


CASE STUDIES : SMCE/NAIADE

Goal-Oriented Lens : Operationalizing adaptive management strategies

Illustration:	Operationalizing Adaptive Management Strategies	GOALS-ORIENTED LENS
Tool:	NAIADE/SMCE	
Case Study:	SMCE/NAIADE: Evaluating The Effects Of The Alumysa Project In The Aysén Region In Chile	
Description:	<p>Summary: The 1994 Chilean Environmental Law Act was launched to create an institutional framework to rule in environmental terms the introduction or development of public and private investment projects or activities. The law sets the Environmental Impact Assessment System (EIAS), within which, in order to get government approval, a project or an activity is compelled to submit an Environmental Impact Study (EIS). In 2001, the Canadian Mining Company Noranda submitted an EIS of an aluminium smelter plant project in Chacabuco bay, the main maritime entry of the Aysén region, and the regional operation centre for aquaculture industry.</p>  <p>Placemark Link</p> <p>Starting a two years EIAS embedded in an intense environmental conflict. This case shows the shortfalls of an EIAS, and how it could be complemented by the implementation SMCE, which aims to:</p> <ul style="list-style-type: none"> • Make an integrated evaluation of the possible impacts of political decisions; • And consider the socio-economic, ecological, cultural, political and technical dimensions simultaneously. <p>More information: SMCE uses information coming from scientific practices, as well as information produced by means of a sociological research process (traditional knowledge). The analysis comprises the following steps:</p> <ol style="list-style-type: none"> (1) The first step of a SMCE is to conduct a historical, institutional and biophysical analysis of the region. (2) The second phase of the analysis identified social actors' needs and expectations through participatory approaches, including uncertainty regarding the consequences of the project. This second step involves subjectivities, and thus stresses the importance of one of the main aims of SMCE: to promote discussion, negotiation and social learning, considering several viewpoints. (3) Criteria are then selected: local culture, employment opportunities, income distribution, environmental pollution, landscape impact, and forest loss were identified in the study. (4) These criteria are then valued with the construction of an impact matrix. In this case, NAIADÉ was used because it manages mix information (qualitative and quantitative), its algorithm takes into account indifference and preference thresholds, and it allows to decide the degree of compensation in the criteria aggregation (which permits to do a sensitivity analysis in this regard). NAIADÉ has a coalition formation dendrogram showing possible coalitions between different interest groups, and hence identifying a compromise choice. <p>Concluding remarks on the process stress the following points:</p> <ol style="list-style-type: none"> (1) SMCE exercises are built taking into account the objectives of several social actors; hence a compromise solution would have a higher probability of fitting into the local context and respond to the presence of different values and objectives in the society. Moreover, SMCE calls for public involvement along the whole decision-making process; insights from a variety of social actors allow performing a quality check of the problem structuring and the information used during the evaluation. (2) Secondly, on the management of uncertainties, SMCE tackled them in this study through the evaluation of qualitative scenarios, hence finding a way to manage uncertainty that can no longer be conquered; the translation of quantitative scores to a qualitative scale provided in Naiade allows to partially consider the intensity of preference without being forced to define thresholds. (3) Thirdly, on the integration tool, the multi-criteria structure improves transparency since the impacts on several dimensions are presented together and are not reduced to a single unit of measure; the impact matrix is a helpful tool to present an integrated picture of the impacts. (4) It is important to note, lastly, that the multi-criteria model must be selected according to the problem at hand. Naiade has proved its usefulness in managing mix information and the different degree of uncertainty in valuations. It does not deal with ordinal scores, but they can be modeled through quantitative or qualitative valuations. 	
Key Contacts:	Gonzalo Gamboa Jiménez; Supervisor: Dr. Giuseppe Munda	
Further Readings:	NAIADÉ Manual	