA defines 'environment' as "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance" (CRA 2003, Section 21050.5). However, in relation to General Plans, several social issues are also to be addressed; these issues focus primarily on public health and safety. Economic issues considered in the EIR are limited to those relating to fiscal costs and benefits (e.g., the building of infrastructure and the provision of services). In San Joaquin County, detailed reports that assessed the fiscal and financial analysis of the draft General Plan and the growth forecasts for the County were prepared by consultants (San Joaquin County 1991 and 1992c).

Consideration of Cumulative Impacts

SEA has been touted as an effective means to considering cumulative impacts (Sadler and Verheem 1996; Partidario 1996). Under CEQA, the evaluation of 'area-wide' impacts are to be included in the EIR. Although included in San Joaquin County's EIR, the General Plan can only directly affect unincorporated areas, and each of the incorporated city councils must prepare their own local plans (referred to as "specific plans"), as well as their own EIRs. Both the General Plan and the Specific Plans for the towns within the County must not conflict, and consultation between the two levels of government needs to occur on a regular basis. In

Scotland, there are no provisions to assess cumulative impacts, and the available guidance is silent on this issue. In the Perth and Kinross Council case study, the appraiser noted that

> *"where linkages and cumulative impacts of policies and proposals could be identified and appropriately assessed through the sustainability appraisal, this was highlighted in the revisions, recommendations and conclusions of the sustainability appraisal".*

In New Zealand, the RMA and the accompanying guidance does not specifically mention the consideration of cumulative impacts.

Consideration of Alternative Options

In Scotland, the evaluation of alternative options is not a requirement. In the Perth and Kinross case study, the identification and evaluation of alternatives was not undertaken in the SEA. According to the plan evaluator, the sustainability appraisal itself did not evaluate alternative options as "it became apparent at an early stage that there were no firm guidelines on how to undertake such appraisals." However, alternative options were identified and evaluated at the onset of plan development by the planning team. Three alternative options were considered: (i) *concentration* - focusing development substantially in Perth, its immediate edges and key transport corridors; (ii) *dispersal* - spreading new development widely across the area in other towns and villages while tightly constraining Perth; and (iii) *selective growth* - of Perth and key towns (Perth and Kinross Council 2002; DTA 2003). Each option was appraised against eight sustainability criteria[18]. Option 3 emerged as the favoured option. The manner in which the process occurred is a major weakness in the system. First, the planning team undertook the appraisal of the alternative strategies, rather than an independent appraiser. Second, one process occurred at the onset of plan development, and the other

[18] The eight sustainability criteria are: existing development pattern; energy efficiency; efficient use of infrastructure; access to employment; relationship to services and amenities; reducing travel; impact on the landscape and impact on the cultural heritage (Perth and Kinross Structure Plan 2002).

process occurred at the end of the process. The two processes were not integrated. Alternatives were not identified nor evaluated for the individual policies within the plan.

In San Joaquin County, three alternative options were assessed: (i) the *city-centred growth* option, (ii) the *new town growth* option, and (iii) the *no growth* option. CEQA requires that a full range of alternatives must be evaluated (including the 'no action' option), along with a clear justification of the choice provided, however there are no minimum numbers of alternatives suggested. In New Zealand, the RMA requires that section 32 analysis identify and evaluate possible alternatives for objectives, policies, rules and methods at the onset of plan development, with the costs and benefits of each alternative option evaluated. Guidance is provided for the evaluation of alternative options by the Ministry for the Environment. The 'no action' option is not mentioned in the legislation or guidance. In Waitakere, an average of three alternatives were identified and evaluated for each policy.

6.4 SEA Methods

In the following sections, the procedural and substantive effectiveness of the SEA methods is discussed for each of the three case studies. Table 21 provides a summary.

6.4.1 Procedural Effectiveness

Scoping Methods

Scoping has been described as "the most crucial step in ensuring that the SEA is feasible and useful" (Therivel 1996, 35). A number of methods have been identified in the literature as current best practice in scoping: checklists, literature surveys, comparison with other plans, overlay maps, public consultation and expert judgment (Therivel and Brown 1999; Therivel 1996; Sadler and Verheem 1996). The first three of these methods (checklists, literature surveys, comparisons with other plans) were employed in the Perth and Kinross case

study. However, as described in section 6.1.3, scoping in Scotland is somewhat different than in other jurisdictions. Scoping occurs after the issues have already been identified, rather than being used to identify the key topics of concern. A checklist was developed based on literature surveys, reviews of other plans, and sustainable city resources. The structure plan is then evaluated against the checklist to ensure that there are no gaps in coverage among the plan's policies. So, although the methods used were suitable, the process was less than optimal. In California, scoping is referred to as an 'initial study'. A detailed checklist is found in the CEQA Guidelines and lists 14 categories of potential effects. Other government agencies are often consulted during the scoping process.

In New Zealand, scoping is undertaken in s32 analysis through identifying environmental issues of concern for the area in question. There are no specific requirements in the RMA as to the methods employed to determine these issues. Generally, these are determined by the Council and planning staff, and although the Quality Planning Project recommends consultation with the public in this stage, it does not usually occur (QPP 2003).

Table 21 Evaluation for procedural and substantive effectiveness of SEA methods

PROCEDURAL EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Were suitable methods used for scoping (e.g., checklists, literature reviews, comparison with other plans, overlay maps, public consultation, and expert judgment)?	Yes. Scoping methods in the Perth and Kinross case study included literature reviews, comparison with other plans, and checklists.	Yes. Scoping methods in the San Joaquin County case study included checklists, literature reviews, public consultation and expert judgment.	Partially. Scoping methods in the Waitakere case included: checklists and expert judgment.
2. Were scenarios used to identify and evaluate alternative options, including the 'worst-case' scenario?	No. Alternative options were not evaluated in the Perth and Kinross case study and is not recommended in Scottish guidance.	Yes. Scenarios for all alternative options (including the 'no action' option) were used for evaluation. CEQA requires that 'worst-case' scenarios are developed and analyzed through 'build-out'.	No. Scenarios are not required by RMA nor recommended in guidance.
3. Was information on the affected environmental baseline conditions collected and described (e.g., State of the Environment reporting, environmental stock, resource inventories)?	No. The earlier environmental appraisals were more tightly defined and could go into greater depth (i.e., to identify 'environmental stock'). In Perth and Kinross, strategies and prior research was gathered to provide insight into the range of issues affecting the area. An 'indication' of the 'environmental stock' was provided.	Yes. A baseline survey was undertaken. However, a criticism has been that 'carrying capacity' and maps of 'opportunities and constraints' were not completed (Skewes-Cox 1996).	Partially. Baseline environmental conditions of the area are collected and described as part of the larger regional plan (Auckland Region). Waitakere has also completed a SOE report.
4. Were impacts evaluated as to their significance?	Yes. Impacts are only evaluated in terms of moving strongly or slightly toward or away from sustainable development, are neutral, or are unknown.	Partially. Impacts are only evaluated in terms of being 'less-than-significant', or 'significant-and-unavoidable'. These terms are not defined.	Yes. Impacts are evaluated in terms of 'high', 'medium', or 'low' risk levels to the environment, or can be scored on a scale from 1 to 10.
SUBSTANTIVE EFFECTIVENESS			
Criteria	**Scotland**	**California**	**New Zealand**
1. Do the methods provide for an integration of multi-disciplinary approaches (i.e., are both bio-physical and socio-economic approaches and methods used)?	No. Although environmental, social and economic impacts were all considered, there was a weakness in bio-physical approaches.	Partially. Both bio-physical and socio-economic methods were used, but could be strengthened.	No. Generally, assessments are subjective and non-technical. Cost benefit analysis is used as well. There was a weakness in bio-physical approaches.
2. Are both qualitative and quantitative methods used?	No. The case study only used qualitative methods.	Yes. Both qualitative and quantitative methods were used. However, the use of science was not embedded in the process.	Yes. Both qualitative and quantitative methods are generally used (subjective assessments, cost benefit analysis)
3. Was the information presented in a non-technical summary that was easy for decision-makers to understand?	Yes. Tables were used (for example, Table 14 in Chapter Five) to present the information as a textual summary.	Partially. This is not a requirement under CEQA, however in the San Joaquin case, an executive summary was provided, along with a much larger volume of information..	Yes. A non-technical summary was provided, even though this was not a legal requirement at the time of the process.

