

The Integration of Biodiversity into National Environmental Assessment Procedures

National Case Studies

Uruguay

September 2001

**Produced
for the
Biodiversity Planning Support Programme**

UNDP/UNEP/GEF

14 URUGUAY

Prepared by Victor Canton

14	Uruguay.....	1
14.1	Introduction.....	2
14.2	Uruguayan Biological Diversity.....	4
14.2.1	Ecosystems.....	4
14.2.2	Fauna.....	5
14.3	Biodiversity threats and development pressures.....	5
14.4	Process for developing the National Biodiversity Strategy (NBS) of Uruguay	6
14.4.1	Precedents.....	6
14.4.2	Objectives of the strategy.....	7
14.4.3	Applied methodology.....	7
14.4.4	Topics of the strategy.....	9
14.5	Progress in implementing the Biodiversity National Strategy.....	11
14.6	EIA.....	12
14.6.1	The EIA system and its implementation.....	14
14.7	Biodiversity and EIA.....	17
14.7.1	Screening.....	17
14.7.2	Biodiversity data.....	18
14.7.3	Scope, impact prediction and assessment.....	18
14.7.4	Mitigation.....	19
14.7.5	Checks and controls.....	19
14.8	Illustrative case studies.....	21
14.8.1	CAS Pipeline.....	21
14.8.2	Case Study 2: Sierra de Mahoma.....	24
14.8.3	Project for viticultural establishment, wine vault and tourism.....	26
14.9	Future actions to improve the effectiveness in the conservation and sustainable use of biodiversity.....	28
14.9.1	EIA as effective tool.....	28
14.9.2	Valuation and comprehension.....	28
14.9.3	Local management, early warning and follow-up.....	28
14.9.4	Land use zoning.....	28
14.9.5	EIA and exotic species.....	29
14.9.6	Strategic Environmental Assessments.....	29
14.9.7	Land planning.....	29
14.10	Final conclusions.....	30
14.11	Bibliography.....	31

CASE STUDY 14 URUGUAY

Abbreviations

MVOTMA: Ministry of Housing, Land Planning and Environment
DINAMA: National Environment Directorate
CBD: Convention of Biological Diversity
NBS: National Biodiversity Strategy
EIA: Environmental Impact Assessment
EsIA: Environmental Impact Study
PEA: Previous Environmental Authorisation
UDELAR: University of the Republic of Uruguay
PROBIDES: Project of Wetlands Conservation and Sustainable Use (GEF)
MEC: Ministry of Education and Culture
MTO: Ministry of Transport and Public Buildings
MGAP: Ministry of Agriculture, Cattle and Fishing
PRENADER: Project to Support Irrigation in Uruguay (World Bank)
GMS: Geographical Military Service
INIA: National Institute for Agricultural Research
IDB: Inter-American Development Bank
GEF: Global Environmental Facility
UNDP: United Nations Development Programme
UNEP: United Nations Environmental Programme
IUCN: International Conservation Union of Nature

14.1 Introduction

Uruguay is located between the parallels 30° and 35° to the south latitude and the meridians 53° and 58° to the west longitude, it is formed by a terrestrial area of 176.215 km², islands and jurisdictional waters of Laguna Merín, Río de la Plata and the territorial sea of nearly 140.000 km². The borders of the country are the Federative Republic of Brazil to the north and east, and the Republic of Argentine to the west.

If we refer to the geomorphology, the landsurface of the country is slightly high, reaching a maximum of 513 m. in the Cerro Catedral in Sierra de las Animas, the plains are the main feature. There are soft waves of erosive origin that differ in shape according to the rocky material of which they are constituted, originating the sandstone and basalt plain hills and flat hills in the northern part of the country and the crystalline plain that gives a larger diversity of shapes to the relief in an extensive area in the south of Río Negro and minor in the north of the river.

The climate in Uruguay is warm, subtropical, and not very wet with variable states of weather. The annual average temperature is about 16° C, with monthly averages from a maximum of 21.5° in January to a minimum of 10° in July. The predominant climate in the country has enabled the development of soils in its whole extension and it is considered that 22% of them are excellent from the agricultural point of view. The diversity of rocks under the soil and the topography generate a great variety of soils. Uruguay presents a dense hydrographical system constituted by rivers and streams.

As mentioned above; Uruguay is located in the southern cone of South America, between Brazil and Argentina, has a temperate climate and is a transition zone from the subtropical ecosystems of the southern Brazil (like an ecotone) and the flat Pampas of Argentina. The country is included within the broader biological entity called the biogeographical Pampas Province, Uruguayense District, characterized by the dominance of grasslands associated with other ecosystems, like wetlands, gallery forest, ridge forest, palm groves and coastal and lagoon ecosystems. Also, Uruguay is located downstream of the Parana River Watershed and the Uruguay River Watershed, so the terrestrial, freshwater, and marine biodiversity is influenced by this factor; regarding that there are important areas of estuarine and marine ecosystems shared with Argentina.

CASE STUDY 14 URUGUAY

14.2 Uruguayan Biological Diversity

14.2.1 Ecosystems

The existing ecosystems in the Uruguayan territory are the result of a long historical course of interplays among multiple geo-environmental factors, the vegetation, because of its development and stability, generally constitutes, the most conspicuous element of a biocenosis, combining the terrestrial ecosystems. The different flora species require special conditions of temperature, moisture and light. Therefore its distribution is determined by geographical, climatic, edaphic and biotic factors. (Molina, 1997). The incorporation of new farming areas such as agricultural or forest ones, determine changes in the flora composition of the ecosystems, at the same time they modify the natural landscape. The ecosystems and landscape regions of the Uruguayan territory are displayed below according to different authors, but the National Environmental Report (1992) submitted to UNCTAD in Rio de Janeiro, distinguishes the main natural ecosystems:

- **Grassland ecosystems:** predominate, covering approximately 85 % of the whole territory. These grassland characteristics are described below. Natural grassland (neither cultivated fields nor artificial grasslands) occupy approximately 14 million of hectares. There is wide variation in soil type, topography, soil fertility, texture, phreatic level, insolation, erosion risk, rain effectiveness, frost and so on, over short distances. This causes important differences in the botanical composition of the grassland. Another item to take into account is the difference in 5° of latitude between North and South, that causes climatic variation (Chebataroff, 1960; Del Puerto, 1987a). One of the most important features of the present grassland, is the high number of species and the diversity of vegetative features and productivity. There are about 2,000 species, around 400 of which are graminæ. A two-stratum structure is common.
- **Forest ecosystems** vary according to vegetation associations. Natural forests cover over about 3.5 % of the national territory. According to their characteristics and composition we can find:
 - **Gallery or riparian forest or fluvial forest:** they are close and along to rivers and streams all over the country.
 - **Gully forests occur** in patches, cover the gullies and penetrate the north in presence of species from this origin. They have genetic values and a great variety and beauty of the landscapes they conform.
 - **Sierra or Ridge Forest** are located in the southern sierras of the country and belong to minor height woods and, in general, with twisted trunks. Sierra forest become more shrub-sized, called shrub, as you reach the top.
 - **Park Forest** can be defined as an intermediate situation between woody grassland (with a density of 1 tree/ha or less) and dense forest. It is geographically located in the west side

In the particular case of littoral forests, in the north-western part of the country there are sub-xerophilous communities with species associated with others closest biogeographical provinces (Paranaense and Espinal) and edaphic conditions.

- **Palm-groves:** There are two big areas covered by palm-groves, the one formed by *Butia capitata* in the provinces of south-east of the country an endemic species of this area, and the one of *Butia yatay* in the north-west, a patch which continues in Argentine and reaches Paraguay. In areas close to the north-western side of Uruguay, appears the
- **Park forest,** It refers to xerophyte associations, with a low number of individuals, where carob-trees (*Prosopis* spp) and *Acacia caven* detach as a biological intrusion from the tropical biogeographical provinces of Espinal and Paranaense.

- **Wetland ecosystems** are distributed in different areas in the whole territory, the majority in

CASE STUDY 14 URUGUAY

systems, controlling the erosion, supporting wild life, specially migratory birds, exporting organic nutrients, supplying pastures and sheltering fauna species of economical value.

Uruguay has an important number of wetlands of diverse dimensions

- **Coastal and marine ecosystems** of the inner rivers of Río de la Plata and the Atlantic Ocean. The ecosystems of the terrestrial-aquatic interface spread along the littorals of Río de la Plata and the Atlantic Ocean are considered here, they are generally characterised by the presence of sandy soils and peats or rocky outcroppings. Besides psammophilous vegetation, in some areas with more fixed soils, certain formations of shrub-woods of tamarisks (*Tamarix pentandra*), guava trees (*Mircianthes cisplatensis*, *M. pungeus*) and coronilla (*Scutia buxifolia*) appear. Along the Atlantic coast, ecosystems are enriched by the presence of a series of associated lagoons and wetlands, some of fresh water and others with saline intrusion, which constitute special habitats of interest because of its biological richness. The diversity in the fresh water ecosystems is distributed in a different way from those of the marine and terrestrial systems. Terrestrial or marine organisms live in more or less continuous media in extensive regions, and the species adapt to the place they occupy, when climate or the ecological situation changes. Biotic richness of the oceans goes further on the number of species. The major productivity measured in land is for the strip of land close to the terrestrial surroundings.

