

**GLOBAL
ENVIRONMENT
FACILITY**

Uruguay

Conservation of Biodiversity in the Eastern Wetlands

Project Document

*This Project Document has been edited to facilitate public dissemination.
The original is on file in the GEF Office at UNDP Headquarters in New York.*



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UNITED NATIONS DEVELOPMENT PROGRAMME

GLOBAL ENVIRONMENT FACILITY

Project of the Government of Uruguay

Title: Conservation of Biodiversity in the Eastern Wetlands
Number: URU/92/G31
Duration: Five years
Project Site: Eastern Wetlands
UNDP Sector: Natural Resources
Subsector: Biological Resources
Executing Agency: Ministry of Environment, Government of Uruguay
UNDP Approval: November 1992
Government Inputs in kind: N \$ 6,900,000,000
UNDP Inputs: US\$ 3,000,000

Brief description:

The project will conserve biodiversity in the Eastern Wetlands and promote sustainable development in the region by increasing local knowledge about natural resources, by training human resources in science and management, by increasing the availability of environmental information, and by promoting the involvement of local stakeholders, both public and private. The project will further facilitate management of natural resources by establishing a protected area system and by actively pursuing national and international recognition and support for the Wetlands. To attain these goals, the project will develop and implement innovative strategies for managing biodiversity and encourage users of the Wetlands' natural resources to participate wherever possible.

A. CONTEXT

1. Description of subsector

The Eastern Wetlands region hosts a remarkable collection of ecosystems, with numerous ecotones and high biodiversity. The area, located in the Department of Rocha in southeastern Uruguay, is bordered by higher terrain to the west and north, by the Atlantic Ocean to the south and east, and by Merín Lake to the northeast. Broad sedimentary plains of upper Pleistocene-age and clay substrate predominate—with a number of low hills and a rocky substrate—at an altitude ranging from 2 to 20 metres above sea level. On the ocean coast, there are major fields of dunes and old coastal sand bars, some 20 to 30 metres high. Three major coastal lakes make one of the most outstanding features of the region, two of which are separated from the sea by a sandbar that alternately opens and closes. The sea water flows into these lakes quite regularly, which makes for great diversity in fauna. Some of these species, such as shrimp, have a high commercial value.

The region has a humid, subtropical climate. The mean annual temperature is 16°C, with a mean maximum of 22°C, a mean minimum of 11°C, and a mean annual precipitation of 1,000 mm, distributed evenly throughout the year. There are frosts from mid-June through mid-August during average years. About every five years the main rivers overflow during heavy rains, causing severe flooding. The inner plains remain submerged—mostly by rainwater—during a variable period, usually six months of the year. Some localised areas, where the normal hydrological regime has not been altered through drainage or flood protection practices, remain submerged year round.

The specific wild flora and fauna of the Eastern Wetlands makes it a very important area biologically. Its zones of native woodlands have many endemic plant species, such as the white ceibo (*Erythrina crista-galli* var. *leucochlora*). The palm-tree zones with butía palm (*Butia capitata*) cover 70,000 hectares and are concentrated in formations found nowhere else in the world. The plains, temporarily or permanently submerged, are covered by hydrophilous vegetation: fields of tall grasses (*Panicum prionites*, *Paspalum hydrophyllum*, *Cyperus giganteus*, *Cyperus* spp. and *Typha* spp.), floating grasses (*Luziola peruviana*, *Eichornia crassipes*, *Salvinia auriculata*), rushes (*Juncus dombeyanus* and *Scirpus californicus*), and reeds (*Typha angustifolia*). These plant species support local traditional crafts.

Among the native fauna, some species have been declared National Monuments by Uruguay because they are on international warning lists and in danger of extinction. This status alone justifies multidisciplinary efforts for protection. Among these endangered species are the field deer (*Ozotoceros bezoarticus*), the guazu-birá (*Mazama gouazoubira*), the ant-eater (*Tamandua tetradactyla*), river wolves (*Loutra longicaudis* and *Pteronura brasiliensis*), mountain lion (*Felix geoffroyi*), straw cat (*Felix colocola*), yacaré (*Caiman latirostris*), native duck (*Cairina moschata*), and dragon duck (*Xanthopsar flavus*). The area, including the coastal strip, has high ornithological diversity—over 147 species. Aquatic birds, whether resident or migratory, are particularly important, since over 80 percent use these Wetlands for refuge and to reproduce. For example, 16 of the 21 species of ducks cited in this country are found in the Wetlands. And among migratory birds, the "chorlito pampa" curlew (*Pluvialis dominica*) depends on these Wetlands to complete its annual flight pattern from the northern end to the southern end of the Americas. There are also mammals of economic importance, such as the otter (*Myocastor coypus*) and the carpincho