Coding Key: Yes = 2 points Partially = 1 point No = 0 points

TOTAL SCORES	SCOTLAND	CALIFORNIA	NEW ZEALAND	TOTALS
Procedural Effectiveness (out of 8)	4 (50%)	7 (88%)	4 (50%)	15 of 24 (63%)
Substantive Effectiveness (out of 6)	2 (33%)	4 (67%)	4 (67%)	10 of 18 (56%)
Overall Effectiveness for SEA methods (out of 14)	6 (43%)	11 (79%)	8 (57%)	25 of 42 (60%)

Scenarios to Evaluate Alternative Options

Although CEQA does not require the use of any particular assumptions, the evaluation of impacts in most plan-level EIRs begins with a projection or forecast of plan "build-out" (Bass and Herson 1999). This concept refers to the 'worst-case' analysis of population growth. Steps typically include: (1) estimating and quantifying the increase in population and employment, the number and square footage of housing units required, the location of facilities, the production of materials, and the movement of goods and people; (2) determining and quantifying the effects on resources and the anticipated pollution levels likely to occur; and (3) a range of alternative scenarios are then developed (Bass and Herson 1999). The evaluation of impacts of each alternative is usually compared in a matrix format. In San Joaquin County, a growth forecast analysis was prepared by consultants for the County.

Scenario analysis is not generally undertaken in Scotland to identify or evaluate alternative options. In New Zealand, the impacts of each alternative option on the environment and the potential of each option to achieve sustainable resource management is evaluated on a matrix (the "decision-making matrix"), based on planning staff's professional opinions.

Information on Baseline Environment Conditions

Collection of good baseline data is one of the major challenges of SEA (Glasson 1995). In the UK's guidance for environmental appraisal of development plans published in 1993 (DoE 1993), a baseline-led approach (establishing the area's 'environmental stock' as the basis for appraisal) was promoted. More recently, the wider scope of sustainability appraisals has shifted the focus to an objectives-led approach (using a series of objectives for sustainable development). Sustainability appraisals are much wider in scope, whereas their

environmental appraisal predecessors were more tightly defined and would therefore go into greater depth (i.e., identify 'environmental stock').

Significance of Impacts

All three case studies attempt to illustrate the level of the significance of the environmental impacts. In Scotland, the significance of potential environmental impacts is communicated through the use of ordinal scales, illustrating the move toward or away from sustainable development (e.g., significant move towards sustainable development, move towards sustainable development, neutral effect, move away from sustainable development, significant move away from sustainable development, unknown).

California General Plan Guidelines suggest an evaluation based on five levels of environmental impact (very bad, bad, neutral, good, very good), with an opportunity to offer explanation. San Joaquin County's EIR assigned a 'Degree of Impact' to demonstrate the level of significance of the likely impacts – 'less-than-significant', or 'significant unavoidable impact'. In New Zealand, s32 guidance suggests that in order to determine the effectiveness of alternative methods to achieve a plan's policy, the level of risk to the environment must be determined. This can be ranked (e.g., 'high', 'medium', or 'low'), or scored (e.g., 1 to 10).

6.4.2 Substantive Effectiveness

Integration of Multi-disciplinary Approaches

There was no evidence of multi-disciplinary methods being used in any of the three cases examined. In Scotland and New Zealand, an individual's subjective interpretation is the primary approach used in evaluation. This involves decision making that is based on the values held by the appraiser. Although subjective interpretation has much value as a method, it would be more credible if the appraisal was undertaken through a team approach, with

representatives from the local authority, non-governmental organizations, and the public. In California, there is some evidence of multi-disciplinary approaches. Databases of biophysical and socio-economic information are used to assist in the evaluation of the plan.

Qualitative and Quantitative Methods

Qualitative methods were dominant over quantitative methods in all three cases. In both Scotland and New Zealand, qualitative methods are the usual methods implemented in evaluation. In California, CEQA specifically requires the use of qualitative methods, although the types of methods are not indicated:

> *Section 21001. The Legislature further finds and declares that it is the policy of the state to: (g) Require government agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment".* (CRA 2003a)

Non-Technical Summary of Environmental Information

In all three case studies, a non-technical summary of environmental information was provided to decision-makers as well as to the public. A common complaint under CEQA is the voluminous and technical information that is provided to decision-makers. This was not the case in the San Joaquin County case study. An executive summary was provided as a non-technical summary that was easy to understand. More detailed information could be found in the larger EIR.

6.5 Summary of Effectiveness

The overall effectiveness of the three cases combined is 61 per cent, considered only as "adequate" according to the evaluation classes. For overall effectiveness, California scores the highest at 73 per cent. New Zealand is next with 64 per cent, followed by Scotland at 45 per cent. Procedural effectiveness is stronger than substantive effectiveness in most cases.

This is most likely because it is easier to identify whether procedural steps or stages have actually occurred than to accurately determine whether the outcomes are a direct result of the SEA.

Table 22 provides a summary of procedural, substantive and overall effectiveness achieved at each level of the framework by each of the three cases examined. This will be discussed further in the following sections.

Table 22 Summary of effectiveness

		SCOTLAND	CALIFORNIA	NEW ZEALAND	TOTAL
POLICY	*Procedural*	6/8 (75%)	2/8 (25%)	5/8 (63%)	13/24 (54%)
	Substantive	3/6 (50%)	1/6 (17%)	2/6 (33%)	6/18 (33%)
	Overall	9/14 (64%)	3/14 (21%)	7/14 (50%)	19/42 (45%)
INSTITUTIONAL	*Procedural*	4/14 (29%)	14/14 (100%)	8/14 (57%)	26/42 (62%)
	Substantive	0/2 (0%)	2/2 (100%)	2/2 (100%)	4/6 (66%)
	Overall	4/16 (25%)	16/16 (100%)	9/16 (56%)	30/48 (63%)
SEA PROCESSES	*Procedural*	8/14 (57%)	12/14 (86%)	12/14 (86%)	32/42 (76%)
	Substantive	3/8 (38%)	6/8 (75%)	5/8 (63%)	14/24 (58%)
	Overall	11/22 (50%)	18/22 (82%)	17/22 (77%)	46/66 (70%)
SEA METHODS	*Procedural*	4/8 (50%)	7/8 (88%)	4/8 (50%)	15/24 (63%)
	Substantive	2/6 (33%)	4/6 (67%)	4/6 (67%)	10/18 (56%)
	Overall	6/14 (43%)	11/14 (79%)	8/14 (57%)	25/42 (60%)
OVERALL	*Procedural*	22/44 (50%)	35/44 (80%)	29/44 (66%)	86/132 (65%)
	Substantive	8/22 (36%)	13/22 (59%)	13/22 (59%)	34/66 (52%)
	Overall	30/66 (45%)	48/66 (73%)	42/66 (64%)	120/198 (61%)

Key:

Meets 90 to 100% of criteria	"excellent"
Meets 75 to 89% of criteria	"good"
Meets 50 to 74% of criteria	"adequate"
Meets less than 50% of criteria	"poor"

6.5.1 Effectiveness by Case Study

It is not surprising that California has the most effective SEA system of the three cases examined, given its three decades of experience. The strengths of California are found in its

institutional arrangements, SEA processes and SEA methods. Weaknesses focus on the policy context, particularly the lack of commitment for sustainability at higher levels.

In New Zealand, the overwhelming responsibilities for environmental planning and management have been downloaded to local governments without the appropriate financial resources, training and expertise. As a result, practice varies from one area to another. Waitakere District illustrates a good example of effective SEA processes, outperforming California in many of the individual criteria. Weaknesses include the policy context, particularly the lack of leadership at the national level for sustainable development and the absence of National Policy Statements. Institutional arrangements are also ineffective, particularly with respect to enforcement and monitoring.

Currently, Scotland has the most ineffective SEA system. The strengths of Scotland are found in its policy context, particularly the commitment and support of the Scottish Executive for sustainable development. Although Scotland is currently weak in meeting SEA process criteria, the system has a strong sustainability-led approach and uses sustainability objectives as criteria for evaluation. Weaknesses are found in institutional arrangements and SEA processes, particularly poor opportunities for public participation, the lack of a tiering framework, and no evaluation of alternative options. Additionally, appraisal operates as an 'add on', occurring after the plan has already been developed rather than operating parallel to the process.