14.2.2 Fauna

The existing animal species correspond to the available habitats. Those, as stated, correspond to the penetration from the north of the sub-tropical systems and the bio-geographic connection with the Argentine pampas, with a predominance of prairies. The importance of the first ones stems from their position as the corridor through which animal species have penetrated from the north, while the prairie fauna is associated with that present in the Argentine pampas.

Some 1200 species of vertebrates have been identified in Uruguay, divided approximately as follows: 580 fish, 41 batrachians, 62 reptiles, 404 birds, and 111 mammals. Analyzing the vertebrate fauna of the country, the list of mammals is considerable, with 6 species of marsupials, 20 bats, 5 edentates, 20 carnivores, 2 artiodactyls, about 21 rodents, and 22 cetaceans.

With regard to the birds, Cuello (1985) lists a total of 404 species, including 161 genera with 244 non-Passeriform species and 105 genera with 160 Passeriform species. From this, more than half are found in aquatic habitats, such as wetlands, marine waters, Río de la Plata estuary, and lagoons. A little more than 100 species are of brush or forest habitats, while the fields and prairies are inhabited by only 80 species.

There are 62 identified species of reptiles (Achaval, 1976; Achaval, F. and Olmos, A., 1997). The caiman (*Caiman latirostris*) has particular problems due to the reduction of its habitat and its hunting persecution. The snakes, poisonous or not, are invariably persecuted, that is why the populations of many of those species have also diminished. Among the amphibians, there are 41 catalogued species (Achaval, F. and A. Olmos, 1997), all dependent on humid habitats which should be protected.

There are 580 species of fish in large continental courses of water and the sea, many of which are shared with neighbor countries such as Argentina and Brazil. According to the geographical location of the country, different species of fish and crustaceans (especially marine) have a temporal presence in coasts and coastal lagoons of Uruguay. There are no lists of fish species in danger of extinction, although some of them present symptoms of population diminish due to fishery overexploitation.

14.3 Biodiversity threats and development pressures

With a low density of population, the main threats to Uruguayan biodiversity come from different human activities. Some activities have been carried out in the country for centuries, like grazing by cattle and sheep. Cattle production, which has historically been based on the

CASE STUDY 14 URUGUAY

exploitation of natural grasslands has intensified in many areas, in some parts turning to a process of production based on the implantation of artificial grasslands, forage farming, etc.

Drainage to transform south-eastern wetlands areas to cultivate rice was an important factor causing loss of biodiversity, in particular in the last two decades of the 20th. Century. Today the rice frontier is moving to the north and the problems are the explosive growing of small dams for rice-irrigation and the associated channels and constructions. Aforestation with introduced tree species (eucalyptus and pine) has provoked landscape and biodiversity alteration on the dominant grassland. Government policies and fiscal subsidies gave strong support to this activity from the late eighties till now.

Mining activities, based generally on non-metallic minerals, in several cases put pressure on Uruguayan biodiversity, in particular in areas with special interest for conservation. Tourism is seen as an activity that can contribute to protection of biodiversity (ecotourism, rural tourism), but can also cause problems, particularly in coastal ecosystems (roads, coastal resorts and settlements, etc). Other factors that can promote damage, in particular in water ecosystems are biological and chemical pollution, excess of harvest, habitat modification, etc. Also the introduction of exotic species damage native species; like the wild boar (*Sus scrofa*), that substitute the native specie pecarí. Some native species have disappeared like the jaguar (*Pantera Onca*) and others are threatened like the grey fox (*Lycalopex gymnocercus*)

14.4 Process for developing the National Biodiversity Strategy (NBS) of Uruguay

14.4.1 Precedents

Uruguay formally ratified the Convention of Biological Diversity the 27th August, 1993 (Law 16408), which had adhered in case of the Rio Summit in 1992. In this way the country became the 32nd to do so (05/11/93) and, therefore, became engaged in following the emanated objectives the Convention.

According to what was established in Article 6°, the signing countries shall “develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, *inter alia*, the measures set out in this Convention relevant to the Contracting Party concerned”.

Moreover, the same Article points out, “shall integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”.

The country began a series of activities to reach this objective, with the purpose of ensuring the adopted commitment, which ends with the developing of the present project. In this way, the Ministry of Housing, Land Planning and Environment (MVOTMA) was designated as the “competent authority and point of contact for the instrumentation and application of the Convention on Biological Diversity in Uruguay” through the Decree 487/993 of 4th November, 1993. It is important to point out that the MVOTMA, created in 1990, by Law 16112, is the responsible organization for the “formulation, execution, control and evaluation of the national plans for the environmental protection and the instrumentation of the national policy in this subject”.

In 1994, the cited Ministry invited Public and Private Institutions, included Non-governmental Organizations (NGO's) to integrate a Working Group to discuss the main features for the Convention on Biological Diversity implementation. In June of the same year, a Workshop about National Strategies was carried out with the aforesaid purpose, and the technical support of the World Resources Institute (WRI) and the Biodiversity Support Program (BSP), under the coordination of Dr. Kenton Miller, in order to advance in the first steps towards the aforesaid strategy. As representative of public entities, private and international organizations, the University, the Botanical Garden and the NGO's and 45 participants attended this Workshop

CASE STUDY 14 URUGUAY

The National Environment Study (NES) was completed in 1992 and the Conservation Programme of the Biodiversity and Sustainable Development of the East Wetlands (PROBIDES), financed by the GEF and implemented by UNPD, constituted valid antecedents in the biological diversity subject at the local and national levels.

After this workshop, the National Environment Directorate (DINAMA) of the MVOTMA, assumes the commitment of going on working next to the institutions and participating delegates of this event towards the implementation of a strategy according to these lines of work. The National Government, through the MVOTMA prepares the project about “Formulation of the National Strategy, Action Plan and Report to the Conference of the Parties” during 1995, which is approved by the Global Environment Facility (GEF). After being implemented by the United Nations Development Programme (UNPD), the project was made effective early 1998.

DINAMA was the institution in charge of executing the project of the government. Its objective is to formulate the strategy and action plan for the conservation and sustainable use of the biological diversity at the national level (NBS). A multidisciplinary team integrated for DINAMA staff members and external experts had the leadership of the process of NBS

14.4.2 Objectives of the strategy

The proposed strategy for biological diversity conservation aims to conserve the diversity of ecosystems, species and genetic resources and maintain the ecological processes and systems, taking into account the close relation between the biological diversity and the biophysical and socio-economical factors that determine the human uses of the territory. In this sense, the strategy will have to take into account the traditional characteristics of land-use at the national level, as this has greatly influenced biodiversity. The strategy must also be sufficiently flexible to foresee the introduction of the changes that can occur in the future, in relation to sustainable development.

The strategy looks to:

- Define the substantial policy elements tending to:
- Incentives for the generation of knowledge and qualification on biological diversity for its conservation and sustainable use.
- Integrate the biological diversity conservation to the management and sustainable use of the natural resources so as to ensure its permanency in the short and long terms.
- Avoid and reduce the effects that determined biological diversity activities, works or projects could cause.
- Promote environmental education at all levels.
- Tend towards the fair and equitable distribution of the benefits derived from the use of biological resources.
- Include the conservation and sustainable use of biological diversity concepts in the national sectoral policies.
- Identify efficient instruments (legal, administrative or political) that allow us to reach those objectives.

14.4.3 Applied methodology

The developed methodology for the formulation of the national strategy of biological diversity has been essentially based on the proposed recommendations and guidelines of the publications “Planeación Nacional de la Biodiversidad” (WRI, PNUMA, UICN, 1995) and “Guía del Convenio sobre la Diversidad Biológica” (UICN, 1996).

The process involved the following steps:

- Review of the existing information about land and aquatic flora and fauna. This information was located, identified and inventoried to be classified into taxonomic categories in the case of fauna, meanwhile for the flora were also separated other thematic groups such as Uruguayan vegetation, phyto-genetic and agricultural resources

CASE STUDY 14 URUGUAY

- ❑ Characterization of the ecosystems of the Uruguayan territory, taking into account the geology, geomorphology, soils and dominant vegetation, with the suitable cartography.
- ❑ Identification of information gaps related to the estate of knowledge of the biological diversity of the country.
- ❑ Public enquiries through six workshops with a participative and multidimensional approach where all the individuals who are direct or indirectly related to biological diversity were involved.

