Impact assessment as part of integrated planning and management of tourism in and around natural areas

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Tourism in New Zealand relies heavily on nature-based resources, with consequent impacts on natural areas and host communities. A research programme is developing an integrated approach for planning and management of tourism in and around natural areas, which includes considering social, cultural, environmental and economic impacts. The research programme is contributing to the national strategic research objective of a "dynamic tourism industry which is environmentally, socially, culturally and economically sustainable". Key issues addressed in the research include the competing requirements of tourism and outdoor recreation activities, recognition of a finite capacity for some activities at some sites, and the need to assess impacts and monitor progress towards sustainability. An iterative, multi-method research approach fed findings from interviews, literature reviews, case studies and workshops into formulation of an integrated model that guided development of a web-based tool box. The research process identified a critical need to integrate the use of tools across different dimensions of sustainable management. Impact assessment was regarded as one of six key sets of tools that should be better integrated. Individually, tools are narrowly focused and miss the benefits of integration to address complex issues of environmental management. The website is designed to facilitate access to the full range of tools and to assist capacity building in support of their use.

Keywords: sustainable tourism, natural areas, integrated management, impact assessment, New Zealand

Introduction

There is clear recognition internationally that, while tourism is frequently based on the attractions of the natural environment, it is vital to understand visitor behaviour and the responses of host communities in addition to bio-physical impacts (Bosselman, 1999, Taylor and Warren, 2001). Therefore impact assessment practitioners involved in tourism planning and management must understand a broad planning and management practice that draws on areas such as environmental sociology, leisure research, information management and resource economics, as well as concepts such as common property resources, social carrying capacity and limits to acceptable change. As Newsome *et al.*, (2002:20) point out, "The future of sustainable natural area tourism lies in its planning and management". Unfortunately, however, the call for a "more rigorous and comprehensive approach to assessing environmental and human impacts related to the tourism industry" (McLaren, 1993:117) has been with the impact assessment field for some time, without evidence of sufficient action.

This paper considers the application of impact assessment within an integrated approach to planning and managing tourism in an around natural areas. Tourism in New Zealand, where the paper is focused, relies heavily on nature-based resources, with consequent impacts on natural areas and host communities. A research programme[1] has considered an integrated approach for planning and management of tourism in and around natural areas, which includes consideration of social, cultural, environmental and economic impacts. The approach also includes assessing and managing site specific impacts, and impacts on visitors, as well as wider strategic issues.

The research programme is contributing to the national strategic research objective of a "dynamic tourism industry which is environmentally, socially, culturally and economically sustainable". Key issues addressed in the research include:
- recognition of a finite capacity for some visitor activities at some sites
- the competing requirements of tourism and outdoor recreation activities in natural areas
- ways of addressing cultural and amenity values for all sectors of society
- the need to monitor progress towards sustainability.

The research set out to:
- evaluate existing approaches to planning and managing tourism and related developments in natural areas and
- define an integrated approach for application in multi-stakeholder contexts (with a particular focus on Maori stakeholders) pilot, evaluate and refine the approach.

An integrated approach to planning and management of tourism in and around natural areas requires coordinated application of a range of tools (Warren *et al.*, 2003). The most common approach, however, is to use single tools to solve part of a complex problem. This problem applies to impact assessment tools amongst the range on offer.

This paper examines the integrated approach developed by the research team with a focus on impact assessment tools. To aid implementation of an integrated approach, the research team has developed a web-based kit of practical management tools called a *kete* (a Maori term for knowledge basket). Examining the impact assessment tools in particular, it can be seen that greater integration is required within the impact assessment field itself, as well as between work in impact assessment and other complementary fields.

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Research method

The iterative, multi-method approach of the research programme fed research findings into development of the integrated framework (kete) as shown in Figure 1.

Initially, interviews with 50 key informants (managers, planners, tourism operators, academics and other stakeholders) investigated key issues for tourism management and identified useful planning and management approaches, including impact assessment tools.