These weaknesses in the UK system have continued to be evident even as practice has evolved over the past decade. When practice fails to improve sufficiently then the system itself needs to be strengthened, as has happened in California over the years. If the Perth and Kinross case study was evaluated again, using the recent advice prepared in advance of the

EU Directive, Scotland would surpass California, scoring 86 per cent. This suggests that regulatory provisions can serve to strengthen the SEA system. The biggest area of improvement is found in SEA processes, but there is very little change with respect to SEA methods.

Effectiveness by Levels of the Framework

The results of the analysis for each level of the framework is presented in the order of the most effective level to the least effective level.

Effectiveness of SEA Processes

SEA processes are the most effective level of the framework, scoring 70 per cent overall. California scored 82 per cent, New Zealand scored 77 per cent, and Scotland scored 50 per cent. Strengths of all three processes include the identification of mitigation measures, the preparation of a SEA report, and public reporting. There is a need in all three cases to strengthen the consideration of cumulative impacts.

Effectiveness of Institutional Arrangements

Institutional arrangements scored 63 per cent overall. California displays very effective institutional arrangements, scoring 100 per cent, both procedurally and substantively. In all three cases, procedural guidance is available. Independent oversight, interagency review and the tiering framework all could be strengthened.

Effectiveness of SEA Methods

SEA methods scored 60 per cent overall. California has relatively effective methods at 79 per cent, with New Zealand (57 per cent) and Scotland (43 per cent) following. All three cases lack the integration of science into the evaluation and display a weak use of quantitative methods. Although qualitative methods are a very important component of evaluation,

quantitative methods are needed to measure the change from the initial baseline environmental condition, as well as to predict impacts to the environment over time.

Effectiveness of Policy Context

Effectiveness of the policy context is the weakest level of the framework at 45 per cent. Scotland has the most effective policy context at 64 per cent, California has the weakest at 21 per cent, and New Zealand scores 50 per cent. Strengths include a strong commitment to sustainability in the local case studies in Perth and Kinross (Scotland) and Waitakere District (New Zealand). Major weaknesses in all three cases in the failure of SEA findings to serve as a central determinant in decision-making. Although SEA is either legally required or encouraged, there is no similar requirement on the part of decision-makers to follow recommendations. Some recommendations were incorporated in all three cases, but these were limited to minor changes.

Chapter Seven provides the major conclusions reached in this thesis, as well as two sets of recommendations. The first set of recommendations is intended for SEA systems in general, while the second set is directed toward the three individual case studies. Chapter Seven concludes with a discussion of further research and concluding remarks.

Chapter Seven
Conclusions and Recommendations

7.0 Introduction

This study has shown that the strategic environmental assessment processes of the comprehensive plans in Perth and Kinross (Scotland), San Joaquin County (California, US), and Waitakere District (New Zealand) were only adequately effective. Differences in effectiveness among the three cases as well as among the levels of the evaluation framework, indicate two things. First, while there is scope for improving current practice, there is no need to reinvent the wheel. The knowledge for conducting SEA successfully is there and waiting to be applied. Second, as experience grows, and as regulations, guidance and training are strengthened, SEA practice is improving.

There appears to be resistance among decision-makers to either implement SEA processes in the absence of legal obligations, and to abide by the recommendations that emerge from the SEA. Advocates of SEA must recognize that many decisions are really made incrementally, and that decisions are often made with imperfect information despite the effort and resources spent to collect data and information (Clark 2000, 16). Although SEA is not without problems (for example, the establishment of good baseline data, approaches to the assessment of environmental capacity, and the tensions involved in the trade-offs between socio-economic and physical environmental goals (Glasson 1995, 729), the process does offer the potential to integrate environmental and sustainability factors into the mainstream of policy-making and planning. Assessment of environmental impacts at higher tiers of decision-making addresses the cause of environmental problems at their policy source, rather than just treating the symptoms of the impacts.

Following is a detailed description of the major conclusions reached as a result of this research. Two sets of recommendations are then offered. The first set is advanced to overcome the common shortcomings identified in Chapter Six in an effort to improve the overall understanding of the practice of SEA in relation to comprehensive plans. The second set is directed towards improving SEA practice in each of the case studies. Chapter Seven concludes with a discussion on suggested further research and closing remarks.

7.1 Conclusions

Table 23 summarizes ten major conclusions which have become evident through the examination of the three case studies. These conclusions do not stand alone, but are related to one another.

Table 23 Summary of conclusions

1. SEA theory does not accurately reflect SEA practice.
2. The role of public participation and consultation is not understood in SEA processes, particularly in relation to the inclusion of different 'publics'.
3. SEA recommendations are often disregarded in decision-making.
4. SEA has the potential to incorporate sustainability considerations and add value to the planning process.
5. Practitioners of SEA find themselves searching for arguments that can justify the added value of SEA, particularly where SEA is not a legal obligation.
6. There is a tendency to oversell SEA as an analysis that can predict sustainability.
7. The ongoing conflicts between environmental, social and economic goals limit SEA's ability to be effective.
8. There is a downshifting of environmental planning and management responsibilities from central government to local authorities.
9. Compliance with regulatory provisions for SEA is not always evident.
10. There is a reliance on qualitative methods, particularly subjective interpretation, for impact identification, evaluation, mitigation, and monitoring.

1. SEA practice does not accurately reflect SEA theory. This study has found that the practice of SEA of comprehensive plans operates in a fairly 'ad hoc' fashion, and tends to be quite flexible. Effectiveness in this study was evaluated against a set of criteria that was selected from the academic literature. These criteria were identified as 'guiding principles' of SEA, as 'benefits and aims' of SEA, as cited by many known researchers in the field (e.g., Partidario 2000; Fischer 1999; Marsden 1998; Partidario 1996; Sadler 1996; Sadler and Verheem 1996). The fact that adherence to these criteria was relatively weak among the case studies indicate that SEA practice is not accurately reflecting current SEA theory. The converse may also be true: that SEA theory does not accurately reflect SEA practice. Comparative evaluation of case studies of SEA application to comprehensive plans is limited, and not recent (e.g., Curran et al. 1998; Asplund and Hilding-Rydevik 1996; Rumble and Therivel 1996; Shepherd and Ortolano 1996; Skewes-Cox 1996). SEA theory would benefit from research that poses stronger questions on the justification of SEA, as well as more comparative case study evaluation. SEA practice would benefit from a stronger case for the need for its application. This would involve 'champions' among practitioners that would demonstrate its utility.

2. The role of public participation and consultation is not understood in SEA processes, particularly in relation to the inclusion of different 'publics'. There has been limited research into the practice and theory of public participation in SEA processes at either the policy or plan level. Examinations into the role of the public in EIA processes are found in the literature (for example, Baker and McLelland 2003; Sadler and Boothroyd 1993; Nicholson 1990), however, strategic analyses are much more complex and therefore require

further investigation. Further, the inclusion of different 'publics' in SEA participation is not discussed in the academic literature, nor is it evident in practice.

3. **SEA recommendations are often disregarded in decision-making.** The immediate aim of SEA is to facilitate sound, integrated decision-making in which environmental considerations are explicitly included. SEA does so by providing clear information on the environmental effects, risks and consequences of options in planning. It appears that this purpose is achieved in the cases to some degree. SEA is also directed toward achieving or supporting ultimate goals of environmental protection and sustainable development. This aim is not often followed in SEA, as found in this thesis. There are several reasons why SEA recommendations are often disregarded in decision-making. First, decision-makers do not take unnecessary risks, but will take risks that they can manage. Practitioners know that EA can be a tool that turns rhetoric about sustainable development into action; many decision-makers do not yet believe that. The entire sustainable development movement has brought EIA practitioners an opportunity to help top level decision makers use the EIA tool to successfully set a sustainable course (Clark 2000, 26). Second, the lack of certainty is often cited as a reason why SEA is progressing slowly at higher levels. There always will be some people adverse to risk unwilling to make decisions or allow decisions to be made without virtual certainty. Third, many decision makers currently prefer to ignore the existence of SEA rather than risk sacrificing the incremental nature of their decision-making processes to the technocratic and rationalist commitments imposed by EA procedures used currently (Clark 2000; Partidario 2000). Finally, there is a lack of incentive and insufficient environmental interest to effectively use SEA. Economic interests are much stronger (in terms of power and influence) than environmental ones. The SEA debate needs to be refocused back to the reason

why SEA was initiated in the first place. The recognition and clear identification of the added value of SEA to decision-making and to planning must be at the forefront of the debate.