The organization of this activity included:

- ❑ Definition of the methodology to be used in the workshops to manage to get involved the participants.
- ❑ Preparation of the documents about the specific subject to study, which were sent to the participants before the workshops took part.
- ❑ Processing of the final information in each of the workshops and elaboration of the conclusions that were sent to each of the attendants with the purpose of receiving their appreciation about them.

The subjects studied during the workshops were as follows:

- ❑ *ex-situ* conservation (workshop 1)
- ❑ *in-situ* conservation (workshop 2)
- ❑ researching, capacity building and information exchange (workshop 3)
- ❑ public education and awareness (workshop 4)
- ❑ environmental impact evaluation (workshop 5)
- ❑ development policies and genetic resources access (workshop 6)

In each event the problems, possible solutions and resistance were identified for each subject approached. In the process, 125 people assisted in representation of 58 national and provincial public and private institutions, the University, the National Administration of Public Education, NGO's, groupings of the private sector and non-state public people .

CASE STUDY 14 URUGUAY

The mechanism used to let all the groups of the society participate, was the following:

- At the beginning of the project a letter was sent to 108 institutions that were somehow related to biological diversity, informing about the CDB, the project objectives, methodology to be developed and a list of the workshops to develop. At the same time, each institution was asked to say which workshop/s they were interested in participating and who the chosen delegate would be. A 54% response was obtained in relation to the institutions that showed their concern in participating on the strategy formulation.
- Previous to each of the workshops, informative documents about the subject to be developed were sent to the delegates.
- Writing down the final document (draft) taking the information collected in the workshops, the advisory works, the counterpart and the basic information already existing as the main entries.
- After that, public consultations were done through a final workshop for the presentation, discussion and commentaries on the draft with the purpose of obtaining an agreed result among all the participants in the process and, in particular, another workshop with the municipal governments so as to give a local approach to the subject and benefit its future projection in such management area.
- Final proposal for a national strategy.

14.4.4 Topics of the strategy

The adopted criteria for the treatment of the subjects that are approached in this strategy was the same as in CDB, coincident for the most part with the agenda treated in the workshops.

A short analysis of the commitments contained in the CDB related to each subject is presented, followed by the country situation, the problems that have been detected and at last, the strategy proposal which includes the policy principle/s the country should adopt, and the necessary instruments to reach it.

It is worth making a point on the fact that in this strategy the emphasis is on the analysis and proposals of policies in the national area.

Due to the analysis of the conclusions called up from the workshops, common problems and recommendations to all the proposed subjects have been identified in a general way, a series of points which sum up what was expressed by the assistants during the process of the strategy formulation, are presented:

- The strategy for the conservation and sustainable use of the biological diversity should be adopted as a policy of the government.
- The management of the biological diversity must:
 - include popular participation to solve and control the existing problems;
 - be a task of the civil society and the Public Administration as a whole;
 - coordinate and negotiate actions, with nearly all the National and Provincial Public Administrations; and between those and the civil society so that the decentralization, participation, executive capacity and financial resources make it effective.
- The development and conservation strategies in the country must be solid and explicit, specially the last one. Moreover, they should define which the national conservation goals are.
 - Intra and inter-institutional coordination must be goals to achieve by all the public organizations in the short term.
 - Planning every action area of the strategy will be a commitment that all the organizations must assume in spite of the changes at the decision makers level.
 - The awareness fomentation at all levels of the society in relation to conservation value and sustainable use of the biological diversity is a fundamental component to achieve the strategy goals.
 - Achieve the creation of permanent centres of documentation at the national and provincial levels, so that they can be used as referents by the different parts involved

CASE STUDY 14 URUGUAY

To make effective the implementation of the proposals collected in the consultation process it is considered that some oppositions must be overcome, such as:

- The fact that conservation and sustainable use of biological diversity is a concept that has not been very appraised neither by the civil society, nor by the political society and public managers in general, and has not been assumed with the importance which deserves.
- On the other hand, there is a series of oppositions that are common to all society groups.
- To change: there are cultural guidelines fixed in the national population which make difficult the innovations work.
- There are difficulties in sharing and promoting knowledge generated in the subject.
- There is a slow in decision making due to the lack of awareness on the importance of the topic.
- Lack of coordination and, essentially, of communication among the different governmental institutions at all levels.

It can be asserted that, at the moment of giving priority to the assignation of economical resources in relation to biological diversity as an environmental component, the activities of inventory, bio-prospecting, protected areas, research applied to sustainable profit and environmental education should occupy a preponderant place.

Finally, it is worth saying that, although some problems have been detected, there are capabilities of human resources, and action and solution wills too.

CASE STUDY 14 URUGUAY

14.5 Progress in implementing the Biodiversity National Strategy

The document of the Proposal of a National Strategy for the Conservation and Sustainable Use of Biological Diversity in Uruguay was presented to the civil society and published by the MVOTMA in December 1999 with the presence of the Minister by that time.

This means that in the Ministry circuit and to the purpose of its policies and activities in the environmental area this contains the elements and general work guidelines. However, it is still necessary that the Strategy reaches the highest political level at the Executive (Presidency and other Ministries) and Legislative stages (Parliament).

The year 2000 was marked by the authorities change because of the national and municipal elections, this generally carries along to adapt the decision times, so the year 2001 should be made use of to go on promoting it.

It is also important to point out that is still necessary to elaborate the Action Plan, for which funds will have to be procured and at the same time, to reach important consensus and commitments between the different public and private sectors. It is known that the tasks referred to environment and biodiversity protection are cross-sectorial and with a relatively new (10 years) Ministry in charge of the environmental subjects (MVOTMA), is just now reaching the maturity stages suitable for these objectives.

Anyway, we must say that the elaboration process of the NBS as it was explained, caused a promotion and comprehension of the topic never reached before in Uruguay and therefore, acted as a catalytic agent for a series of management activities and approval of regulations in the subject.

In February 2000, the Parliament approved a Law creating the National System of Protected Areas supplying the MVOTMA the commitments for its elaboration. Until that moment Uruguay did not have a National System of Protected Areas but the areas legally protected had been a product of Laws and Decrees in different moments of the country history without any systematization.

In the strategic process its formalisation had been promoted in all the workshops and final conclusions, creating a favourable climate towards the Protected Areas, to develop them in concordance with the Article 8 of the CBD. The Law of the National System of Protected Areas can be then considered an accomplishment to which the process of biodiversity strategy contributed fundamentally.

During the year 2000 a technical group integrated by the MVOTMA, the Ministry of Agriculture, Cattle and Fishing (MGAP) and the PROBIDES worked in the elaboration of a draft Decree which would regulate the Law of Protected Areas. This will be discussed in cross-sectorial workshops with civil society in different places of Uruguay during 2001, with the objective of having a Decree soon, approved in 2001 and the first areas incorporated to the SNAP by early 2002.

Another indirect accomplishment was the approval in 2000 of the Decree creating the National Committee of Phyto-genetic Resources, integrated by the MGAP, the MVOTMA, the University of the Republic (UDELAR) and the National Institute of Agricultural Research (INIA). The Committee is in charge of topics of implementation of the CBD in subjects related with the Articles 9 (Ex-situ conservation) and 16 (Access to Genetic Resources) which had real gains in its treatment in Uruguay.

The Biosafety topic, which had arisen some disagreements during the strategy process, also had an advancement in 2000 when a Decree was approved that constitutes the National Committee of Risk Assessment of Vegetal Transgenics.

CASE STUDY 14 URUGUAY

In general guidelines, the risk assessment tool is incorporated previous to the introduction of transgenic vegetals, which is complemented with the manifest and the public audience to receive the comments and opinions of the civil society. This way, a good part of the topics referred to the Biosafety Protocol and Article 19 of the CDB is attended to.

We can also say that the elaboration process of the NBS in Uruguay, and the high level of public participation, contributed to promote awareness of the importance of the conservation and sustainable use of national biodiversity.

Biodiversity has not previously had a high profile. The ENB has contributed to greater awareness and understanding of biodiversity topics in Uruguay, including in the academic sector.

14.6 EIA

The United Nations Conference on Environment and Development that took place in Rio de Janeiro in 1992, also known as the Earth Summit or ECO-92; set in the 17th Principle of the Rio Statement, that the States:

- should adopt the Environmental Impact Assessment (EIA), as a national tool, in relation to any proposed activity which probably produces an important negative impact on the environment and depends on the competent national authority decision.

In spite of EIA emerging in the United States in 1969 (National Environmental Policy Act), in Uruguay it was approved as legal in the Law No. 16.466 (usually known as Law of Environmental Impact Assessment) in January 1994, which assigns the MVOTMA the role of national competent authority.

Then in September 1994 the aforementioned Law was regulated through the Decree No. 435/994 which enlarged its capacities and set basically the procedures for its application in practice; being the DINAMA the executor unit of MVOTMA in charged of the application of the EIA System (EIAS) regulations.

