Chile Litoral

DIÁLOGO CIENTÍFICO SOBRE LOS ECOSISTEMAS COSTEROS

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Environmental Considerations and Conflicts Derived from the Development of Investment Projects on the Coastal Border in Southern Chile

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1. INTRODUCTION

The legal framework for the environmental evaluation of investment projects in Chile was provided officially by the law 19.300 "Ley de Bases del Medio Ambiente", published in March 1994. However, it took still another three years for the Law 19.300 to start operating, when the D.S. N°30 "Reglamento del Sistema de Evaluación de Impacto Ambiental" was published in 1997. The D.S. N°30/1997 has been recently modified by the D.S. N°95/2001 which is presently operating since December 2002.

Within the System of Environmental Impact Assessment (SEIA), two types of projects are distinguished according to the magnitude, extension and circumstances of their environmental impacts: those requiring only a Declaration of Environmental Impact (DIA), and those requiring a more extensive assessment of environmental consequences in the form of an Environmental Impact Study (EIA). The second of this, the EIA, requires that the project be subjected to public debate and open discussion, and therefore citizen participation is required.

Therefore, with the installation of the SEIA the Chilean society has been exposed to a new dynamics of open public discussions dealing with investment initiatives. These discussions, which involve all sectors from society, were unheard of before de Law 19.300 was enacted. The process is still in a sort of infancy, marching towards adolescence, and demanding better educated and informed parties at all levels (proponents of projects, citizens, and the public sector as well).

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However the one thing that must be recognized is that, since its inception, the process of environmental evaluation has promoted a better coordination among all different services of the public administration, and has resulted in better decisions and priorities for local and regional planning, in particular that of the coastal border. Beyond environmental requirements, the evaluation process of new investment projects has had the added benefits of contributing to the betterment of technical aspects of the original projects, and has allowed for more efficient financing planning schedules (both on the part of the proponents and their banks).

In this paper I will present actual cases related to the environmental evaluation of three projects capable of potential impacts on the coastal border in Southern Chile. The projects are of different nature in terms of their proponents, potential environmental impacts, and social and economic consequences. The comparative analysis of them will include considerations derived from public opinion, conflicting interests, technical evaluations, and final decisions within the new environmental framework.

2. STUDY CASES

CASE 1. PROCESSING PLANT FOR FISH OIL AND FISHMEAL

The project in a nutshell:

Proponent	**Pesquera El Golfo, S.A.**
Type according to Law 19.300	n.6. Processing plant for hydrobiological resources
Location	**Corral, Valdivia, Tenth Region**
Investment	US $ 40,28 millions
Description	**The project includes the construction of a processing plant to produce fishmeal and fish oil, pontoon for mooring for unloading fish catches of artisanal fishermen, offices and services.** **The project is designed to produce annually 54.480 tons of fishmeal and 10.550 tons of fish oil.** **The water treatment system includes the discharge at maximum capacity of 450 liters/sec of treated effluent into the Valdivia River estuary.**
Submitted to Evaluation (SEIA)	June 1998
Citizens participation ended	**September 1998**
Resolved with environmental qualification	January 1999

Brief history. The proponent originally submitted the project as a DIA voluntarily to the SEIA in December 1997. The site originally proposed was near Niebla, a popular local beach, across the estuary where it is presently located. The low quality of the environmental impact study presented then, and local resistance due to the inappropriate location promoted reconsideration and re-submission of the project in its actual siting.

Given the previous experience and the potential opposition that a project like this might generate, the proponent presented a comprehensive and extensive environmental impact study of great quality. The oceanographic assessment included from flows, currents, and water dynamics, to physico-chemical indicators of water quality, sediments, macrofauna, zooplankton and phytoplankton.

Key factors determining the acceptance and final approval of the project were local public participation, and social and economic local conditions. Administratively, the present location, Corral, corresponds to a different Municipality than Niebla. Therefore, the local authority (Alcalde) privileged the initiative as one creating new job opportunities and local economic growth. During public debates, local artisanal fishermen declared their open support to the project, seeing mostly direct benefits for themselves; and thus they openly faced opposing ONG's with offices in Santiago and broader interests in conservation (e.g., fears of over fishing derived from large demands of mackerel, sardine and anchovies to feed the plant). Briefly, the fishermen and associated favoring parties asked the opposing groups to proposed their own project alternatives so that they would be able to opt for a different one instead of the processing plant. That, of course, never materialized.

Other demanding groups were those involved with aquaculture and tourism in the Valdivia River basin and estuary. Assurance and maintenance of water quality suitable for aquaculture (e.g., mussels and salmonid fishes) was demanded. Reduction of visual impacts that might impair the scenic value of the natural landscape was also requested. An issue that remained at the edge of what were the potential impacts of the project, and to which the proponent may or may not be responsible, had to do with the sustainability of the fish resources needed to feed the plant. This is an issue that has arisen several times in the process of evaluating projects within the SEIA. It pertains the boundaries to which the area of influence of the project should be extended. The cases that defy greatest ingenuity on the part of the evaluating system are those where the influence of the project may be argued to affect sustainability

of the resources (such as logging and fisheries) or carrying capacity of the ecosystem (such as lakes or the interior sea).