4. SEA has the potential to incorporate sustainability considerations, thereby adding value to the planning process. Despite SEA's shortcomings, SEA offers the possibility of a higher tier of assessment of environmental impacts appropriate for comprehensive plans. Sadler (1996) claims that SEA can add value to the planning process by:

- Incorporating sustainability considerations by addressing the cause of environmental problems at their policy source, rather than just treating the symptoms or impacts;
- Serves as an early warning mechanism to identify cumulative effects recognizing these are best dealt with regionally rather than on a project-by-project basis; and
- Focus and streamline project EIAs making them more consequential by ensuring prior questions of need, justification and alternatives are subject to environmental scrutiny at the appropriate policy, plan and/or programme level

5. Practitioners of SEA find themselves searching for arguments that can justify the added value of SEA, particularly where SEA is not a legal obligation. Although SEA has the potential to add value, practitioners find themselves in the position of justifying the time and costs of undertaking SEA, in addition to the political risks involved in the trade-offs between socio-economic and physical environmental goals. The recognition and clear identification of the added value of SEA to decision-making must be at the forefront of the debate. In order for SEA to be effective, it needs to be built into policy and planning decision-making mechanisms and accepted by policy makers, planners, bureaucratic officers, and all potential users that "prefer to ignore the existence of SEA rather than risk sacrificing the incremental nature of their decision-making processes to the technocratic and rationalistic

commitments imposed by environmental assessment procedures..." (Clark 2000, as cited in Partidario 2000, 657)

6. There is a tendency to 'oversell' SEA as an analysis that can predict sustainability. Sadler (1998) and Kirkpatrick and Lee (1999) have noted that the academic literature is fairly promotional with respect to SEA, and should be treated with caution. Indeed, a researcher would have a difficult task to uncover many academic references that provide substantial criticism of SEA as a process. As noted previously, SEA theory needs to provide more rigorous evaluative research to justify its application. Research aimed at advancing SEA methods and processes need to incorporate more examples of current, practical case studies.

7. The ongoing conflicts between environmental, social and economic goals limit SEA's ability to be effective. Sustainable development entails the integration of environmental, social and economic objectives where possible, and making hard choices and negotiating trade-offs between objectives where integration is not possible (Dalal-Clayton 2002). These negotiations are influenced by factors such as international and national security, prevailing economic interests, political systems, institutional arrangements and cultural norms. The conflicts are often real, but vary according to circumstance. At the local level, resolution of conflicts should be achieved through an adaptive process of integration, but more usually it will require trade-offs to be made among the different interest groups concerned. There is a need to build capacity for participatory planning for sustainable development between stakeholders, including government agencies, industry, indigenous people, minority groups, and community organizations. Local strategies for sustainable development are a tool to assist communities to overcome problems and start to strengthen capacity for sustainable development.

8. There is a downshifting of environmental planning and management responsibilities from central governments to local authorities. This is becoming increasingly more evident in all three cases examined. This trend, however, needs to be accompanied with both financial and technical support. SEA expertise is limited at the local level, and combined with a lack of financial support and technical expertise, SEA is approached through ad-hoc methods. This has resulted in an uneven application of SEA of comprehensive planning among communities, particularly evident to a strong degree in New Zealand, and to a lesser extent in Scotland.

9. Compliance with regulatory provisions for SEA is not always evident. Although some countries have strong regulatory frameworks in place for SEA and planning, there appears to be a lack of enforcement to ensure that local governments are complying with the provisions. This corresponds closely to the need for political support and commitment at both national and local levels to ensure that SEA provisions are followed. Additionally at the local level, this may be the result of a lack of financial and human resources that are necessary to carry out effective monitoring and enforcement.

10. There is a reliance on qualitative methods, particularly subjective interpretation, for impact identification, evaluation, mitigation and monitoring. Qualitative methods such as subjective interpretation are often used in SEA as they are fairly quick, easy to use and inexpensive. Although qualitative methods are a very valid and important component of SEA, quantitative methods have an extremely significant role to play. In order to provide more certainty and acceptance by decision-makers for SEA, advancements in quantitative methods are needed. The establishment of good baseline data, approaches to the assessment of environmental capacity, and approaches to the assessment of cumulative effects all require the use of quantitative methods. Researchers have indicated that sustainability appraisal forms of

SEA are more qualitative, and are considered to generally be less effective, as they are done with little or no baseline information and may be considered as poorly informed. Sheate et al. (2001) notes that the subjectively of appraisal does not need to be a problem, if the process itself is transparent and subjected to sufficient public and expert scrutiny. Unfortunately, this appears to be lacking in current appraisal forms of SEA, including the Perth and Kinross case study examined in this thesis.

7.2 Suggestions for Improving SEA of Comprehensive Plans

This thesis has identified a number of shortcomings in the three case studies. These weaknesses are outlined in Table 24. Based on these findings, suggestions are offered to improve current SEA practice, and hopefully, to further advance the effectiveness of SEA of comprehensive plans. Recommendations follow for each of the four levels of the framework evaluated – policy, institutional, SEA processes, and SEA methods.

Table 24 Summary of suggestions for improving SEA practice

POLICY
• A sustainability framework is needed to guide the formulation of plans. • Refocus the SEA debate back to the question as to why SEA is applied in the first place; SEA as a central determinant of decision-making. • To incorporate sustainability considerations and add value, SEA needs to be fully integrated with planning processes
INSTITUTIONAL
• Strengthen tiering framework • Encourage interagency review. • Implement independent oversight and quality control. • Implement visible linkages to decision making. • Legal provisions need to be enforced (e.g., monitoring).
SEA PROCESSES
• Strengthen opportunities for public participation; devise strategies for the inclusion of different 'publics', particularly indigenous peoples • Strengthen and expand scoping, particularly to include public participation. • Strengthen impact monitoring and enforcement. • Training and guidance needs to be accompanied with financial resources.
SEA METHODS
• Implement an integrated and multi-disciplinary approach and use both qualitative and quantitative methods. • Use scenarios to evaluate alternative options (including no action option).
OVERALL
• Decision-making needs to be transparent and accountable, as well as linked to SEA. • Stages of SEA should be prescriptive, however, the approaches and methods can be more flexible.

7.2.1 Policy Context

• **To guide the formulation of plans, a sustainability framework is needed.** In both the California and New Zealand case studies, stronger political will and support for sustainable development initiatives needs to be established that can provide a systematic policy framework to integrate sustainability considerations into plan decisions at lower levels of planning. This requirement has been established in the Scotland case study. A sustainability framework can both guide the formulation of plans, as well as provide a measure against which existing plans can be assessed. The preferred option then is the one which is most compatible with the sustainability parameters. Rather than developing a separate set of criteria and indicators, developed in isolation of other processes, existing ones should be built upon,

particularly those with a local flavour, such as local quality of life indicators and local environmental and socio-economic indicators. To ensure compatibility with higher tiers, national sustainable development strategies and indicators should also be integrated. If none exist, then the Bellagio Principles (accepted as international standards) can be used and adapted.

- **Refocus the SEA debate back to the question as to why SEA is applied in the first place.** The main rationale for applying SEA is to help create a better environment through informed and sustainable decision-making. SEA helps to ensure that many of the environmental issues of global importance are considered in plans, policies and programs at different administrative levels (i.e., national, regional, local). These include, for example, climate change, acidification and energy use. An important reason for applying SEA is the expectation that if social, economic and environmental effects are properly considered on top of the decision making hierarchy in a publicly accountable fashion, there should be less friction and fewer problems at decision-making levels further down the decision making hierarchy. However, in order to live up to this expectation, a clearly defined decision making hierarchy needs to be in place.

- **To incorporate sustainability considerations and add value, SEA needs to be fully integrated with planning processes.** To add value to the planning process, SEA needs to be integrated with comprehensive planning, rather than operating simply as an 'add-on' or serving only as an auditing function. What SEA brings to planning is early consideration of the environment, incorporation of economic development and the material needs of human communities, early consultation with the public, and a consideration of alternatives before there is an irreversible commitment of resources (Clark 2000, 17).

7.2.2 Institutional Arrangements

- **Strengthen tiering framework.** The opportunity to 'tier' environmental assessment is one of the primary benefits of SEA. This is particular effective at the regional level where regional assessment can 'pre-clear' development projects or plans. The hierarchical framework for planning is most evident with the RMA in New Zealand, where regional strategies and plans provide the context for district and city plans, which in turn set the direction for development projects. Unfortunately, this does not occur in reality. Tiering can potentially avoid duplication of effort and money, while at the same time, provide an integrated and coordinated planning and assessment system.

