



## Cumulative Effects Assessment

### Description

Cumulative Effects Assessment (CEA) recognises explicitly that, in any area or region, the effects of a particular activity on its own may be environmentally acceptable, but similar effects over time of many activities may not be acceptable. Cumulative effects include those already evident and future effects that are inevitable and predictable.

There is no standard method of undertaking CEAs, and methods differ in their focus either on pathways or processes of accumulation, or on a specific cumulative effect. The prevalent approach views CEA primarily as an information-generating activity using research and scientific analysis. The premise is that information about patterns of cumulative activities and effects is communicated to decision-makers leading to more rational decisions about particular actions. The approach is viewed as an analytical exercise linked to planning and decision-making that complements [Environmental Impact Assessment](#) (EIA) ❖.

A less common approach is to utilise planning principles and procedures to determine an order of preference among a set of resource allocation choices. This preference is based on explicit social norms that act as decision rules to compare and rank alternative choices and trade off environmental, economic, and social objectives - this approach regards CEA as a correlate to [environmental regional planning](#) ❖.

### How and when the tool is used

CEA involves a higher standard of EIA practice than a single project assessment. Four requirements of CEA are to

- identify valued ecosystem components, including social and economic components, affected by the proposed project (scoping);
- determine what other past, present and future human activities have affected or will affect these components;
- predict the impacts of the proposed project in combination with other human activities and ongoing changes and determine the significance of the cumulative impacts; and
- Suggest how to mitigate and manage the cumulative impacts (see also [adaptive management](#) ❖).

CEA is required in some Canadian and American legislation. Examples include a National Park visual impact case study which involved visual impacts in two of Canada's National Parks (Banff and Glacier). Impacts arose in the context of public hearings for making the two-lane TransCanada Highway into four lanes.

The Australian Commonwealth Environment Protection Agency in the 1990s incorporated CEA as part of strategic environmental assessment and a key institutional tool for achieving its goal of ecologically sustainable development. CEA took account of the environmental impacts of actions that are individually acceptable but may be cumulatively unacceptable at the level of policies, plans and programmes in contrast to individual projects. The approach showed the need to evaluate individual development proposals within a regional carrying capacity context and Limits of Acceptable Change ([LAC](#)) ❖ methodology based on ecological and social carrying capacity.

In New Zealand, existing activities are subject to some monitoring that accounts for cumulative effects. For example, The Department of Conservation (DOC) monitors the concessions that it grants, and Regional and District Councils monitor changes in the regional environment in addition to the resource consents they grant for specific developments.

### Application

In terms of application in New Zealand, under the sustainable management regime of the [Resource Management Act \(RMA\) framework](#) ❖, the evaluation of cumulative effects is a specialised and critical area of which, to date, the application is limited, even though cumulative effects are included in RMA under the definition of effect. The Parliamentary Commissioner for the Environment (PCE) has recommended that Councils should take great care when evaluating information on effects, even though there have been difficulties in assessing cumulative effects. The PCE's 1997 investigation into management of environmental effects associated with the tourism sector found there were particular issues with cumulative effects of tourism activities, and recommended the development of methodologies to help environmental managers to assess and manage cumulative effects.



Case law also reflects that local authorities should adopt a cautious approach towards cumulative effects. Where a proposal involves applications for more than one resource consent the local authority must consider the cumulative effects of all the consents, if granted. Cumulative effects should not be judged solely on the effects an activity would have on the zone for which it was proposed. The cumulative effects caused by the loss of that activity to zones where it is positively encouraged are also a consideration.

Many environmental effects associated with the tourism sector are cumulative. Common concerns about tourism impacts include the lack of knowledge about cumulative effects both in relation to the physical and social aspects of the environment, and the inability to determine when the 'carrying capacity' of an area has been reached.

From the point of view of ecological sustainability the most important characteristic is reversibility. Many of the effects identified associated with tourism are reversible, especially when minor in intensity or scale, but reversibility is hard to predict and depends enormously on the environment and the way the effect is managed. The cumulative nature of many effects suggests that reversible effects may become irreversible if their cumulative impact reaches a threshold level.

From an applicant's perspective, there are difficulties assessing cumulative effects in individual applications, and therefore it is difficult then to place the onus of cost on the applicant/developer as required under RMA framework. From a Council perspective, for them to effectively assess cumulative effects, they need a framework which sets out some environmental bottom lines, carrying capacities or safeguards for activities. Without these, applying the precautionary principle necessitates exercising a very restrictive approach to all resource consent applications that involve significant potential cumulative effects. Similar considerations underlie the assessment of cumulative effects on the public conservation estate under the Conservation Act concessions regime. This emphasises the critical role that council plans and other allocation tools should play in setting a context for individual cases.

### **Evaluation**

NZ has the policy and regulatory framework and institutional set up to cover the assessment of cumulative effects. It is defined in the RMA and local authorities are required to consider cumulative impacts. In practice, CEA is not occurring anywhere near comprehensively around New Zealand. There is a probably a perception among many council staff that CEAs are an added responsibility in doing EIAs. In many places there is not enough data or applicable knowledge thus neither applicants nor decision-makers are able to predict effects. In the RMA context, determining when exactly the cumulative impact of an activity, or the cumulative effect of all like activities, has reached a threshold where the effects are considered significantly adverse and unacceptable can be extremely difficult. This is particularly so if the assessment relates to activities that are not easily quantified, for example the extent that another accommodation facility in a rural area may have on visual amenity in that area.

Councils might assist by commissioning specific studies outside the resource consent process to determine what levels of development may be acceptable in the future. This would provide a more pro-active approach for guiding planners, especially for the development of District Plans or Conservation Management Strategies, rather than a reactive approach. However, it can be challenging to convince councils to commit funds to this type of research.