Multi-disciplinary literature reviews confirmed the utility of a wide range of relevant and useful planning and management approaches and tools to include in the framework (kete). Together the interviews and the literature reviews found that deficiencies in planning and management approaches do not arise from a lack of tools but the lack of appreciation of the need for a fully integrated approach. The research team concluded that an integrated approach requires the coordinated application of a wide range of tools rather than the more common use of a single tool or any other "silver bullet" solution to solve part of a complex problem.

Twenty three small case studies were conducted to test the relevance of selected tools to New Zealand - looking at places such as Waitomo Caves, Mt Bruce, Karori Wildlife Sanctuary, Fairwell Spit, Pupu Springs, Kaikoura, Punakaiki, Mt Cook and Milford Sound. These case studies covered a range of environments, scale and level of tourism development.

Four action case studies then demonstrated innovative use of sets of tools and helped evaluate aspects of the integrated framework. These include:
- Great Barrier Island - a participative community visioning exercise in the Hauraki Gulf near Auckland City
- Ngati Whatua o Orakei - subtribal or hapu engagement and capacity building on a tribal peninsula in Auckland City
- Tongariro Crossing - a modified Limits of Acceptable Change approach in the central North Island mountains
- The Catlins - implementation of a community-based strategic tourism plan in the south east of the South Island.

*Figure 1:   Iterative development of the framework*
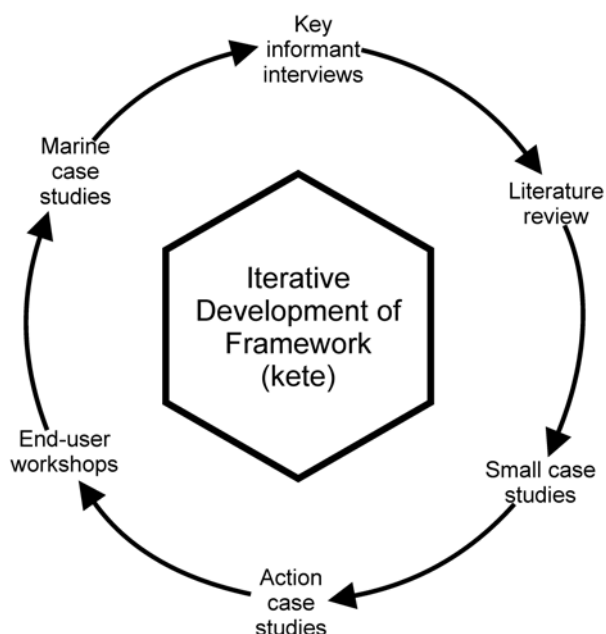
Regional workshops provided further opportunities to discuss the content and usability of the framework (kete) with a range of potential users and adapt it in response.

Further case studies in the coastal-marine environment have allowed the research team to test, evaluate and further refine the framework (kete).

The integrated framework and associated kete results from the multi-method research, which highlighted six broad areas of focus for an integrated approach to the management of natural areas to achieve sustainable tourism development. The six areas (Figure 2) are outlined below.