- **Encourage interagency review.** Review of SEA by other governmental agencies is most often undertaken in an unstructured and informal basis. However, a more structured framework for referrals to other agencies would be beneficial to SEA. Often, different agencies have knowledge and expertise of environmental and sustainability information which can greatly assist the SEA process.

- **Implement visible linkages to decision-making.** One of the most effective ways to ensure SEA is undertaken in an appropriate manner is to link decision-making to its implementation. In order for a plan to receive approval, a completed SEA must accompany it. However, for this to be an effective option, there needs to be the provision of financial resources, as well as training and guidance.

- **Implement independent oversight and quality control.** Many of the SEA systems that were investigated during the course of this research appeared to be undertaken internally and were not subject to independent oversight or quality control measures. Although some

systems were more effective than others, all systems would benefit from more structured oversight and quality control. This could be achieved in two ways. First, a strong, administrative body at a higher level of decision-making would be able to undertake this task. In this way, decision-making (i.e., approval of the comprehensive plan) would be linked to a satisfactory SEA (i.e., successful completion of SEA according to a checklist of quality control measures). Plans that have not undergone successful SEA processes would not be approved. Secondly, a consultative group comprising representatives from community organizations, government, and private citizens could be formed that could not only provide input during the plan and evaluation processes, but could also serve to ensure oversight and quality control.

- **Legal provisions need to be enforced.** In some cases where regulatory arrangements for SEA are in place, compliance and enforcement are often weak. For example, although the RMA in New Zealand provides for some strong regulatory provisions for SEA, this is not often reflected in practice, as evidenced by many appeals by citizens and interest groups to the Environment Court.

7.2.3 SEA Processes

- **Public participation needs to be strengthened.** Interest groups and organizations should be involved in the assessment itself from the start, for example, in working groups together with the planners and holding more than one public hearing. Public participation should at a minimum take place in both scoping procedures (for the comprehensive plan and for the environmental assessment) and in the assessment of the environmental impacts, in an attempt to bring in the public's priorities and values to enhance both the environmental assessment as well and the planning process. Broad participation in SEA is crucial not only

for the effectiveness and legitimacy of the process itself, but also because this participation can provide important local knowledge. The future of SEA (as with many other environmental management processes) is in the development and implementation of consensus-building and conflict resolution techniques. Economic inequality, social instability and environmental degradation are common features of an unsustainable society. Of particular concern are minority groups and indigenous people who bear the brunt of these problems because their livelihoods are balanced on volatile economic opportunities and environments vulnerable to change. They lack the opportunities for meaningful participation in the decisions that affect their lives (Dalal-Clayton 2002).

- **Scoping needs to be strengthened and expanded.** Scoping serves to ensure that the appropriate range of environmental and sustainability issues have been considered right from the beginning of the process, and as such, is strongly linked to the importance of applying SEA as early as possible. Scoping needs to be strengthened in the UK. As guidance in California suggests, scoping should extend beyond the realm of the planning team and the SEA team, to include both expert opinion as well as public opinion. A stronger scoping process at the beginning of the SEA process can ensure a more focused SEA.

- **Strengthen impact monitoring and enforcement.** Monitoring has been used sporadically, on an ad-hoc basis and unsatisfactory in both EIA and SEA. Although legally required in many jurisdictions, enforcement does not often occur. To ensure quality control of recommendations as well as to promote sustainable outcomes, monitoring needs to be a key component. To carry this out effectively, indicators need to be developed. More money and time needs to be allocated for this important stage.

- **Training and guidance needs to be accompanied with financial resources need to accompany expanding responsibilities of local governments to undertake environmental planning.** Guidance was available in all three cases examined. There is no shortage of guidance in California; both CEQA and the Governor's Office of Planning and Research provide guidelines for preparing EIRs of General Plans. As noted throughout this study, an entire industry exists in the state specifically for the purpose of conducting SEA of comprehensive plans. Developers expecting to benefit from proposed development projects enabled by the comprehensive plan contribute some of the cost toward the preparation of the EIR. In New Zealand, however, the lack of resources and expertise has often been cited as a reason for the failure of environmental planning initiatives at the local government level (Dixon 2002).

7.2.4 SEA Methods

- **Implement an integrated and multi-disciplinary approach, and use both qualitative and quantitative methods.** Reliance on a single type of method or approach does not provide a true measure of integrated, sustainable management. While qualitative approaches to evaluation are extremely useful and valid sources of information, it is important to not rely solely on subjective interpretation. The establishment of baseline conditions, from both a qualitative and quantitative perspective is key as a basis for evaluating monitoring.

- **Use scenarios to evaluate alternative options.** Forecasts have traditionally been used to project patterns from the past into the future. However, the use of scenarios has been promoted as a way to outline alternative options. This allows local authorities to think strategically about "the likely environment, social and economic consequences of current and possible future trends and the consequences of making particular policy choices." (Sadler

1998, 37). Different scenarios are developed for a number of time periods: less than five years, five to ten years, ten to twenty-years, and so on. Recent advances in computer simulation modeling can aid in this process.

7.2.5 Overall

- **Decision-making needs to be transparent and accountable, as well as linked to SEA.** A statement of the decision, indicating how SEA requirements were taken into account should be made available to the public. A precondition for the success of EIA-based SEA appears to be a capability to structure decision processes and to force decision makers to take environmental issues into account in a publicly accountable fashion (Fischer 2003). The submission and subsequent approval of the SEA, at the same time as the plan itself, creates a visible linkage of the SEA to decision-making. This could be particularly effective if approval of the SEA (in terms of processes followed and outcomes achieved) was undertaken through independent oversight

- **Stages of SEA should be prescriptive, however, the approaches and methods can be more flexible.** The current tendency in the SEA debate to ask for more flexibility and adaptability must be treated with caution. This is potentially at odds with some of the main reasons for conducting SEA in the first place, and raises the question whether decision makers are simply being provided with an excuse for not changing anything in existing practice (Fischer 2003). The stages to undertake during a SEA needs to be prescriptive (for example, scoping, identification of alternatives, evaluation of environmental impacts, identification of mitigation measures, selection of monitoring program), with minimum requirements set. The choice of approaches or methods can be left to the discretion of the local community.

7.3 Suggestions for Improving SEA of Comprehensive Plans in the Case Studies

Table 25 lists the major shortcomings of each of the three case studies that need to be improved.

Table 25 Summary of improvements for the case studies

	SCOTLAND[19]	CALIFORNIA	NEW ZEALAND
POLICY	• SEA central determinant in decision making • SEA integrated into planning process • SEA related to existing sustainability instruments (LA21 plans, community plans)	• Political will and support for sustainable development • Systematic policy framework to consider sustainability principles • SEA related to sustainability instruments • SEA central determinant in decision making • Sustainable development promoted in decisions	• Political will and support for sustainable development • Systematic policy framework to consider sustainability principles • SEA related to sustainability instruments • SEA central determinant in decision making • Sustainable development promoted in decisions • EIA/SEA central to decision making, according to RMA!
INSTITUTIONAL	• Independent oversight • Interagency review • Legal provisions for SEA • Administrative body to oversee SEA • Tiering		• Independent oversight • Interagency review • Enforce legal provisions • Administrative body to oversee SEA • Training and funding need to accompany the downloading of environmental responsibilities to local authorities
SEA PROCESSES	• Strengthen public participation • Strengthen scoping • SEA to be a proactive assessment • Cumulative impacts • Evaluate alternative options	• Need to include different 'publics' in process • Objectives-led approach • Sustainability-led process • Cumulative impacts	• Strengthen scoping • Strengthen public participation, particularly with respect to Maori peoples • Strengthen (i.e., enforce) monitoring provisions • Cumulative impacts • Evaluate 'no action' alternative option
SEA METHODS	• Scenarios to evaluate alternative options • Collect environmental baseline conditions • Integration of multi-disciplinary approaches • Use both qualitative and quantitative methods	• Integration of multi-disciplinary approaches • Use both qualitative and quantitative methods • Present information in a non-technical summary that is easy for decision makers to understand	• Scenarios to evaluate alternative options • Collect environmental baseline conditions • Integration of multi-disciplinary approaches • Use both qualitative and quantitative methods

[19] Many of the shortcomings of the Scotland SEA system have been addressed with the recent Interim Planning Advice (DTA 2003), in response to the impending EU SEA Directive.