The environmental thematic in Uruguay was introduced earlier than the creation of MVOTMA and the Law of EIA. Since 1971, the environmental thematic was introduced in one way or another with the creation of the National Institute for the Environmental Protection, which belonged to the Ministry of Education and Culture (MEC), as well as Laws that ratified International Agreements on the Environment. Laws were also introduced for a Code of Water, the Law of Land and water Conservation, the Law of Forests, the Code of Mining, and so on.

The environmental thematic was also introduced by the international financing organisations. During the Financing Program for Small and Micro enterprise; for example, the Inter-American Bank of Development (BID) arranged with the National Corporation for Development an environmental impact study of the consequences of the program for the environment as well as making suggestions to improve consideration of the topic in successive credits. Then the BID required for its Multi-sectorial Global Lending, that the DINAMA should certify the environmental viability (Green Certificate) for each one of the enterprises that had applied the cited lending.

Later, programs financed by the World Bank, such as the PRENADER (National Project for Irrigation) also added environmental aspects to the projects which they financed. The Ministry of Transport and Public Building (MTOB) has submitted the procedure of the Law of EIA to the program financed by the BID of refecton and construction of all the bridges in the national routes of Uruguay.

At the same time, some Municipal Governments included in their regulation the obligation to present EIA for determined enterprises and local land plans.

CASE STUDY 14 URUGUAY

However, in our opinion, it is the Law of EIA that finally sets a point of inflection in the consideration of the environmental thematic by public organisms and the private sector, as well as the rest of the Uruguayan society.

The Law itself defines in its Article 2° as negative or hurtful environmental impact, every modification of the physical, chemical or biological properties of the environment caused by any form of material or energy resulting from the human activities which direct or indirectly hurt or damage the health, safety or quality of life of the population; the aesthetic, cultural or sanitary conditions of the environment and the configuration, quality and diversity of natural resources.

The Law also describes a list of works or activities included in the EIA regime, which is enlarged and treated more deeply in the Regulative Decree, that establishes the procedure of the Previous Environmental Authorisation (PEA) that the cited works or activities must get from the MVOTMA, before their beginning. The Decree also defines the categories in which every communicated activity or work can be classified by the MVOTMA. Category A is for the activities, buildings or works with no impact or a low one, Category B for moderated environmental impacts or that partially affect the environment, and Category C in the case that it could have significant environmental impacts.

Category A does not generate an Environmental Impact Study (EIS) by the proponent, which does not mean that its authorisation is not conditioned to mitigation measures. In the Categories B and C the proponents must present an EIS in the first case, of partial aspects and in the second case, the most complete as possible, they include the identification of the impacts and the necessary mitigation measures.

The proponents generally contract Advisors or Private Advisory Consulting Firms to make the EIS and present it to the MVOTMA, where is studied and they take the decision of authorising it or not, and in the first case, under which preventive and/or mitigation measures it is authorised.

The EIA System also establishes in its Law the instances of public participation in the case of projects classified B and C with the period of public manifest of an Environmental Report Summary (IAR) of the project with the purpose of receiving comments by the civil society. In the case of projects with big social impacts, the MVOTMA can dispose the realisation of Public Audiences to take into account the opinion of the social actors of the project areas at the moment of the decision.

As we said before, the Decree has a list of works or activities that should require the AAP. As an example we can cite: routes, railways, bridges, airports, ports, pipe lines, gas pipes, treating plants of toxic or dangerous wastes, plants of sewage sludge, mining exploitations, tourism resorts, urban developments, dams, canals, water withdraw devices, buildings on the strip of coastal defence, rural-industrial exploitations of a determined surface area, industrial establishments, and so on.

CASE STUDY 14 URUGUAY

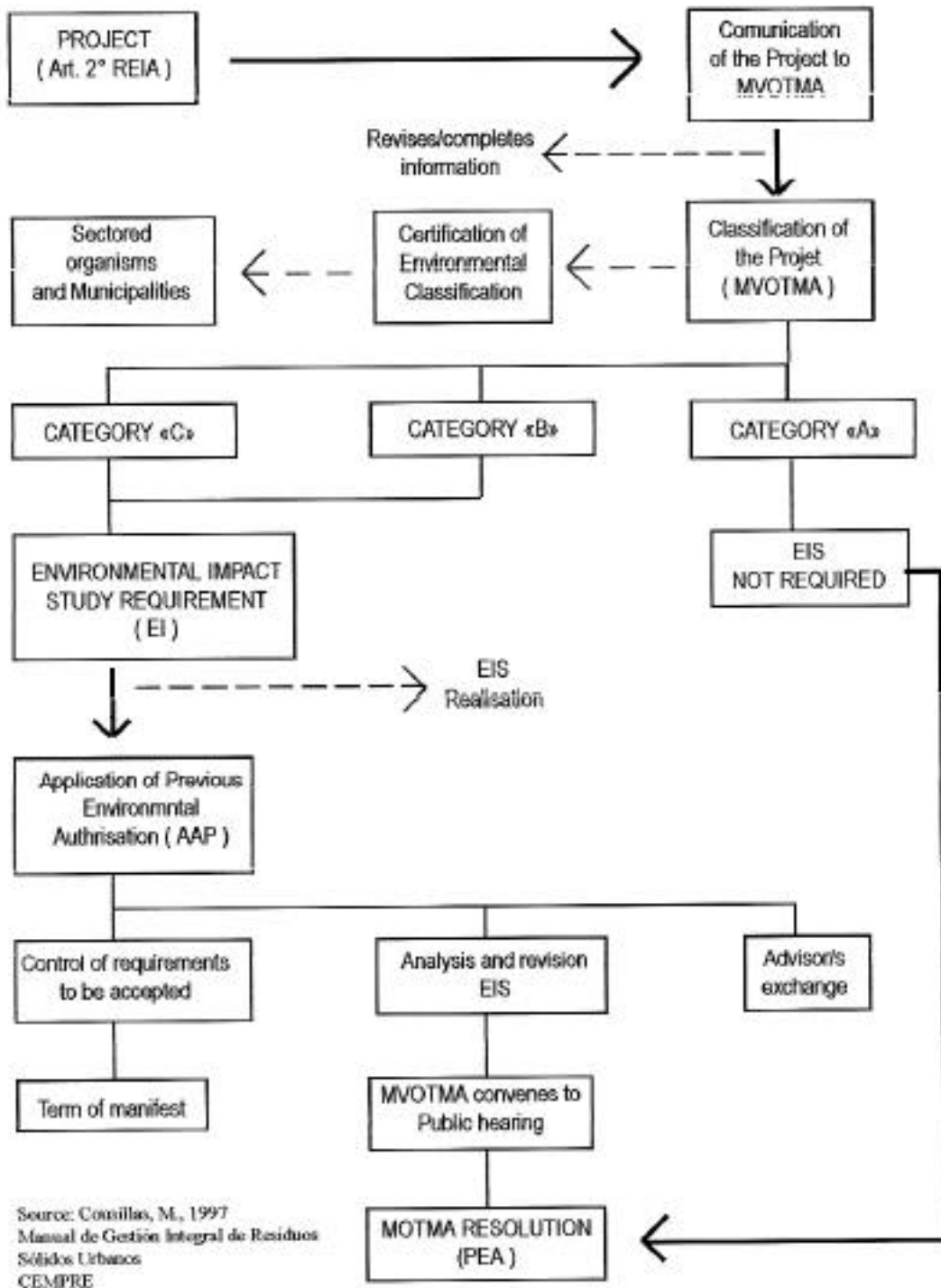


Figure 2 Previous environmental authorisation procedure (Decree 435/994)

Some enterprises were identified which are not in the Decree but could be subject to the AAP, such as the municipal solid wastes sewers to be built, the development projects in large areas, and so on.

14.6.1 The EIA system and its implementation

Nowadays, it can be said that more than 600 enterprises of different kinds, included in the

CASE STUDY 14 URUGUAY

activities of great project communication include mainly mining, then works or activities on the coastal strip, dams for irrigation, tourism establishments, bridges and routes, land divisions to settle purposes, forestry, generators and electric lines.

Moreover, the aforesaid are the most of the projects that are presented looking for the AAP; nearly all kind of works and activities foreseen in the Decree have been presented in any moment. Works such as Pipe lines coming from Argentina, Hospital Waste Incinerators, Exploitations of Gold Mineral, Great Dams for Irrigation, and so on, have been followed with interest by the public opinion and the parliamentary sectors.

Although there are projects subject to the Law of EIA in the whole national territory, the majority of them are located in the South and East regions of the country, mainly because of the concentration of population (65%) and activities such as tourism, mining, industries, infrastructure, roads and so on. The North and Northeast regions of the country also have a high number of projects, due to dams for rice irrigation and mining activities.