Figure 2:   The integrated framework
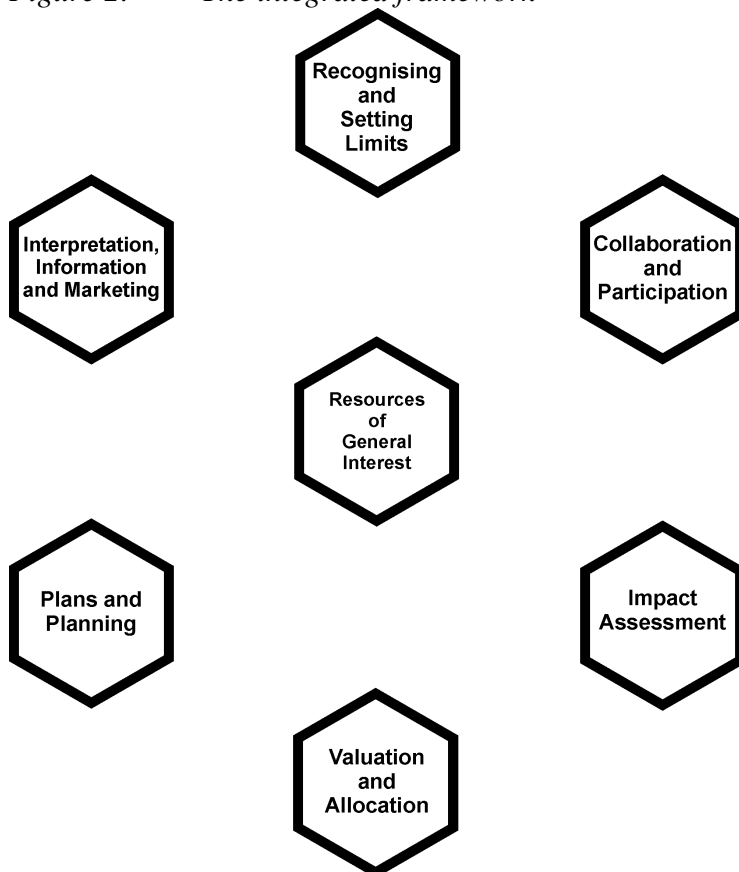
- Recognising and setting limits - recognition that nature based tourism is dependent on environmental quality, community acceptance and visitor satisfaction, which implies mechanisms to establish physical and social limits robustly and fairly.

- Structured participation - communities and stakeholders have appropriate and structured opportunities for full participation in the development of tourism.

- Impact assessment and monitoring - a broad information base on environmental impacts (including social, cultural and cumulative impacts), with processes to feed into integrated environmental management regimes.

- Valuation and allocation - management policies and objectives implemented efficiently and fairly by market mechanisms.

- Strategic planning frameworks - plans at national, regional and local levels including resource management policies, planning and consents; conservation strategies, plans and concessions; and long-term council community plans.

- Visitor information and interpretation - consistent use of information, marketing and interpretation to inform visitors of ecological, cultural and social values, influence visitor behaviour and enhance visitor experiences.

Impact assessment for tourism

The main impact assessment tool used for tourism is Environmental Impact Assessment (EIA), the process of analysing and managing intended and unintended consequences of planned interventions on the environment. In New Zealand, under the Resource Management Act (RMA) framework, an EIA is commonly referred to as an Assessment of Environmental Effects (AEE).

AEEs are submitted as part of the resource consent process for projects under the RMA. They may also be required under other legislative frameworks, such as the Conservation Act, when a concession application for commercial tourism use (see below) is made to the Department of Conservation (DOC). Assessment of impacts of tourism at specific sites is mainly based in the processes of these two acts.

Operators and developers tend to see the resource management and concession management processes as "red tape" until such time as there is a development they do not want nearby. Local and regional councils and DoC therefore have an important role to play in setting the policy-planning and consent framework, applying processes consistently and ensuring businesses and the community are well informed of the necessary requirements and available guidelines.

As the environment is broadly defined in New Zealand under the RMA to include people, communities, culture, heritage and amenity, an EIA can include an assessment of all these aspects of the environment if relevant to the intervention in question. A full EIA typically brings together various components of technical assessments of effects, often as separate sections in the report, including, for example, ecological, physical, landscape, social, economic, health and other components. An effect[2] is broadly defined to include positive and negative effects, short and long term effects, and cumulative effects. Usually analysis of effects includes an assessment of their likely scale and probability.

Typical impacts of tourism in natural areas include impacts on wildlife and wildlife habitat, landscapes, beach areas, archaeological, historic and geological sites and local recreational activity. Sources of impact include disturbance from visitors, fires, traffic congestion, visual impacts and pressure on infrastructure.

EIA is most typically used in the planning stages of a tourism project. Typical tourism projects that would require an EIA include, for example, planning and building a resort in or near a natural area, developing a new ski area, or building necessary infrastructure such as waste management facilities, an access road or a jetty. However, the impact assessment process is also applied for tourism in the construction and operation stages, and includes integrated monitoring of effects at particular sites and over areas or regions, including cumulative effects.