The total time elapsed from the beginning of the evaluation process to granting resolution of positive environmental qualification was 211 days; the shortest of the three cases presented in this paper.

For its final approval and to satisfy all technical and environmental requirements, the project was required to complete an extremely demanding monthly follow-up schedule, which includes the evaluation of sediments, water quality, zoo and phytoplankton in an extensive area around the submarine discharge of the treated effluents within the estuary.

Ironically, after all the demands and heated discussions, the facilities were built nearby the Corral Fort, a historical Spanish legacy which is part of a system of fortresses of great historical and patrimonial value. It has yet to be seen if in the long run, given the growing potential for tourism development and associated services, the decision (and reasons) for accepting the project at the given location may still prove to have been the best one.

CASE 2. SUBMARINE EMISSARY TO DISCHARGE WASTEWATERS FROM PUERTO MONTT CITY

The project in a nutshell:

Proponent	**Empresa de Servicios Sanitarios de los Lagos ESSAL S.A.**
Type according to Law 19.300	o.4. Water treatment plant for population greater than 2,500 inhabitants
Location	**Puerto Montt, Tenth Region**
Investment	US $ 15,05 millions
Description	**The objectives of the project are to eliminate about 14 uncontrolled discharges disseminated along the Puerto Montt coastal border, and to concentrate them into only one collective submarine discharge. The facilities on land are designed to retain sands and remove larger solids before discharging the water to the sea. The submarine pipe discharges at 1.000 m (1 km) from the shore, and 100 m depth, into the Seno Reloncaví in front of the Puerto Montt City. The maximum discharge capacity of the system at 1.267 liters/sec was projected for a population of 258.190 inhabitants to be reached in 2020.**
Submitted to Evaluation (SEIA)	July 2001
Citizens participation ended	**October 2001**
Resolved with environmental qualification	July 2002

Brief history. The oceanographic studies and the information presented by the proponent was originally insufficient and incapable of demonstrating lack of impacts. Therefore, at least three further Addenda were needed to satisfy the demands for technical and environmental requirements imposed by the evaluation and public concerns. The solution offered by ESSAL to the problem of wastewater disposal for the city of Puerto Montt is called "pre-treatment", meaning that only sand and large solids are removed from the effluent and then the water is discharged crude in the interior sea.

The concept of water treatment advocated by ESSAL was that of capitalizing on a natural ecosystem service, namely the sea's capacity of processing organic matter. Therefore, a "sacrifice zone", fluctuating about 525 to 890 meters around the discharge of the submarine diffuser, was defined in terms of a concentration of coliform bacteria that would make the water unsuitable for any other uses.

Comparatively, the baseline study originally offered by the proponents of the project was significantly less encompassing and comprehensive than that developed in the previous case; this is even more significant when one considers that the total discharge of crude (untreated) effluent almost triple that of the previous case (450 liters/sec of treated effluent).

Objections to the solution presented by ESSAL were raised by academic parties, mostly involved with oceanographic studies and aquaculture in the interior sea. The Association of Salmon and Trout producers also raised questions dealing with water quality and safety for growing fish.

Artisanal fishermen were very worried about the hygiene of their catches and the reduction of their fishing grounds due to the "sacrifice zone". They had an active vocal participation during the public debates of the project; nevertheless, their worries, questions, and doubts did not make it to the end of the process since the Law and procedures require that the concerns must be put in writing to be considered.

Contrary to what one may expect, this project did not raised the interest of the citizenry for heated public discussion, nor the debate in local media or within local communities. Calls for discussion meetings were made repeatedly at all levels, even for professional groups such as physicians, but the response was almost nil.

The total time elapsed from the beginning of the evaluation process to granting resolution of positive environmental qualification was 370 days; the longest of the three cases presented in this paper. This reflects

a rather deficient presentation more than an especially polemic initiative. Lack of public participation was probably due to lack of appropriate information and technical knowledge on the subject. The demand made by some for a better solution, such as at least primary treatment, for the wastewaters of Puerto Montt needed considerations of costs and willingness to pay by the citizens. Contrasting costs of alternative solutions and the quality of life, recreational value of the waters around Puerto Montt, seafood security, health hazards, etc., were aspects whose debate requires fully informed and concerned citizens; a condition that has yet to be achieved in Puerto Montt.