Seven years after approval of the Law of EIA, it can be concluded that the MVOTMA has made an effort to implement it in a way we could qualify as acceptable, taking into account that EIA was a “new” topic for society, and not all the public and private sectors initially understood its importance. Because of this, they were not prepared for it and it was necessary that all the EIA participants gained experience in it.

Nowadays, a bigger problem is the lack of material resources to carry out projects and the lack of co-ordination among the public sectors for their control.

Relating to biodiversity, because EIA is a tool that takes into account diverse environmental parameters related (vegetation, fauna, fragile ecosystems, soils, and so on), the application of the tool also has a favourable impact for the biodiversity protection, although this is at a convenient scale of the project that is subjected to AAP as we will see later.

The topic of biodiversity protection is considered in the EIA system at the same level as other environmental parameters of relevance (water, air, and so on) and in many cases is impossible to separate from a more comprehensive concept of environment. In fact, for a number of projects rejected by the MVOTMA biodiversity has been a key issue. There is also great participation of experts in natural sciences in the advisory groups that prepare the EsIA in Uruguay. It can be also asserted that the list of projects that are subject to EIA excludes certain enterprises that can impact on biodiversity, such as: introduction of exotic species at a great scale, forestry for production, fish farming, and so on.

The EIA System in Uruguay functions at the “project scale”. This means that the assessment is done on the proposed project, according to the Decree list and in most of the cases, the regulation frame does not foresee project alternatives or the cumulative impacts that various projects of the same or different kinds can cause in a determined area.

In such cases, the lack of regulation can be compensated by the political will of the competent authority (MVOTMA), limiting development in sensitive ecosystems or critical areas, though this is not a common occurrence.

Beyond doubt, there is also a lack of consideration of cumulative impacts in the EIA System in Uruguay, this is also affected by the lack of clear regulations at the national level on land planning. Some Municipalities have plans for local land planning, but they are exceptions and not the rule and it will be necessary to work harder on this aspect.

Nowadays, there is a Law Project of Land Planning in the Parliament that is being studied, but its approval can delay very much. The cited Project declares land planning of general interest and sets the basis for the national policy on land planning.

CASE STUDY 14 URUGUAY

As mentioned previously, the EIA System in Uruguay works at the “project scale”, making difficult the consideration of alternates and cumulative environmental impacts. In some countries (USA, Canada, Australia, countries of the European Union) Strategic Environmental Assessments (SEA), have emerged to permit assessments at a greater spatial scale and wider temporal horizon of engineering projects, plans of urban or rural development, international trade agreements and also laws.

These SEAs do not exist in Uruguay. This is worrying because at present, considerable infrastructure works are being discussed at the political level, such as the International Bridge Buenos Aires (Argentina) – Colonia (Uruguay), the Road Axis of the MERCOSUR, the Waterway Paraná – Paraguay as well as the National Forestry Plan, the Law of Irrigation, the Policy of Tourism Support, and so on.

The frame of the Law on EIA is not enough to undertake adequately these topics due to the complexity and size of the environmental and socio-economical aspects associated with them. In such cases, the SEA should be available as a tool of political decision and strategic planning, avoiding or minimising the detriments that in many cases the improvisation and the lack of an adequate basis of consultation can cause on the land.

CASE STUDY 14 URUGUAY

14.7 Biodiversity and EIA

14.7.1 Screening.

Once a determined project has been presented to the MVOTMA to get the PEA and therefore is included in the Regulation of Environmental Impact Assessment (REIA), it receives a qualification to continue the procedure. At this stage, the elements that integrate biodiversity are taken into account in the same way as other environmental elements. This means that if a project can cause an important impact on a watercourse and, at the same time, on the flora and fauna, all the mentioned elements are considered with the same importance for the qualification purpose.

To this purpose, the project proponent is required to present maps at the suitable scale with the project location and the main elements of the environment that exist in the area, this allows to identify if the activity will affect local biodiversity. In this sense, we should mention the importance of having well-considered the spatial perspective of the project, as well as in a suitable scale. Take for instance: it would not be worth to present for assessment, a small mining enterprise in a country map at $1/500.000$ scale, that can say little about the place characteristics and would represent only a point showing the general location.

The available cartography is then of great importance to make the first approach correctly to identify the probable impacts on a biodiversity project, in particular, at the ecosystem scale. In Uruguay, the maps of the Geographical Military Service (GMS) have a whole coverage of the national territory at a $1/50.000$ scale. They include in their information the main vegetal associations and ecosystems, such as native forest (riparian, hill and park), wetlands, palm-groves, lagoons, besides farming areas, dams, and so on. In many cases, these maps allow to have a whole vision of the area and therefore, to relate the environmental elements in a determined area more easily.

For instance, we can mention that while the Pre-feasibility Studies of the Bridge Colonia - Buenos Aires were done, and they tried to identify the environmental impacts on the area of the city of Colonia using a $1/50.000$ map of the SGM, a large area in the city surroundings could be identified. This was a wetland (Bañado de la Caballada) that supposed certain importance at the local scale but had not been valued as such until that moment. Since then, some consciousness has been taken on the importance of the place and at present, the city of Colonia has developed an Ordinance of Land Planning which takes into account the cited ecosystem and determines it as a local protected area, excluding it from the future urban growth.

The use of aerial photographs is also of great utility, in Uruguay they are regularly commercialised at a $1/20.000$ scale and depending on the area is the actuality degree of the photos. Anyway, and in the same way as the SGM maps, they are of great utility for the purpose of identifying impacts at the local ecosystems level. Once the main affected ecosystems are identified, it can be also deduced which habitual fauna and flora species can be affected and therefore, take the suitable measures.

In the case of a project that proposed the construction of a dam for irrigation in an area of fragile ecosystems, the proponent was required to provide aerial photos of the place, and also a map about these photos showing the project in its working stage. This way, the affected areas and the biodiversity changes can be determined so that the actual and future locations can be compared, which allows an approximate idea of the impact magnitude.

In the case of the desiccation of large wetlands located on the east of the city of Montevideo (Baños de Carrasco), that occurred two decades ago, the aerial photos before and after it, allow to assess the territorial impact on biodiversity and determine the extension of the original ecosystems that were lost.

CASE STUDY 14 URUGUAY

14.7.2 Biodiversity data

In the phase of initial identification of impacts, the available data and information are basic for a proper classification of the project in the REIA scheme. The experience shows that this factor is complicated by diverse causes that are treated below.

Uruguay has not a Red List of threatened species and habitats, in spite of the National Committee of IUCN has begun to work at present to concrete it, what would be a valuable ally in the EIA System procedure beyond doubt.

Although there are Protected Areas at the National and Municipal levels, they have not been integrated in a system till now and in some cases, they are only urban parks formed by exotic species. Anyway, for the purposes of project classification, the MVOTMA takes into account the areas under legal protection and as it was approved the Law that creates the National System of Protected Areas in February 2001, surely this will be complemented with the SEIA. The status of legal protection of a determined area is equally taken into account for the purpose of authorising a project or not.

As an example, we can mention the coastal littoral lagoons of the Atlantic coast of Uruguay, rich in biodiversity of species, particularly birds and fish, which are legally protected. In their surroundings, enterprises such as constructions in the coastal strip that separate the lagoons and the sea have been prohibited for the purpose of avoiding urban pressure on such fragile ecosystem.

Mining enterprises in Municipal Protected Areas have been also denied, taking for instance, the area of Sierra de Mahoma in the Municipality of San José. This is a kind of “Biological Island” in the middle of the grassland, with particular characteristics in ecosystems of sierra forests and flora and fauna species. Another example is Quebrada de los Cuervos, an area of great biodiversity and declared Protected Area by the Municipality of Treinta y Tres. Both areas have geological aspects that make them proper for mining enterprises and till now they have been able to be protected by applying the regulations of the SEIA.

In the case of species of native fauna, the MGAP tries to protect the native land and aquatic species from predatory actions under various regulations. However, we understand that the SEIA regulated by the MVOTMA has not included the species protection in comparison with the ecosystems yet. We should recognise there is lack of data and information and maybe a better co-ordination between the MVOTMA and the MGAP in this aspect.

Anyway, the EIS that present the projects should contemplate the aspects of fauna and flora species of the place, although the lack of studies makes them too superficial and lose effectiveness in this aspect of biodiversity protection.

In spite of all these shortcomings it is worth saying that through researches in the UDELAR, works of the environmental NGOs and independent researchers, a volume of biodiversity information at the level of landscapes, ecosystems and species has been generated. This allows working with a minimum basis and is taken into account as an information source by the SEIA of the MVOTMA for all the stages of the EIA procedure. Undoubtedly, this information works as a “not official” list, but can be considered operative when assessing biodiversity impacts with the best available knowledge.

During the NBS workshops the necessity of centralising and organising this information arised and was discussed with the purpose of giving it an official character and it is hoped that the Clearing House Web Page of Uruguay can contribute in the future to this, once developed.