While EIA has generally been used for project planning, there is increasing application of the process at the strategic level, around the formulation and implementation of plans and policies, for instance relating to tourism. Strategic environmental assessment could examine, for example, the appropriate level of urban development and landscape change in an area, perhaps in order to develop a zoning plan. Strategic environmental assessment for tourism development should ideally be linked to the use of other impact assessment tools, such as cumulative effects assessment and integrated monitoring, as well as various planning tools.

Indications of cumulative effects include total visitor numbers, number and type of vehicles, number of tourism operators, number of tourism related businesses, landscape changes, and changes in habitat and specific species numbers. There is a limited amount of data for these indicators in many tourism destinations, and little data on the key issues of social carrying capacity, crowding management and visitor satisfaction.

These issues reflect increasing concern about social impacts of tourism. Faced with few options for economic diversification, host communities are often ambivalent about tourism. An influx of visitors and development of visitor amenities can impact on the things they value. Many jobs created by tourism are seasonal, part-time and low paid and these do not necessarily offset social,

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[2]   While the word impact is used internationally the word effect is preferred in New Zealand.

environmental and economic costs from meeting tourist needs. These sorts of issues require application of social impact assessment.

Issues of integration

Better integration of impact assessment tools is important at two levels. At the first level the goal is to obtain greater integration of types of impact assessment and tools used <u>within</u> the impact assessment field itself. At the second level is the need for improved integration <u>between</u> impact assessment and other complementary fields.

Integration within the IA field

Looking at this first level, as noted above, an EIA typically brings together various components of technical assessment of effects. However, as practiced in New Zealand, an AEE usually brings together a number of relatively discreet technical activities, often as separate sections in the AEE report, with various technical appendices attached. While people and communities are formally defined in the RMA as part of the environment, in fact the social dimension may be poorly integrated, added as an afterthought or left out altogether. Similarly, public involvement is handled inconsistently. There is guidance[3] rather than a specified requirement for either social impact assessment or for public consultation.

The integrated framework explicitly uses webbing and chaining as a tool to link environmental impacts to their social outcomes, and to divide all issues and impact between stakeholders as a guide to the design of public involvement (Taylor, *et al*, 2004). However, this sort of interdisciplinary approach is not used consistently in New Zealand.

Another important aspect of integration within the impact assessment field is between the design stage and implementation stage of a project, plan or policy. At present impact assessment tends to focus on the design stage around requirements to obtain a resource consent or plan change. At the design stage consideration is given to questions around the mitigation of effects and any necessary monitoring. Better integration would take this design stage work through into implementation, particularly with adaptive management regimes.

A further level of integration is between project and strategic levels of impact assessment. There is increasing use of impact assessment at the strategic level in helping to assess the environmental effects of policies and plans. However, there is also a need to integrate the assessment of individual projects into the strategic level through monitoring of particular sets of impact, through the development of relevant indicators and also through cumulative impacts assessment.

Integration between fields

Now, in addition to the important issues of integration within the field of impact assessment itself, it is important to consider the second level of integration, between impact assessment and other components of the integrating framework. Here the research has identified a number of problems. These are reviewed here for each of the five main areas that impact assessment should integrate with in the above framework (Figure 1).

Tools for tourism and natural resource planning

In New Zealand, the statutory frameworks of the RMA and the Conservation Act provide the main, strategic and participative approaches for administering and allocating resources to tourism activities and managing their effects. The RMA framework in particular has clear goals of

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[3]   RMA, Schedule 4

sustainable management in which the parallel goal of sustainable tourism can be achieved. The Conservation Act has a more protective purpose and specifies that fostering the use of natural and historic resources for recreation, and allowing their use for tourism, can only be undertaken to the extent that the recreation or tourism use of that resource is not inconsistent with its conservation. The overarching purpose of the available planning tools applied under these frameworks is to embed tourism business and management into a coherent and integrated framework at a national, regional or local level. However, as noted above, there is a wide gap between the strategic and operational levels of the RMA in particular. There are inconsistencies in the respective mandates of the RMA and Conservation Act frameworks, for example, in and on the margins of national parks and also in marine and coastal planning. There are also inconsistencies between resource planning and tourism development strategies, especially where the latter focus primarily on a growth model (more visitors and more activities versus goals such as increased economic, social-cultural and environmental yield).

