IMPLEMENTATION OF SUSTAINABLE RESOURCE MANAGEMENT
A PROCESS FOR ENVIRONMENTAL EVALUATION
AORANGI AWARUA CASE STUDY

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IN MEMORY

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ABSTRACT

"Implementing Sustainable Resource Management - A Process for Environmental Evaluation" is a review and discussion of the theoretical concepts associated with sustainability; and the development of these into practical guidelines for implementation.

Regional councils have a legislative responsibility to carry out sustainable resource management. This implies a commitment to ecological sustainability; the management of resources within the life supporting capacity of the environment, and the recognition of all of the environmental effects (costs) associated with resource use.

Implementation of sustainable resource management will require the development of a set of practical guidelines and tools. Such mechanisms necessarily range from the conceptual to the practical, and will include general principles relating to the concept of sustainability and legislative tools such as regional policy statements, regional plans and resource consents. A "Model for Sustainable Resource Management" has been developed which allows for the integration of the ecological, economic and social schools of thought. A programme for environmental and performance monitoring and the development of appropriate indicators is a prerequisite for sustainable resource management. Such a programme will enable and assist with the identification of environmental limits. The requirement for a process for the assessment of the effects of current and proposed resource use on the environment is also emphasised.

Rather than develop all of these mechanisms in detail, this thesis focuses on the development of an "Environmental Evaluation Process" within the planning context, for the determination of the adverse environmental effects associated with resource consent applications in New Zealand.

The natural environment has value independent of the instrumental or mechanistic (use) value attributed to it by human beings. These values can be categorised as non-use and intrinsic.

Traditional analytical techniques such as Environmental Impact Assessment, Cost-Benefit Analysis and Planning Balance Sheet are useful in terms of identifying, organising and attributing dollar terms to tangible environmental costs and benefits. However, these methods do not go far enough. For a comprehensive analysis of any resource management issue, the true environmental costs of "development" must be incorporated into the decision making process. Contingent valuation method is the most appropriate method for non-market valuation of natural resources and environments.

A process for environmental evaluation (which includes the Contingent Valuation Method) has been developed and applied to the Aorangi-Awarua Case Study.

The Thesis concludes with some recommendations as to the implementation of sustainable resource management, with particular reference to the practicality of parts and all of the Process for Environmental Evaluation for use by regional councils.

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NPV	Net Present Value
NWASCA	National Water and Soil Conservation Authority
NZFS	New Zealand Forest Service
OECD	Organistion for Economic Co-operation and Development
PBS	Planning Balance Sheet
PSDR	Private Sector Discount Rate
PV	Present Value
PW	Present Worth
RFBS	Royal Forest and Bird Society
RMA	Resource Management Act 1991
RMS	Regional Monitoring Strategy
RPS	Regional Policy Statement
ROC's	Reference Operating Conditions
RWCB	Rangitikei-Wanganui Catchment Board
RWTP	Real Willingess to Pay
SCBA	Social Cost Benefit Analysis

SCRCA	Soil Conservation and Rivers Control Act
SDA	Social Discount Rate
SMS	Safe Minimum Standard
SOCR	Social Opportunity Cost Rate
STPR	Social Time Preference Rate
TCPA	Town and Country Planning Act 1977
TEV	Total Economic Value
TWTP	True Willingess to Pay
WAC	Wanganui Acclimatization Society
WCED	World Commission on Environment and Development
WSCA	Water and Soil Conservation Act 1967
WTA	Willingness to Accept
WTP	Willingness to Pay

GLOSSARY

AORANGI AWARUA BLOCK/ FOREST	Aorangi Block and Awarua 1DB Nos. 1 and 2 Blocks.
BIAS	Systematic error in relation to CV surveys.
BIOPHYSICAL	Refer Environmental Limits
BOTTOM LINE	
ECOLOGICAL SUSTAINABILITY	The persistence of all components of the biosphere.
EFFECT	In relation to any use, development or protection of resources includes any positive or adverse effect; any temporary or permanent effect; any past, present or future effect; and any cumulative effect which arises over time or in combination with other effects - regardless of the scale, intensity, duration, or frequency of the effect, and also includes - any potential effect of high probability; and any potential effect of low probability which has a high potential impact (RMA).
ENVIRONMENT	Ecosystems and their constituent parts, including people and communities; and amenity values; and the social, economic, aesthetic, and cultural condition which affect ecosystems, natural and physical resources and amenity (RMA).
ENVIRONMENTAL EVALUATION	The assessment of all potential environmental effects and impacts using analytical and non-market valuation techniques.
ENVIRONMENTAL GOODS AND SERVICES	Natural resources and the services that these provide to other components of ecosystems and human beings.

ENVIRONMENTAL LIMITS	Critical points, or zones beyond which further depletion or or degradation of a resource will be irreversible.
EXISTENCE VALUE	This is a type of "intrinsic" value and is the value of simply knowing that a resource exists.
GOALS	An end towards which a design trends.
KAWANATANGA	The right of sovereignty given to the Crown by the Treaty of Waitangi
INTRINSIC VALUE	Value associated with natural resources and the environment that is unrelated to human beings altogether.
OBJECTIVES	Specific steps towards the attainment of a goal.
OPTION VALUE	Value associated with still having the opportunity to use a resource in the Future.
MAXIMUM SUSTAINABLE YIELD	Maximum harvest that can be taken from a resource each year without causing irreversible environmental damage.
QUASI-OPTION VALUE	The value of preserving options in anticipation of improved knowledge and technology.
RANGITIRATANGA	The right of Maori to manage their tribal resources.
SAFE MINIMUM STANDARDS	Refer Environmental Limits
STAKEHOLDERS	Individuals and Organisations who have an interest in, or who will be affected by a proposal.
SUSTAINABILITY	The overall concept of society living within the self perpetuating limits of the environment (biosphere).

SUSTAINABLE DEVELOPMENT	World economic progress within the biophysical imposed by nature, together with a concern for social inequities and the global redistribution of wealth.
SUSTAINABLE RESOURCE MANAGEMENT	"Managing the use, development and protection of natural and physical resources, in a way, or at a rate, that enables people and communities to provide for their social, economic and cultural well being and for their health and safety" - without compromising ecological sustainability.
USE VALUE	The value of present and future use of a resource (commercial, recreation, scenic etc.)
WILLINGNESS TO ACCEPT	The amount of money people would be willing to accept as compensation for a loss of an environmental "good or service".
WILLINGNESS TO PAY	The amount of money people would be willing to pay to ensure the preservation or continued supply of an environmental "good or service".