

## Alternatives

It is surprising how little guidance is offered to EIA preparers on the description of alternatives. Two books listed in the references (i.e., [4] and [14]) do not address the subject. A search of the world wide web finds little in the way of explicit direction. One useful statement by the US Department of Interior offers, “[b]ased on the information received during the initial scoping effort and other information, such as the location of sensitive natural resources, ... we identify alternatives to the proposal that might reduce possible impacts.” This helps to identify alternatives, but offers nothing on the structure of their description.

According to the US Council on Environmental Quality (CEQ), alternatives should be described according to these guidelines—

This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment<sup>1</sup> ... and the Environmental Consequences ..., it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and *providing a clear basis for choice* [emphasis added] among options by the decision-maker and the public[7].

There is almost always a question of how many alternatives need to be presented and analyzed. Under the traditional approach, there may

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<sup>1</sup> That is, the existing conditions.

be greatly increased costs associated with the development and characterization of each alternative. However, it is appropriate to explore rigorously and evaluate objectively all *reasonable* alternatives. That is, those alternatives that can be implemented at a positive benefit:cost ratio for the developer. For alternatives which were eliminated from detailed study, the reasons for their having been eliminated should be documented.

While the CEQ suggests that the assessment "...[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." One of the most common reasons for the rejection of a draft EIS in the US is that the alternatives are not equally considered. The preferred alternative has the most extensive description, while the "No Action" and "Worst-Case" alternatives are given less attention. When the discussion and evaluation of alternatives are limited to subjective methods, this uneven treatment is to be expected. If objective characterization of all the alternatives can be done, then there is no longer any reason to avoid "substantial" treatment of each alternative in the environmental impact assessment.

The "No Action" alternative is usually insufficiently addressed. To some, the denial of project permits means that the existing conditions remain untouched and unchanging. However, ecosystems are not static, they are effected by natural and anthropogenic effects beyond their borders and the existing conditions may not be desirable by today's societal values.

All natural systems evolve. Plant assemblages change over time from ground cover to mature forest. Wetlands and bogs may fill in and become terrestrial habitats. As the vegetative types change, so do the types of animals that are found there, and the uses they make of those plants. Rivers meander across their valley floors and can change from a single channel to a braided one, and back again. Sharp meanders are cut off during high flow events and the isolated former loops become oxbow lakes. Volcanic eruptions decimate the landscape, but plants and animals begin to return during the next growing season and the cycle begins again.

Humans have changed environments for as long as we have been around as a species. There are fossil records of mammoth bones at the bases of ancient cliffs. A few days' food was apparently obtained by driving a herd over a cliff when not all the meat could have been eaten