The research showed that the development of structure plans is one response that local councils or developers can initiate in response to these sorts of issues. A structure plan provides an opportunity for community consultation, to consider issues around landscapes, natural values, heritage and social-economic wellbeing, to help shape the direction of tourism development in the face of otherwise rapid, unanticipated change through a series of *ad hoc* consent proposals. The development of structure plans will require use of a range of impact assessment tools including social impact assessment, assessment of cumulative impacts, ongoing monitoring and better use of adaptive management approaches.

Tools for setting limits
Increasing numbers of visitors putting pressure on the natural environment, host communities and tourism infrastructure, raises the need to establish optimum numbers of visitors (both physical and social carrying capacity) and for communities more actively to manage visitor numbers and activities. While limiting the size of the supporting infrastructure is one management option, there are also a number of techniques that are aimed at establishing bio-physical and/or social carrying capacity, establishing limits of acceptable change and managing crowding, with a particular focus on the carrying capacity of fragile natural resources.

For example, the research case study of the Tongariro Crossing, a popular alpine walking track, considered options for establishing limits of acceptable change through analysis of visitor satisfaction with the walking experience and levels of crowding, and discussion of key issues with focus groups. Management of the track around limits on the numbers of walkers will require use of tools such as impact assessment and monitoring of physical impacts, consultation with key stakeholders such as tourism businesses supporting a one-way walking policy, and interpretation to convey messages about management policies and environmental objectives. A partnership is needed with local iwi (indigenous tribes) in recognition of important cultural resources and potential impact.

Tools for collaboration and participation
Structured approaches to collaboration and participation are a key part of an integrated approach to planning and managing tourism in and around natural areas. In the research case studies of the Catlins and Great Barrier Island, for example, structured participation was an integral part of the initial process of developing a community-based tourism strategy. Techniques used in formulation of a strategy can include visioning exercises to set directions, formation of a working party, involvement of the representative local councils and other key stakeholders and iwi, and a mix of focus groups, workshops and charrettes.

The Catlins case demonstrated that, in addition to formulating a local tourism strategy, it was necessary to consider bio-physical and social impacts at the site level, including visual effects of buildings and tourism infrastructure, parking congestion and waste, including poorly disposed

toilet waste and rubbish. There were also indications of cumulative impacts relating to visitor numbers, number and types of vehicles (especially camper vans and buses), landscape changes, and changes in habitat and wildlife numbers. There is local conflict over the direction of tourism development and issues such as coastal subdivisions and a marine reserve proposal. There is no formal data available on the impact of tourism on host communities in the Catlins, although there is anecdotal evidence of both adverse and beneficial impacts (Taylor and Gough, 2006).

Tools for valuation and allocation of natural resources
There are a number of mechanisms for valuing and allocating natural resources for recreation and tourism. These include market mechanisms such as charging regimes and non-market valuation techniques. A large proportion of the conservation land on which tourism in New Zealand depends is on public land for which there is a clear statutory intent of free access. Therefore, tools such as access charges are difficult to gain support for and implement.

Therefore other partial cost-recovery and surrogate systems are used, such as charging for the use of facilities; for example, huts and camping areas. Another technique is to use concessions and associated charges to private tourism operators as a means of allocating and managing the natural resource.

Businesses operating on public conservation land and those in marine environment providing marine mammal viewing, are required to obtain a concession from the Department of Conservation in the form of a lease, licence, permit or easement. Concessions are required for accommodation facilities, water, air or land transport services, commercial education or instruction activities, guiding (including fishing, hunting, tramping, walking, kayaking/canoeing) and services such as shops, tearooms, restaurants, garages, or hire services.

The process for obtaining a concession includes a description of the environmental impacts of the proposed activity and how any adverse impacts will be managed. The research found, however, that establishing ways of managing visitor numbers and visitor activity through mechanisms such as concessions, entrance fees, parking fees and road tolls, is an exploratory or learning exercise in progress. Operators and agencies must explore visitors' willingness to pay for particular types of experience at the same time as considering host community responses. This process is valuable for applicant and agency to appreciate the impacts better.