7.4 Opportunities for Future Research

Throughout this research, it became obvious that there were so many opportunities for future research. These opportunities can be explored on both a global level, as well as from a Canadian perspective. On a global level, further study needs to be conducted in the following three areas: (i) the implementation of the EU SEA Directive; (ii) an in-depth examination of both the practice and the theory of public participation in SEA of comprehensive plans (including different 'publics'); and (iii) the extent to which cumulative impact assessment is advancing due to SEA. From a Canadian perspective, exploratory research is needed in the following three areas: (i) an examination of the extent to which local Canadian communities are currently integrating environmental and sustainability considerations into comprehensive plans and the methods used to achieve this; (ii) the development of a SEA framework for use in Canadian comprehensive planning processes; and (iii) a case study, applying a SEA-type process throughout a local Canadian planning process, using commonly accepted principles of SEA.

7.5 Concluding Remarks

While SEA is a promising avenue for incorporating environmental and sustainability considerations into the higher levels of decision-making, it is still at a relatively early stage of evolution. There are many shortcomings in current SEA practice, as identified in this thesis, pertaining to effective methods and processes. Many barriers to SEA application currently exist; key among these is insufficient political will to take SEA seriously.

Assessment of environmental impacts is important because human activities are altering natural cycles and systems on an unprecedented scale, and the risks and impacts are more significant than ever before (Dalal-Clayton 2002). SEA is important because it provides

a basis for designing policies and plans that take account of environmental opportunities and constraints. SEA brings to decision-making the "early consideration of the environment, incorporation of economic development and the material needs of human communities, early consultation with the public, and a consideration of alternatives before there is an irreversible commitment of resources" (Clark 2000, 16).

Overall SEA can be seen as a catalyst toward more integrated planning for sustainable development. SEA is still in a relatively early stage in its development, and current practice provides a stepping stone to something more substantial. SEA is significantly more complex than project EIA, and it will require developing a professional capacity to ensure its success and acceptance.

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Appendix A
Overview of SEA of Comprehensive Plans in Selected Countries

Country	Commentary
Australia	No specific provisions for SEA are currently in place at the national level, however, Western Australia's Environmental Protection Act (1986) explicitly provides of EA of policies, plans and programmes. Some experience has accumulated.
Austria (EU)	SEA is not a legal requirement, but will need to comply with the EU SEA Directive. Currently, environmental aspects are considered and incorporated in the establishment of various plans and programmes, such as land use, waste, traffic, energy and water.
Belgium (EU)	SEA is not a legal requirement but will need to comply with the EU SEA Directive. Some experience with voluntary SEAs of transport plans.
Canada	SEA is a legal requirement for federal government. Federal Ministers are required to conduct SEA on proposed policies, plans and programmes. Voluntary SEA was undertaken for Ottawa-Carleton (Shepherd and Ortolano 1996).
Chile	Regional and urban land use plans must submit to the Environmental Impact Assessment system prior to approval and implementation, since 1997. By October 2000, more than 150 plans had been evaluated.
Denmark (EU)	SEA is a legal requirement for bills and government proposals. Voluntary SEA of National Land Use Plan has been carried out. Also, research and voluntary SEA of County and Municipal Plans. (CEC 2001)
Finland (EU)	The existing Finnish EIA Act requires SEA for certain plans, programmes and policies, but provides little detail on how this process should be carried out.
France (EU)	Since 1990, through the use of laws, experiments and research, the French Government has tried to introduce SEA (Sadler and Verheem 1996). Currently, SEA is a legal requirement at regional levels for Master and Zoning Plans.
Germany (EU)	SEA is not currently a legal requirement, but needs to comply with the EU SEA Directive. There has been some experience with spatial and sectoral plans, particularly in landscape planning and zoning/building planning.
Greece (EU)	SEA is applied in a limited form in the areas of land-use planning, development plans and regional plans. There is a requirement to undertake environmental assessments of regional development plans with regards to European Union Structural Fund regulations. Documents from these environmental assessments are not publicly available.
Hong Kong	Application of EA to policy proposals dates from October 1992 (Sadler and Verheem 1996). SEA has been applied to several sub-regional and local plans.
Italy (EU)	Environmental assessments are carried out under requirements of EU Structural Fund regulations for regional development plans and for certain plans and programmes in the Valle d'Aosta Region.
Netherlands (EU)	SEA is applied for certain types of plans and programmes, including structure plans for electricity supply, industrial and drinking water supply, landscaping, nature conservation and outdoor recreation, provincial waste management proposals, mineral extraction plans and certain types of land use plans (Verheem1993).
New Zealand	SEA is a legal requirement. The Resource Management Act (RMA) requires environmental assessment for all regional and district policies, plans and programmes.
Norway	SEA is a legal requirement for all legislation and policy decisions since 1995. Voluntary SEAs occur at regional and local levels. A project on the application of EIA principles in land-use planning has been undertaken in a number of municipalities.
Portugal (EU)	SEA is not a legal requirement. Regional development plans require an environmental assessment under EU structural fund regulations.
Spain (EU)	Environmental assessments occur during the preparation of regional development plans under European Union Structural Fund regulations.
Sweden (EU)	SEA is a legal requirement. Environmental assessments of comprehensive plans of municipalities fall under the Planning and Building Act.
United Kingdom (EU)	SEA is not a legal requirement. Sustainability appraisals of development plans are encouraged in planning policy guidance.
United States	SEA is a legal requirement under the National Environmental Policy Act (NEPA). All legislation or major federal actions which significantly affect the quality of the human environment, include a 'detailed statement' assessing the environmental impacts. In California, the California Environtal Quality Act (CEQA) requires all comprehensive plans to complete an Environmental Impact Report (EIR).

Appendix B
List of Documents and Legislation Reviewed

SCOTLAND CASE STUDY

Legislation

Town and Country Planning (Scotland) Act 1997. Chapter 8, Part II. Edinburgh: Scottish Executive. Online: http://www.hmso.gov.uk/acts/acts1997/1997008.htm.

Directive 2001/42/EC. Directive on the Assessment of the Effects of Certain Plans and Programmes on the Environment. Luxembourg: European Parliament and Council. Adopted 27 June 2001.

Guidelines

Scottish Planning Policy 1 (SPP1). The Planning System. Edinburgh: Scottish Executive. November 2002. Online: http://www.scotland.gov.uk/library5/planning/spp1-00.asp

Planning Advice Note (PAN) 37. Structure Planning. Edinburgh: Scottish Executive. 1996. Online: http://www.scotland.gov.uk/about/Planning/advice.aspx.

Draft Guidance on the Strategic Environmental Assessment Directive. 2002 London: Office of the Prime Minister.

*Environmental Appraisal of Development Plans – A Good Practice Guide.*1993. Department of Environment. London: HMSO.

Documents

Perth and Kinross Council Structure Plan. 2002. Perth: Perth and Kinross Council.

Sustainability Appraisal of the Perth and Kinross Council Structure Plan. 2002. Perth: Environment Department, Perth and Kinross Council.

CALIFORNIA CASE STUDY

Legislation

California Environmental Quality Act (CEQA). 2003 (as amended). California Public Resources Code. Division 13, Environmental Protection. Sections 21000 – 21177. Online: http://ceres.ca.gov/ceqa/

California Government Code. Sections 65302-65303. Governor's Office of Planning and Research. On-line: http://ccr.oal.ca.gov/

Guidelines

CEQA Guidelines. 2003 (as amended). Title 14, California Code of Regulations. Chapter 3, Guidelines for Implementation of the California Environmental Quality Act. Sections 15000 – 15387. Online: www.ceres.ca.gov/topic/env_law/ceqa/guidelines

General Plan Guidelines. 1998. Sacramento: Governor's Office of Planning and Research. Online: www.opr.ca.gov/planning/PDFs/genplan.pdf

Documents

San Joaquin County General Plan 2010. Adopted July 29, 1992 as amended by Board of Supervisors, County of San Joaquin.

Final Environmental Impact Report on the San Joaquin County Comprehensive Planning Program. 1992. Prepared by Baseline environmental Consulting. SCH No. 91012072.

Memorandum. April 4, 2000. To Board of Supervisors, County of San Joaquin. Re: General Plan 2010 Review.

Memorandum. July 6, 2000. To Surrounding Property Owners. Re: Publication of Draft Environmental Impact Report No. ER-98-2 for the Proposed Oakwood Lake Expansion Project (C/O Vernalis Partners Ltd., and Brown Trust)(SCH NO. 99022040)

Final Report. January 1992. Fiscal and Financial Analysis of the Draft San Joaquin County General Plan. Prepared by: Economic and Planning Systems. Prepared for: San Joaquin County Community Development Department and the County Administrator.