CASE 3. BRIDGE OVER THE CHACAO CHANNEL

The project in a nutshell:

Proponent	**Ministerio de Obras Públicas (MOP)**
Type according to Law 19.300	t. Voluntary submission
Location	**Calbuco, Ancud, Isla Grande de Chiloé, Tenth Region**
Investment	US $ 308 millions
Description	**This is a project of public infrastructure which will be developed through the System of Concessions. The project consists of the construction of a bridge over the Canal de Chacao, connecting continental Chile with the Isla Grande de Chiloé.** **The project is divided in 2 parts: the bridge itself and the accesses. The bridge consists in a 2.635 m long continuous hanging structure, suspended from three 170 m high pillars; one at each end (Isla de Chiloé and continental Chile) and a third one over the sea bottom, on Roca Remolinos located approximately in the middle of Canal de Chacao.**
Submitted to Evaluation (SEIA)	Febrero 2002
Citizens participation ended	**May 2002**
Resolved with environmental qualification	December 2002

Brief history. This is an interesting case in terms of environmental impacts. The bridge itself, given its deployment and position, will have little impacts on land and sea. The baseline studies completed, covering among others sciences geography, geology, oceanography, climatology, botany and zoology, were all largely comprehensive, technically exhaustive, and detailed. The localized impacts of the bridge on land, sea, landscape, historical and anthropological patrimony, scenery, could be all minimized, and none of them may have reason for rejection of such a project. Citizen participation took place well in advance and throughout the evaluation process, with parties and opinions in pro and contra. Locally, a focalized concerned was that of the owners of land that will need to be used to develop the project (accesses to the bridge). They will have their lands expropriated and a convenient value paid.

However, the debate transcended the Island of Chiloé and involved many groups and interested sectors from abroad. Those expressing support based their arguments on the isolation that limited growth and development of Chiloé. Within this context, the bridge would mean greater potential and opportunities for development as well as a greater valuation of the land itself. Those opposing the project were mostly concerned by the loss of cultural identity that is an integral part of the culture in Chiloé; the intrusion of foreign cultural influences, foreign life styles, extraneous architecture, threats to the quiet life style, the potential increase in unwanted social behaviors (alcoholism, drogadiction, etc.). These were all types of potential social impacts, which may fall beyond the scope of the law and the environmental evaluation as well. Once again, we face the problem of defining the zone of influence of a given project when it is being evaluated environmentally according to the SEIA.

Regarding this same problem, a serious concern that clearly goes even further, and probably needs national political definitions and regional planning, has to do with the growth, development, land and coastal border use derived from increased and easier access to Chiloé. It is undeniable that as the population dwelling the Isla Grande de Chiloé growth, so will the use of the coastal border, be it for industrial, housing or recreational development. The environmental impacts of each and all of those uses of the land and coastal border require explicit and well-thought territory planning.

3. CONCLUSION

Comparing all three cases presented here it becomes evident that the System of Environmental Impact Evaluation has meant a new and important advance, as well as a challenge, for the Chilean Society as a whole.

On the one hand, it has empowered the public to participate in the evaluation and eventual approval of investment initiatives by expressing their opinions and doubts. The public sector has also been forced to adopt the process in a completely different view to what they had being doing for years before the Law and the SEIA were enacted. Presently, officials at all Public Services require constant up dating of technical knowledge dealing with their areas of concern (e.g., water treatment, hydrology, regional status of natural resources, priority areas for conservation, etc., just to name a very few).

Proponents of projects have also needed to design their projects to comply with environmental requirements and legislation, which in many cases has meant, for instance, to reconsider the location of the projects (getting away from congested or controversial areas and favoring less sensible locations). In many cases, as a result of the technical and environmental evaluation of projects within the SEIA, important observations or suggestions, made by either the revising public sector or even the public, have contributed to the betterment of the whole project; so that the end result has been a more acceptable project. In such cases, the cost of the evaluating process (citizens participation meetings, consulting, public sector involvement, etc.) produces a net benefit for the environment and the society as a whole.

Over all, the environmental evaluation of investment projects has meant a great challenge for the Chilean society at all levels. It requires a more active, better-informed and educated citizenship. It also become an onerous process that may become less so if citizens and proponents of projects become truly concerned and committed to responsible actions for the betterment of the environment.

A lot has been achieved since the SEIA started operating, but the challenges still lay ahead if one expects an integrated and harmonic development of the coastal border. Lots more are needed to improve environmental education and the creation of a responsible citizenry. Effective citizen participation requires reliable information to be disseminated and readily available. In the field of natural sciences, and specifically regarding the coastal border, basic knowledge is often still

fragmentary and when that knowledge exists it is usually unavailable for the public and the public and private sectors.

The present evaluation of environmental impacts has made evident the lack of knowledge regarding our own ecosystems. This is particularly so with regard to our oceanic and coastal systems. Critical issues are the lack of basic natural history understanding of our ecosystems and the imperfect knowledge of the taxonomy of most zoological and botanical groups. But most of all, the lack of specialists in key groups as marine algae, echinoderms, sponges, crustaceans, coelenterates, bryozoans, to name just a few. If the absence of specialists is a problem, the lack of trained professionals that could assess the state of the biodiversity, before and after the projects have materialized, is even worth. Added to all this is the almost complete absence of identification or field guides and illustrated bibliographical material to carry out biodiversity inventories.

The gap between scientific knowledge and public understanding and familiarity with biodiversity issues is then immense. Education programs at all levels (from primary, secondary to university) are deficient in providing the basis to have a well-informed, up-dated public opinion. Empowerment of the public by these new environmental instruments may mean (as may prove to be the case in Corral) that deficient projects can be approved and that responsibilities will appear more clearly in the future, when the consequences may be to late to deal with.

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For an exploration of al the projects submitted to the SEIA and the status of the evaluation see: *www.seia.cl*