Tools for interpretation, information and marketing
Interpretation, information and marketing tools also need to be integrated with impact assessment and the other sets of tools. The consistent use of these tools can help to influence visitor behaviour, reduce adverse impacts and enhance visitor experiences. Early phases of the research programme (Warren *et al*., 2004) identified that the provision of information about an area's special cultural, natural and other qualities and permitted and/or appropriate behaviour and activities is an important management tool in an integrated approach.

The most common tools currently used in the case study areas are signs, information boards and posters, displays and exhibits in visitor centres, talks and guided tours, pamphlets and brochures, tourist newspapers and websites. Less formal, verbal methods such as interaction with operators, shopkeepers, honorary rangers and local personalities are also important tools for informing visitors. In the Catlins case study, strategic issues included fostering appropriate behaviour around natural attractions, including wildlife, to reduce detrimental impacts. One effective tool in the Catlins was a Visitor Care Code -interpretation in the form of a written list of rules or expectations to encourage appropriate visitor behaviour or attitudes, and to enhance experiences by protecting both the environment and visitors (Taylor and Gough, 2006).

Capacity building

The research found that integrated planning and management requires the application of a large and diverse range of tools and approaches as discussed above. Given the range of tools and the skills needed to select and implement the most relevant and useful, in any particular circumstance, capacity building, is central to implementing an integrated approach at community, industry and agency levels.

Capacity-building is needed to ensure that industry, communities and agencies have the necessary financial, intellectual and person-power to develop and implement an integrated approach. Elements found to be particularly important to an integrated approach include that:
- there is likely to be a "trigger" - a recognition of the need for an integrated approach
- there is a requirement for strong community leadership, such as an advocate with knowledge and connections
- there also has to be strong advocacy for integration in lead management agencies
- there needs to be a basic community level of interest and involvement in sustainability issues, sufficient to drive the necessary actions
- the approach requires resources from early on, including necessary funding and commitment of time from key organisations and agencies
- any community organisation formed has to be representative and inclusive of wide interests;
- there should be a thread of continuity between strategic planning and implementation
- any new local tourism grouping and initiative needs to recognise and mesh with exiting tourism management and marketing organisations.

Sustainable tourism business practices must address sustainability in all aspects of operational capacity, especially in energy consumption and waste generation. Sustainable practices including responses to impact assessment and monitoring, can enhance overall profitability as well as external relationships. In turn, sustainable tourism businesses and a well-integrated tourism sector can contribute significantly to sustainable development generally (Blaschke *et al*., 2006).

The web-based kete (tool kit) developed by the research programme is a way of helping to build capacity within the tourism industry, communities and relevant agencies. The website is currently being tested with a community group, including district tourism interests, local government and the Department of Conservation. The aim of this practical testing is to enhance the design and usability of the kete, which will then be made available more widely.

Conclusions

A multi-method, iterative research process identified a critical need to integrate the use of a number of tools across different dimensions of sustainable management.

Impact assessment was defined as one of six key and interrelated areas. On their own, particular tools are narrowly focused, and miss the benefits of integration with others.

Iterative development of a practical kete of tools can assist in the integrated planning and management of natural areas for tourism by facilitating access to the full range of tools, with capacity building in support of their use.

A website is under development as an effective way to support the use of impact assessment alongside other tools.

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Appendix 1 Full list of tools included in the tool kit