14.7.3 Scope, impact prediction and assessment

Once the project presented to the MVOTMA has been classified and in the case of being B or C, the prononents must do an EIS. In both cases it is required for the terms of reference to cover

CASE STUDY 14 URUGUAY

complex studies have been required on the fauna of the place than the ones the EIA had presented initially.

For the purpose of taking into account impacts on biodiversity, consideration of ecosystems and dependant species of the project area is required. In the case of the MVOTMA, there is little experience at the genetic level. Consideration of ecosystems and species is considered to be more practical and pragmatic and also to serve as an umbrella for impacts on biodiversity at other levels.

EIA at the “project scale” is usually based on study limits corresponding to the immediate area of the project location. Even though, there are fragile ecosystems that can be affected by determined activities of the project (for instance: noise on birds, water shedding on lagoon ecosystems, felling of near native forest, and so on). These less direct impacts should also be included in the considerations the proponent has to present in the study. The system is vulnerable because of the legal impossibility of considering cumulative impacts.

Beyond doubt, if the project is associated in a direct way with biodiversity damage, the MVOTMA can require more detail, eg the elaboration of field studies. As a reference, we must mention that the PROBIDES program has successfully used Rapid Ecological Assessments in the East area of Uruguay with the purpose of determining the degree of diversity and environmental sensibility of areas to be included in its Management Plan of the Biosphere Reserve. These kind of assessments can be of great utility in the EIA System because they contribute a high amount of information on biodiversity and considerably reduce uncertainty thresholds.

14.7.4 Mitigation

Mitigation measures are usually incorporated in the decision of the MVOTMA on every authorised project. Since that the Authorisation of the MVOTMA derives from a Law and its Regulatory Decree, this has legal force and it is an obligation of the proponent to implement it, otherwise, he can be penalised.

In the cases of building of Bridges that get through water courses it is generally necessary to cut the native riparian forest in the building phase; in this case the proponent might be required to afforest with the same species after the work is finished. In these cases, the builder who constructs the dock on the watercourse during the construction of the Bridge is urged not to interrupt the course and to allow the passage of fish.

Another example of mitigation measures can be the mining enterprises, which in Uruguay are generally small in area, and of non-metal minerals. If part of the project includes the destruction of wetlands and native forest; the MVOTMA may authorised partial exploitation, not allowing its realisation in the area of wetlands and native forest. For the abandonment phase of the mining projects, restoration of the landscape and natural vegetation may be required.

In the case of the construction of dams and ponds for irrigation the “ecological river current ” is required, so that a minimum flow of water is maintained to ensure sustenance of biological corridors and the water supply to the ecosystems downstream of the dam.

In summary, we can say that the different mitigation measures will depend on the kind of project, to be implemented under legal action according to the MVOTMA requirements.

14.7.5 Checks and controls

The few years of experience since implementation of the Law of SEIA has (6) shown that it is still necessary to work on the criteria to decide on the projects, specifically those affecting biodiversity. It depends to a large extent on the experience of the group that assesses on the topic and in the last years the number of experts in the area of biological sciences who participate in the EsIA has increased. The MVOTMA is also guided by the guidelines of the

CASE STUDY 14 URUGUAY

CBD besides it takes into account the sensitive and protected areas, threatened species, and so on.

However, there are no written rules: the criteria are in the hands of the technicians of the MVOTMA. This has come forth in some cases that discussions arise between the proponents and the authority because of determined decisions or measures that the MVOTMA can take to protect biodiversity; finally it ends in a difference of focuses between both technical groups. The political level of decision making generally supports the technical level, anyway, it will be necessary for the MVOTMA to manifest the main criteria in relation to the EIA System and the conservation and sustainable use of biodiversity supported on the NBS, in the short term.

Although the projects that have applied the EIA System are followed up and regulated, this is not implemented as often as would be necessary due to lack of human resources and materials for the task and the lack of inter-institutional co-ordination. Privatisation of the endeavour has been considered because the Law of Reform of the State (1996) allows this. The idea is objected to and supported by different sectors. We understand that it could be a practicable alternative to improve the system if it is done under clear rules and remains the responsibility of the MVOTMA.

There are numerous examples to demonstrate obligations to control biodiversity through environmental management plans. The proponent may be obliged to present monthly and half-yearly reports on the status of certain environmental parameters, biodiversity included, in the different stages of the project.

The MVOTMA, due to being the national authority on the environment, always gives priority to environmental aspects, (biodiversity included), in its processes. However, this is not always the case in other Ministries in charge of different matters.

CASE STUDY 14 URUGUAY

14.8 Illustrative case studies

14.8.1 CAS Pipeline

Proposal, proponent and project location

In 1998 the Government of Uruguay concedes the Enterprise Gas Pipeline Cruz del Sur, the construction, operation and maintenance of a system of transport of natural gas which includes the laying of a gas piping that starts from Argentina, goes through the Río de la Plata submerged under it, reaches the Uruguayan coast and then runs over 200 km. by land (where the gas pipeline is mostly buried) and then has secondary connections to the different points where it must supply natural gas.

The project is of great importance for Uruguay because allows the supplying of natural gas from Argentina and, at the same time, the use of a fuel that besides being economical, it is also profitable from the environmental point of view.

The project was included in the Law of EIA by its characteristics, requiring then the PEA from the MVOTMA for its construction. The Enterprise contracted an Advisory Consulting Group, which integrated a multidisciplinary working group that did the EIS of the Project, which was elevated to the MVOTMA and after a process of assessment of various months, finally got the authorisation, conditioned to a series of mitigation measures.

It is detachable that the project proponents organised stages of public information in the Municipalities where the gas pipeline goes through and then the MVOTMA did a series of Public Hearings to receive comments of the civil society to be considered in the decision.

Impacts on biodiversity

The Advisory Group that did the study compiled the existing data on biodiversity on the area of the project and moreover had its own group of experts who did a rapid assessment of the critical zones.

Because the gas pipeline is a linear project, the EIA identified the different impacts on the environment, biodiversity among them. In this case, it was identified a crucial moment in the construction when the gas pipeline had to go through rivers and wetlands; specially the Rosario River, which has an important riparian forest on its river-sides, and the Santa Lucía River, which has a wetland area and riparian forests in its surroundings.

CASE STUDY 14 URUGUAY



CASE STUDY 14 URUGUAY



As the gas pipeline is buried and bisects riparian forest, it would be necessary for its construction, to cut down an important part of the forest, resulting in irreversible loss and the disruption of the biological corridor that it represents. There would also be loss of wildlife habitat, loss of flood control functions and increased soil erosion.

The wetlands of the Santa Lucía River have important biodiversity value in biodiversity, because part of them have mixed fresh and salty characteristics and have the function of habitat and regulation of the hydrological cycle of this kind of ecosystem.

Mitigation measures

Taking into account the aforesaid, the proponents suggested that when the gas pipeline had to go through the Rosario and Santa Lucía rivers and for the purpose of avoiding the destruction of the ecosystems of the riparian forests and wetlands, they would use a directed perforation. This is a shaft that is perforated from one side to another of the river or wetland, going through the geological layer. The perforation is followed by the placement of a stretch of previous built piping. In this case, the way of the perforation must be directed down the river before the cross with the ecosystem and then up the river to reach the surface on the other border of the ecosystem. This way, it avoids any kind of intervention on the forest or wetland, without any possibility of damaging them.

CASE STUDY 14 URUGUAY

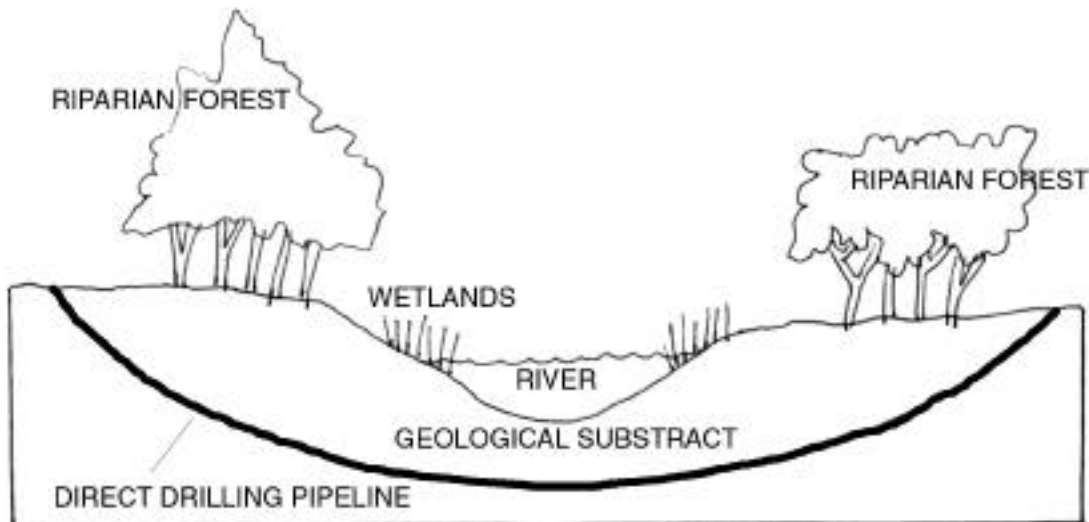


Figure 3

Conclusion

We understand that we are in presence of a mitigation measure that can be successful if it is correctly done because it has the advantage of avoiding the contact of the construction of the gas pipeline with the ecosystem and therefore, not interrupting its working. We also have to admit that this adds important costs to the project and is not always viable because it depends on much on the geological characteristics of the place where the project is taking place.