Revised Report. October 1991. Growth Forecast for San Joaquin County. Prepared by: Economic and Planning Systems. Prepared for: San Joaquin County Community Development Department.

NEW ZEALAND CASE STUDY

Legislation

Resource Management Act 1991. Principle Act. Ministry for the Environment. New Zealand. On-line: www.legislation.govt.nz

Resource Management Amendment Act 2003. Amendments to Principle Act. Ministry for the Environment. New Zealand. On-line: www.legislation.govt.nz

Guidelines

What are the Options? A Guide to using Section 32 of the Resource Management Act. 2000. (ref ME358). Auckland: New Zealand. On-line: www.mfe.govt.nz/publications/rma/options-guide-to-section-32-jul00.pdf

Section 32: Methods of Implementation. Quality Planning Project. 2003. New Zealand Planning Institute, the Resource Management Law Association, Local Government New Zealand, the New Zealand Institute of Surveyors and the Ministry for the Environment. www.qualityplanning.org.nz/index.php

Documents

Waitakere District Plan. Made operative March 2003.

Section 32 Report for the Birdwood Urban Concept Plan

Appendix C
Provisions for SEA in the Case Studies

SCOTLAND CASE STUDY

European Union:

Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment. (European Parliament and Council, Luxembourg: 27 June 2001)

Article 3, Paragraph 1:

"An environmental assessment, in accordance with Articles 4 to 9, shall be carried out for plans and programmes referred to in paragraphs 2 to 4 which are likely to have significant environmental effects."

Article 3, Paragraph 2:

"Subject to paragraph 3, an environmental assessment shall be carried out for all plans and programmes...which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of project listed in Annexes I and II to Directive 85/337/EEC..."

Article 3, Paragraph 3:

Paragraph 3: "Plans and programmes referred to in paragraph 2 which determine the use of small areas at local level and minor modifications to plans and programmes referred to in paragraph 2 shall require an environmental assessment only where the Member States determine that they are likely to have significant environmental effects.

Article 4, Paragraph 1:

"The environmental assessment referred to in Article 3 shall be carried out during the preparation of a plan and programme and before its adoption or submission to the legislative procedure."

Article 5, Paragraph 1:

"Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I."

Scotland:

National Planning Policy Guideline 1 – The Planning System (paras. 27 and 31):

"Special attention should be given to ensure that the strategic policies now in place are consistent with broader environmental objectives and sustainable development, in line with current national policy and any wider international obligations...All plans should be regularly reappraised to ensure that policies are consistent with broader environmental objectives..."

(The Scottish Office Environment Department, 1994)

Planning Advice Notes (PANs) (Scottish Executive)

PAN 37 (revised 1996) – Structure Planning (paragraph. 7):

"It is important that those involved in preparing structure plans recognize how a long term settlement strategy and the policies and proposals in the plan can contribute to achieving the sustainable development of an area...To help in assessing a structure plan's contribution towards the sustainability of development, the Department expects to issue good practice advice on the environmental appraisal of development plans in the near future" (The Scottish Office Development Department, 1996b)

PAN 49 – Local Planning (paragraph 48):

"The matters to be covered in a local plan are for the local authority to decide...But there are likely to be a number of core topics like the environment... sustainable development and environmental appraisal..." (The Scottish Office Development Department, 1996a)

PAN 49 – Local Planning (Annex 1, paragraph 7):

"...project-based environmental assessment is not enough on its own to ensure that we move towards sustainable development. The environmental appraisal of development plans involves testing a plan's aims, policies, and proposals against the aims of sustainable development to identify their likely consequences. It is now recognized as a policy means of helping to achieve development and growth which is sustainable." (The Scottish Office Development Department, 1996a)

CALIFORNIA CASE STUDY

California Environmental Quality Act (CEQA)

Section 21003. Planning and environmental review procedures; documents; reports; database; administration of process

The Legislature further finds and declares that it is the policy of the state that:

(a) Local agencies integrate the requirements of this division with planning and environmental review procedures otherwise required by law or by local practice so that all those procedures, to the maximum feasible extent, run concurrently, rather than consecutively.

(b) Documents prepared pursuant to this division be organized and written in a manner that will be meaningful and useful to decisionmakers and to the public.

(c) Environmental impact reports omit unnecessary descriptions of projects and emphasize feasible mitigation measures and feasible alternatives to projects.

(d) Information developed in individual environmental impact reports be incorporated into a data base which can be used to reduce delay and duplication in preparation of subsequent environmental impact reports.

(e) Information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations.

(f) All persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment.

NEW ZEALAND CASE STUDY

Resource Management Amendment Act (2003) Section 32

32. Duties to consider alternatives, assess benefits and costs:

(1) In achieving the purpose of this Act, before a proposed plan, proposed policy statement, change, or variation is publicly notified, a national policy statement or New Zealand coastal policy statement is notified under section 48, or a regulation is made, an evaluation must be carried out by –

(a) the Minister, for a national policy statement or regulations made under section 43; or
(b) the Minister of Conservation, for the New Zealand coastal policy statement; or
(c) the local authority, for a policy statement or a plan (except for plan changes that have been requested and the request accepted under clause 25(2)(b) of Part 2 of Schedule 1; or
(d) the person who made the request, for plan changes that have been requested and the request accepted under clause 25(2)(b) of Part 2 of the Schedule 1.

(2) A further evaluation must also be made by –

(a) a local authority before making a decision under clause 10 or clause 29(4) of the Schedule 1; and
(b) the relevant Minister before issuing a national policy statement or New Zealand coastal policy statement.

(3) An evaluation must examine –

(a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and
(b) whether, having regard to their efficiency effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.

(4) For the purposes of this examination, an evaluation must take into account –

(a) the benefits and costs of policies, rules, or other methods; and
(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.

(5) The person required to carry out an evaluation under subsection (1) must prepare a report summarising the evaluation and giving reasons for that evaluation.

(6) the report must be available for public inspection at the same time as the document to which the report relates is publicly notified or the regulation is made.

Appendix D
Abbreviations and Acronyms

The use of abbreviations and acronyms is intended to be minimal in this thesis. However, the following acronyms that are used are listed here for the reader's convenience. A description of some of these terms appears in Appendix E.

General:

CEC	Commission of the European Communities
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EU	European Union
LA21	Local Agenda 21
PPP	Policies, Plans and Program(me)s
SEA	Strategic Environmental Assessment
W-E-T	Waste-Energy-Transport

Scotland:

DETR	Department of Transportation and Regions (UK, prior to 1999)
DLTR	Department of Local, Transportation and Regions (UK, after 1999)
DoE	Department of Environment (UK)
NPPG	National Planning Policy Guidance (Scotland)
PAN	Planning Advice Notes (Scotland)
PPG	Planning Policy Guidelines (UK)
SA	Sustainability Appraisal
SPP	Scottish Planning Policies (Scotland)
UK	United Kingdom

California:

CEQA	California Environmental Quality Act
CRA	California Resources Agency
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
NEPA	National Environmental Policy Act
OPR	Office of Planning and Research

New Zealand:

AAE	Assessment of Environmental Effects
LTCCP	Long Term Council Community Plan
MfE	Ministry for the Environment
PCE	Parliamentary Commissioner for the Environment
RMA	Resource Management Act
RPS	Regional Policy Statement
QPP	Quality Planning Project
s32	Section 32 Analysis

Appendix E
Glossary of Planning and Environmental Assessment Terms

GENERAL

Carrying Capacity – the maximum population of a species that can be sustained indefinitely in a given habitat.

Ecological Footprint – the land (and water) area that would be required to support a defined human population and material standard indefinitely.

Effectiveness – how well something performs

Environmental Assessment – a tool for integrating environmental considerations into decision-making by ensuring that significant environmental effects of the decision are taken into account.

Environmental Impact Assessment (EIA) – a public process by which the likely effects of a project on the environment are identified, assessed and then taken into account by the consenting authority in the decision-making process.

Local Agenda 21 (LA21) – a participatory community process, which came out of the Rio Earth Summit in 1992, as part of making Agenda 21 relevant at the local level. It is driven by local authorities.

Objectives-led – in the context of SEA, the term implies either that the environment is incorporated into the policy objectives, or that the assessment is guided by a set of environmental objectives, which may not be the same as those of the policy it is assessing.