Category	Tools	Short description
Recognising and setting	Biophysical carrying capacity	Application of maximum sustainable levels of use as determined by natural or physical factors
	Crowding Management	Management of visitor numbers or behaviour drawing on the concept of social carrying capacity
	Environmental standards & certification	Systematic improvement of environmental quality across an industry or sector
	Limits of Acceptable Change (LAC)	A process for deciding and implementing acceptable management actions to achieve desired environmental and social conditions
	ROS and VAM	Identification of the diversity of recreation opportunities available for an area or areas
	Recreational Specialisation	Distinguishing characteristics of outdoor recreation participants on a continuum
	Visitor Impact Management (VIM)	Processes and techniques for managing visitors and the impacts of their activities
Collaboration and participation limits	Charrettes	Intensive collaborative planning sessions at a community level
	Community needs assessment	Community planning process to explore issues, set goals and prioritise actions
	Community Strategies	A range of mechanisms for resolving disputes that do not require litigation
	Conflict Resolution	Techniques used for discussion of an issue or issues in small and larger groups
	Consulting with Maori	Meaningful consultation with iwi, hapu, whānau and other Māori groups
	Focus Groups and workshops	Mechanisms for involving, or engaging with, the public in decision-making
	Participation Models	A technique to understand interrelationships within and between communities and groups
	Social Network Analysis	Identification of key people, groups and organisations that have interests in a proposal
	Stakeholder Analysis	Invited written or oral presentation of views on a matter under consideration
	Submissions	A process for identifying community aspirations for strategic and action planning
	Visioning	Intensive collaborative planning sessions at a community level

Category	Tools	Short description
Plans and Planning	Conservation Act Framework	A framework of legislation and policy guiding tourism in public conservation areas
	Ecotourism Planning	An approach to tourism planning that recognises the sustainable integration of environmental and cultural aspects
	Environmental regional planning	A sustainable development approach based on community well-being, tourist satisfaction and economic integration.
	Master Plans	A process providing for the detailed planning and design of a specific area
	Regional and District Tourism Plans	Non-statutory strategic planning for tourism at a regional or district scale
	Resort Planning	Integrated planning of a specific area as a specific tourist destination.
	Resource Management Act Framework	Using the Resource Management Act as the key legislation guiding tourism planning in New Zealand
	Spatial based planning and GIS	A range of tools and techniques that display and interpret spatially-based information
	Structure Plans	Plans that show how broad scale development or change will be physically arranged on the ground
	WTO Planning Processes	A 'top-down' framework for tourism planning at national and regional levels.
	Zoning	A key planning mechanism that allows for separation of incompatible uses and grouping of compatible uses
	Long Term Council Community Consultation Plans	Comprehensive community-based long term plans produced under the Local Government Act
Impact assessment	Adaptive Management	An approach to management using a process of 'learning by doing'
	Cumulative Effects Assessment	Assessment of the incremental effects of an activity [on the environment] when the effects are combined with those from past, existing and future actions
	Environmental Impact assessment	Analysis and prediction of the impacts of environmental change
	Social Impact Assessment	Assessment of impacts on individuals, groups, host communities and visitors
	Monitoring	Systematic and ongoing collection of data to assist with the management of change
	Reverse sensitivity analysis	Analysis of the response of new residents, recreationists and visitors to existing activities
	Visitor Satisfaction Survey	Surveys of visitors that match their expectations with actual experiences
	Webbing and Chaining approaches	A technique to relate all types of impacts to their social consequences

Category	Tools	Short description
Interpretation etc	Honorary Wardens	Knowledgeable people from the local area who inform visitors and help manage them
	Interpretation	A range of information methods to educate visitors and enhance their experience
	Signage	Information presented to direct visitors, guide behaviour and provide interpretation
	Visitor Centres	A source of collected information for visitors in the process of discovering an area
	Visitor Codes	Lists of rules and guidance to encourage appropriate visitor attitudes and behaviour
	Visitor Marketing	Promotion of areas, attractions and activities to encourage visitors and assist trip planning
Valuation and allocation	Benefits Based Management	A structured approach to moving towards defined goals
	Concessions	A mechanism for allocating commercial activities on land managed by the Department of Conservation
	Contingent Valuation	Using willingness-to-pay approaches to put values on activities that do not have market prices
	Cost benefit analysis	Estimating and comparing the costs and benefits of activities and options
	Multipliers and Indirect Effects	A technique for estimating secondary or downstream impacts
	Non-market valuation	A range of techniques for valuing goods and services that do not have market prices
	Travel cost method	A way of valuing services and activities using how much it costs to do it
	User Charges	Different ways of charging for activities that may be used to manage demand for them