Anyway, and in this case specifically, we can detach it as a good example of effort of a project in taking into account measures to protect biodiversity in the frame of SEIA.

14.8.2 Case Study 2: Sierra de Mahoma

Main characteristics in biodiversity of the area

In this case study we will refer to different actions that have been proposed on an area considered of interest for the conservation and the response the EIA System has had in two opportunities.

Sierra de Mahoma is located about 120 kms. on the north-east of Montevideo, in the Municipality of San José; is an area of nearly 4,500 hectares in what it would be its nucleus area. The Sierra is actually a geo-morphological formation very particular conformed by enormous blocks of granitic rock, which in many cases have curious shapes by the action of the geological elements. Its characteristic has given itself the name of “stone sea” in relation to the great quantity of granitic blocks that composes it.

The Sierra rises like a very special entity in the landscape of plain and grassland that surrounds it and that is the characteristic of the zone. At the same time, it generates a special microclimate in the area; it has diverse kinds of vegetation and micro-habitats in its territory such as sierra forest, sierra scrubs, small wetlands, fluvial forest, and areas of herbaceous plants, ferns and lichens.

These geo-morphological and vegetal characteristics have great importance as an habitat for the fauna as well as shelter and nidification place of species, some of which are migratory and other threatened. There is great variety of vertebrates, reptiles, amphibians, fish and specially birds.

All the aforementioned make the Sierra a kind of “Biological Island” in the middle of the grassland; with valuable characteristics in biodiversity besides being a place with a landscape of great beauty.

CASE STUDY 14 URUGUAY

Nevertheless, the Sierra has not any status of legal protection and in spite of it was always commented that would be important its conservation and the NBS itself points it out to integrate the National System of Protected Areas, it has not been incorporated yet, though it will be under legal protection at the short term surely.



CASE STUDY 14 URUGUAY

As we said, the Sierra detaches by its enormous blocks of granite, which determines that it is seen as a potential source of mining resources specially to be used in the construction industry and ornamentation.

Although by regulation reasons we can not refer to the project itself, we can say that there have been proposals of mining exploitation in places inside the Sierra itself and the EIA System has played a fundamental role in here to protect biodiversity.

As we mentioned in Chapter 4, the regulation of the EIA in Uruguay requires among others, that mining activities must have the PEA to be able to start the exploitation phase. Although Uruguay has not been traditionally a country characterised by its mining, in the last years it has soured specially in non-metallic minerals and since the Code of Mining and later the Law of Environmental Impact, the enterprises must have the authorisation of the MVOTMA.

There was a time when the mining projects became more than 50% of the total of the presented for authorisation of the MVOTMA in the process of the SEIA.

Impact on biodiversity and mitigation measures

The MVOTMA received applications to exploit granite in Sierra de Mahoma, but as it does not have a status of legal protection for its conservation, then the EIA was the practical tool to take the decision on the required authorisation.

In the process of assessment it was taken into account the importance of the Sierra in what refers to its significance in its natural values, including biodiversity and the beauties of the landscape, as well as in cultural values. It was considered that an activity such as mining exploitation, which generates a significant change and mostly irreversible at the short term in the natural characteristics and landscape of the place where it is practised, it was not viable in the Sierra. Therefore, the authorisation requirement was denied based in these arguments. In this case there was not mitigation measure because the activity was prohibited.

Conclusion

As a conclusion we can say that when there is an area of special interest by its biodiversity values, that for any reason does not have a suitable legal protection and it is threatened by some work or activity proposed, the application of an EIA that takes into consideration biodiversity as an important parameter to consider and ponder. It becomes an effective tool to manage the desired conservation, according to the philosophy of the Article 14 of the CDB.

14.8.3 Project for viticultural establishment, wine vault and tourism

As it was mentioned, the Sierra constitutes an “island” in the middle of the grassland and in such context, about the middle of 2000, a viticultural establishment was installed in areas of grassland near it for the production of grapes of quality for exportation. Additionally, it was presented to the MVOTMA, a project to build a wine-vault and next to it, lodging for activities of rural tourism related to the wine-vault and the plantations. All this, it supposed to do some landscape and cultural disposing besides the building of small dams. Although the project is not in the Sierra exactly, is located in its surroundings (in what would be its buffer zone, if it was a protected area) and as it is an enterprise which contemplates touristic purposes, it must have the PEA of the MVOTMA.

CASE STUDY 14 URUGUAY

Impact on biodiversity and mitigation measures

Although the project had a strong component of environmental protection since its presentation, during its assessment the technicians of the MVOTMA and the enterprisers did field surveys to the purpose of checking the situation and analyse alternatives to improve the proposal. It was identified that the major impact on biodiversity could be the proximity of the wine-vault and lodgings to the natural ecosystems of the Sierra and a probable disordered access of tourists to it.

Then, they decided to authorise the project changing the location of the wine-vault and the lodgings to a farther place, controlling their effluents and waste management in a proper way. The activities of the future tourists were fit to build planned paths taking into account the load capacity so that not to affect biodiversity.

Conclusions

In this case the EIA was of utility to improve the possibilities of an activity seen as viable and of low or no pressure on biodiversity, besides corresponding with the actual land use that the area has. It also offers the opportunity that the private enterprises contribute to protect the biodiversity and environment of the place, which must be their preoccupation, because the success or the project proposals depend on the conservation and sustainable use of the biodiversity and scenic beauty of the Sierra, specially in everything referred to tourism.

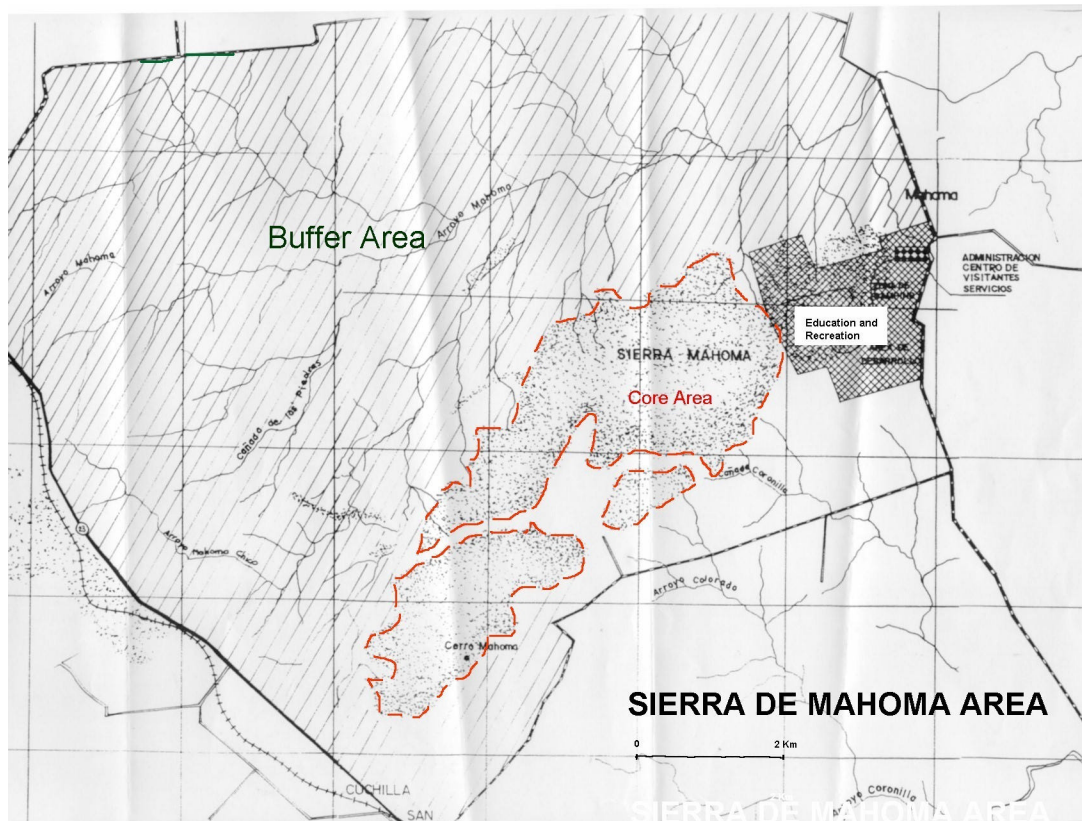


Figure 4

CASE STUDY 14 URUGUAY

14.9 Future actions to improve the effectiveness in the conservation and sustainable use of biodiversity

14.9.1 EIA as an effective tool

As it was mentioned below, during the elaboration process of the NBS in Uruguay, one of the main discussion workshops had as a core topic the Article 14 of the CBD and the recommendations to be able to implement it in practice. There is a general consensus in that EIA is a proper tool for the purpose of biodiversity protection, whenever the EIA System contemplates the suitable elements to this effect, particularly because it is a kind of approach that takes into account a great number of parameters (physical, biological or socio-economical). If we compare it with other instruments of biodiversity protection such as in-situ or ex-situ conservation, the EIA is a more comprehensive procedure and incorporates the suitable development focus.