Procedural Effectiveness – the extent to which performance meets established purpose(s), goals and objectives (Sadler and Verheem 1996, 19)

Scoping – the process of determining the parameters, boundaries and key issues to be addressed by an environmental assessment.

Strategic Environmental Assessment – a systematic process for evaluating the environmental consequences of proposed policies, plans or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations (Sadler and Verheem, 1996, 27)

Sustainability Assessment (SA) – adaptation of existing impact assessment systems used to examine during the decision-making process if policies, plans, programmes or other initiatives will lead society into a more sustainable direction.

Sustainability Lifestyle Assessment – a tool developed by Devuyst and van Volsem (1999) to predict, analyze and evaluate the impacts of all long-term, mid-term and short-term decisions made over a lifetime, making use of sustainability goals as a point of reference.

Substantive Effectiveness – the extent to which performance meets accepted provisions and principles (Sadler and Verheem 1996, 19)

SCOTLAND

Development Plans – the statutory development plan for an area currently comprises the structure plan and the local plan. The purpose of the development plan is to guide the future development of an area. Plans contain policies which should cover key land use issues including housing, transport, employment, retailing, recreation, conservation and environmental protection.

Environmental Appraisal – a form of environmental assessment used in the UK (primarily for development plans) since the early 1990s. Superseded by sustainability appraisal.

Community Planning – under the forthcoming Local Government Act 2003, local authorities and public bodies will have a statutory duty to initiate and facilitate the community planning process. This means that the local authority working in partnership with other public bodies such as police, health boards and enterprise companies, the private and voluntary sectors and communities to improve the delivery of public services and the well being of communities.

Local Plans – a local plan sets out detailed policies and specific proposals for the development and use of land that should guide day-to-day planning decisions. They must identify effective opportunities for development and encourage investment in an area. The aim is to exert a positive influence over land use decisions.

National Planning Policy Guidance (NPPGs)– set out policy on nationally important land use and other planning matters, covering issues such as transport, natural heritage, land for housing, shopping centres, and town centres. Currently being revised and renamed as Scottish Planning Policies (SPPs).

Planning Advice Notes (PANs) – give advice on how best to deal with matters such as local planning, rural housing design and improving small towns and town centres.

Planning Policy Guidelines (PPGs) – for England and Wales

Structure Plans – under current arrangements structure plans should provide a long-term vision, looking forward at least 10 years, as part of an overview of an area's □development requirements, considering the functions and inter-relationship of places, expressing the settlement strategy for the area and identifying priorities for urban and rural regeneration.

Scottish Planning Policies (SPPs) – same as National Planning Policy Guidance (NPPGs). In November 2002, NPPGs began to be renamed SPPs when revised. Currently, NPPG 1 and NPPG 2 have been revised and renamed as SPP1 and SPP2, respectively. Remaining NPPGs will be renamed as SPPs when it becomes necessary to revise their contents.

Sustainability Appraisal – a form of assessment used in the UK (primarily for development plans and regional planning guidance) since the late 1990s. Considers social and economic effects as well as environmental ones. Tends to be less detailed and more qualitative than many forms of environmental assessment.

CALIFORNIA

Community Plans - refer to Special Plans.

General Plans – prepared by county and city planning authorities for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning (California Government Code Section 64300). Must address issues concerning land use, circulation, housing, conservation, open-space, noise and safety.

Environmental Impact Report (EIR) – a detailed statement prepared under CEQA describing and analyzing the significant environmental effects of an activity and discussing ways to mitigate or avoid the effects.

Environmental Impact Statement (EIS) – term used in NEPA for EIRs.

Master Environmental Impact Reports – prepared for all, or a portion of, the territory subject to a public agency's control in order to provide information which may be used or referenced in EIRs.

Programme Environmental Impact Reports – an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (i) geographically; (ii) as logical parts in the chain of contemplated actions; (iii) in connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program; or (iv) as individual activities carried out with the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Special Plans -"community plans" and "specific plans" are often used by cities and counties to plan the future of a particular area at a finer level of detail than that provided by the general plan. A community plan is a portion of the local general plan focusing on the issues pertinent to a particular area or community within the city or county. It supplements the policies of the general plan. Specific plans describe allowable land uses, identify open space, and detail the availability of facilities and financing for a portion of the community. Specific plans must be consistent with the local general plan. A specific plan implements but is not technically a part of the general plan. In some jurisdictions, specific plans take the place of zoning. Zoning, subdivision, and public works decisions must be consistent with any applicable specific plan.

NEW ZEALAND

Assessment of Environmental Effects (AEE) – a report outlining the effects that a proposed activity might have on the environment.

District Plans - the RMA requires district and city councils to prepare district plans for all of the area that they are responsible for. Each plan describes the district's significant resource management issues, and sets out objectives, policies, methods and rules to address these issues. District plans must be consistent with national or regional policy statements or regional plans.

Environment Court – formerly called the Planning Tribunal. Specialist court where people can go to appeal decisions made by councils on either a policy statement or plan, or on a resource consent application, or to apply for an enforcement order. Same powers as the District Court.

Iwi – Maori tribal groups

Long Term Council Community Plans (LTCCPs) – under the new Local Government Act 2002 (Part 6, Section 93), every local authority must prepare a LTCCP which covers a ten year period. The purpose of the LTCCP is: (i) to describe Council's activities; (ii) to describe community outcomes desired for the city; (iii) provide integrated decision making (between the Council and the community) and coordination of resources; (iv) provide a long term focus for the Council's decisions and activities, (v) provide a basis for accountability to the community; and (vi) to provide an opportunity for community participation. Under section 94, every LTCCP must contain a report from the local authority's auditor on (i) the extent to which the local authority has complied with the requirements of the Act in respect of the plan; (ii) the quality of the information and assumptions underlying the forecast information provided in the plan; and (iii) the extent to which the forecast information and performance measures provide an appropriate framework for the meaningful assessment of the actual levels of service provision.

National Policy Statements (NPS) – when deemed necessary, the Minister for the Environment can issue a national policy statement to guide local authorities on matters of national significance. To date, no national policy statements have been prepared, although the Government has agreed to the development of a National Policy Statement on Biodiversity.

Quality Planning Project – the purpose of the project is to promote best practice by sharing knowledge about policy and plan development under the Resource Management Act. It is a partnership between the New Zealand Planning Institute, the Resource Management Law Association, Local Government New Zealand, the NZ Institute of Surveyors and the Ministry for the Environment.

Regional Plans – although not mandatory, two-thirds of the regional councils now have operative regional plans, with most of the remainder in the Environment Court. Like district plans, regional plans describe the regionally significant management issues facing a particular area or resource within the region. The plan will then set out objectives, policies and methods to address these issues, and also outline the environmental results that are anticipated from their implementation. Regional councils must ensure that their plans are not inconsistent with national or regional policy statements, or other regional plans.

Regional Policy Statements (RPS) - the Resource Management Act also requires each regional council to prepare a regional policy statement, which provides an overview of the region's resource management issues and facilitates an integrated approach with district councils to manage those issues. Regional policy statements establish a directional framework for regional and district plans. Regional policy statements must not be inconsistent with National Policy Statements. Almost all regional councils now have operative regional policy statements.

Resource Consent – a land use consent, issued in terms of the Resource Management Act 1991, by the territorial authority for land use not designated a permitted activity in the territorial authorities' District Plan. For example, wishing to locate a building closer to the boundary than that permitted by the District Plan.

Runaga – the local representative Maori groups equivalent of local government.

Section 32 Analysis (s32) – Section 32 of the RMA imposes a rigour on decision-makers by requiring them to evaluate their objectives, policies, rules and methods before adopting them. The benefits and costs of all of these have to be examined, and decisions made taking into account necessity, effectiveness and efficiency.

Structure Plans – is a tool available to councils to manage the environmental effects arising from subdivision and development, and are found within the District Plans.

Sustainable Management - defined under the RMA as managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and safety while (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Tangata Whenua – are the people of the land, the people who hold the customary authority in an area according to tribal custom.

Treaty of Waitangi – the founding document of New Zealand as a nation, given legal effect in its incorporation into various statutes, particularly for environmental and resource management. By the Treaty, Maori ceded to the Crown the right to govern, and in return the Crown confirmed and guaranteed the rangatiratanga of tangata whenua.

Urban Concept Plan – is a planning tool that the local council can use to manage the effects arising from subdivison and development in an urban area.