14.9.2 Valuation and comprehension

Beyond doubt, all the Check-lists or Matrixes, and other methods usually used to identify impacts contemplate the different elements of land and aquatic biodiversity. The problem comes forth after the identification, when the different biological elements are valued and also at the moment of visualising all this as an interrelated system and its response capacity facing a determined project.

In some occasions, it is possible to handle objective elements of measure. In the case of Uruguay we can mention some threatened species or in danger of extinction, taking for instance the Pampas deer or an ecosystem protected by Law as in the case of the native forest and some areas of wetlands. In other cases, where there is not an objective measure, the valuations depend on much on the judgements of the experts who are involved in the EIA, being in that moment that the discrepancies come forth, which conspires for the suitable working of the EIA tool in biodiversity protection.

Then, it will be necessary to work on valuation criteria and comprehension methods of biodiversity in the EIA and later to make them explicit by the MVOTMA (through Ministerial Resolutions, Decrees, and so on) for the purpose of establishing the game rules and diminish the discrepancies frame.

The aforesaid is related to the training and the improvement of the basic information on biodiversity with the purpose of applying it in the EIA System, taking for instance the elaboration of a list of priority ecosystems and species from the conservation point of view.

14.9.3 Local management, early warning and follow-up

Another important aspect identified in the process of NBS related to the EIA is the combination of the local management and early alert. The old and nearly inoperative Municipal Commissions of Fauna and Flora created in Uruguay, should be transformed into Municipal Committees of Biodiversity, integrating NGO's and being coordinated by the Local Authorities. These would have the function of early warning system for all those activities that could threaten the local biodiversity and, at the same time, could supply a suitable follow-up to projects in the area in a more efficient, nearer and continuous way than the one the MVOTMA could have from the capital. They could also rescue populations for their ex-situ conservation when the modification of the natural environment is unavoidable or irreversible, with the help of the local communities.

14.9.4 Land use zoning

The ENB also identified the necessity of doing a zoning at the country level through the

CASE STUDY 14 URUGUAY

allowing their location and the identification of critical areas where the MVOTMA could supply recommendations and consider them of special interest in the EIA. As an example we can mention the palm-groves ecosystems of Palma Butiá (*Butiá capitata*) that occupy large areas in the east region of the country, of a great value because of its biodiversity and beautiful landscapes. These present the problem that although the Butiá species is not threatened, the palm-grove ecosystem it is, because the cattle activity which predominates in the place determines that cattle eats the buds of palm-trees when breeding, avoiding the adequate renovation of specimens of this species. By implementing an adequate zoning, exclusions or alternative activities could be done to protect the mentioned ecosystem.

14.9.5 EIA and exotic species

In the NBS it was also recommended the inclusion of the obligation of the EIA for the introduction of alien species with risk of becoming invaders. The introduction of the wild boar (*Sus Scroffa*) at the beginning of the century meant the extinction of the peccary (*Taysassu tajacu*) and at present it constitutes a problem for the agricultural sector when affecting sheep. Another case could be the introduction of exotic species in aquatic habitats; at the present, the presence of the Carp (*Cyprinus carpio*), exotic in the country, which begins to manifest invader signals in different aquatic habitats. Taking into account that Uruguay has a large hydrographical network, and joined to this, lagoons and dams make it attractive for the commercial fish farming.

14.9.6 Biological indicators

Beyond doubt, the development of Biological Indicators, adapted to the biodiversity conditions proper of the Uruguayan territory, would be of great utility to improve the efficacy of the EIA System, in particular in what refers to the control and endeavour of projects. However, the MVOTMA is a management organisation, not a research one, therefore the development of the biological indicators should be a task of the University or Research Projects, which then would recommend its proper use in the EIA to the MVOTMA.

14.9.7 Strategic Environmental Assessments

We have mentioned that the EIA works at “Project scale”, making it difficult to consider the cumulative impacts of various projects in a determined region, as well as applying the EIA programs and policies of sectorial development. As an example we can mention the Forestry Plan that, from the MGAP has promoted the plantation of more than 400,000 has. of exotic trees (mainly eucalyptus and pines) for commercial production, without having a previous environmental assessment. At the present, the Forest Directorate of the MGAP and some forest private enterprises have their own studies, trying to include the environmental factor in their projects and one of the main topics of study is the impact on biodiversity, without doubt a good signal.

The NBS recommended the implementation of Strategic Environmental Assessments for the cases of national and regional projects and programs of agricultural, touristic, energetic and transport development and great infrastructure buildings, which will have to include the conservation and sustainable use of biodiversity as a priority element to be analysed.

14.9.8 Land planning

In our judgement, Land Planning is a tool that can complement EIA in an excellent way and vice versa, strengthening the use of both to the effect of protecting the environment and biodiversity.

Lamentably, Uruguay has not a National Law of Land Planning and the authority in this sense is deposited in the Municipal Governments, which, with exceptions, do not have regulations that

CASE STUDY 14 URUGUAY

planning at the political level either, and less when the economical urgencies make that the land is “ordered” by fact and without planning.

As an example we can point out that in the south area of the Laguna Merín basin, on the east of the country, large areas of wetlands were dried at the end of the 70s, to facilitate the intensive farming of rice. This resulted in a large disorder, besides the damage of the biodiversity and the natural hydrological cycle in the area. At the present, a Group of Work at the Governmental level is trying to regulate it with the purpose of supplying a minimal order to a land of special interest, but knowing that it will be impossible to return to the previous situation before the drainage.

In relation to land planning as a complementary tool to the EIA, the NBS of Uruguay recommended that it should exist a regulation frame at the national and municipal levels that promotes the land planning and includes biodiversity protection among their priorities.

14.10 Final conclusions

Uruguay has taken the positive step of developing national regulations for EIA, according to Principle 17 of the Río Declaration and Article 14 of the CBD with political responsibilities invested in the MVOTMA,. In a country like Uruguay that needs to increase public concern about biodiversity , the EIA System can be an excellent tool to protect biological resources , taking into account that the National Protected Areas System is actually under development. The case studies presented in this article are examples about the way that the EIA can work in this sense.

The EIA System implies a comprehensive approach to the decision making and allows related different physical, social and economic parameters to be balanced with the conservation and sustainable use of the biodiversity.

- The NBS of Uruguay pointed out special attention in the Article 14 of CBD and the way for the national instrumentation trying to strengthen the EIA System.
- The NBS recognises the need to improve the information access and organisation as a way to improve the EIA System with the goal of protecting biodiversity.
- The Project-scale approach of the EIA system could be improved. SEA should be implemented, in particular for large scale and sectoral developing plans.
- It should be also necessary to develop rules and criteria about conservation and sustainable use of the national biodiversity, at the same time with biodiversity value studies ; and include them in the EIA regulatory System.
- National Land Planning Regulations ought to be approved to support the EIA and its use for protecting national biodiversity, particularly in non protected areas.
- More education and awareness about EIA and biodiversity at the political, academic and civil society levels must be developed if NBS implementation is to be successful.

CASE STUDY 14 URUGUAY

14.11Bibliography

Uruguay; Propuesta de Estrategia Nacional para la Conservación y Uso Sostenible de la Diversidad Biológica del MVOTMA/UNDP 1999 //GEF

Uruguayan Report to UNCED; 1992

Estudio Ambiental Nacional (National Environmental Study), 1992 OPP/OEA/BID

Estudio Ambiental Resumen (Proyecto Gasoducto Cruz del Sur) / 1999

Perfil Ambiental del Uruguay 2000; Coordinadores Ana Dominguez-Ruben Prieto Editorial Nordan Comunidad ; 2000

Environmental Methods Review: Retooling Impact Assessment for de New Century AEPI / Alan L. Porter and John Fitipaldi, Editors / 1999

Laws, Decrees and others Uruguayan Environmental Regulations

Pictures of the Santa Lucía River : Eduardo Andrés

Pictures of the Sierra de Mahoma : Gerardo Evia