(*Hydrochoeris hydrochoeris*), among others. Data on invertebrates is patchy and mostly taxonomic, except for species that have been exploited commercially for some time, such as the yellow clam (*Mesodesma mactroides*), mussel (*Mytilus edulis platensis*), shrimp (*Penaeus paulensis*), and sirl (*Callinectes sapidus*).

Numerous archaeological sites called "Indian hills" also found in the zone are threatened by agricultural activities and the impending construction of dikes and canals (surveying and studies for which have just begun).

The area's current rural communities are descendants of Europeans— both immigrants and native-born creoles—who have populated the zone since the autochthonous indigenous communities were exterminated in the mid-18th century. This rich, wet ecosystem has been part of the unique cultural behaviours typical of the zone. These behaviors, however, are disappearing because of rural migration and the development of new agricultural technologies, among other things.

Productive activities pursued in the Wetlands may be grouped into traditional production (both extensive and artisanal), and rice fields. These three types may be found on a single farm, since the choice depends on the land's geomorphological features. The hilly zone is basically used for raising livestock. The unflooded plains accommodate extensive ranching and rice-growing. These activities coexist, but no production system that would organically integrate them has become generalised. The temporarily or permanently flooded plains (bañados) are devoted to cattle-ranching. The extractive and artisanal activities of the area are important for local people who live in a large number of small settlements (approximately 1,000 properties), most of which are family-type enterprises.

The coastal strip has large, sandy arches marked by major rocky massifs of exceptional natural beauty. This landscape attracts a sizeable flow of tourism in the southern-hemisphere summertime that is completely without control of the authorities. During the last several decades, these areas have been occupied by unofficial invasions of people who do not have basic utilities such as electricity, drinking water, or sanitation. Attempts are being made to reinforce the concept of coastal management and ecotourism in the society by promoting public awareness about the area's biological importance and by promoting the utilisation of its scenery and biological wealth within the framework of conservation.

Rice production is very dynamic technologically, productive in the long term, and is one of Uruguay's main agricultural activities, particularly as an export commodity. The Merín Lake Basin, the country's largest concentrated area suited to rice-growing, is under controlled irrigation by flooding. Rice cultivation is rotated with extensive cattle-raising, where two or three years of cropping are followed by six to ten "fallow" years under grazing. Consequently, the total land area affected is about five times larger than the annual surface area under cultivation. This planted land is systematized for irrigation by flooding (leveling, building of large terraces by making small dams) and subjected to heavy cultivation and relatively high doses of agricultural chemicals, mostly herbicides.

Rice-growing impacts the region's ecosystems profoundly, both in the areas under direct cultivation and in adjacent areas such as the coast and coastal lakes. It also affects tourism. Certain

bañados are drained for farming use, while other areas receive the drained water and the organic matter and biocides it contains.

The most important indirect impact of this activity is the alteration of water dynamics in the watershed by the numerous projects to conduct and reserve water. This problem affects the rice-growers, but also has repercussions for other agricultural production, due to the pollution of the entire basin through biocide use.

Cattle-raising, the main productive agricultural activity in the zone, is also characterised—in contrast with rice—by its low technological and productive standards. Ranching is extensive, based fundamentally on using natural resources with low input from other sources. Ranching impact on the environment is much more prolonged in space and time than rice farming, but much less dramatic. The choices cattle make in grazing alters the plant cover, and, in the case of trees and bushes, prevents growth of new shoots or regeneration of logged areas. As a result, there are no more butía palm shoots in the zone.

2. Host country strategy

The last two governments of Uruguay have taken major steps towards establishing a coherent environmental policy. In this process, a new ministry, the Ministry of Housing, Territorial Zoning, and Environment (MVOTMA), was created in 1990 under the present administration.

In 1991, the Planning and Budget Office (OPP), with technical co-operation from the Organisation of American States and the Inter-American Bank, prepared the National Environmental Plan (PAN), based on the National Environmental Study (EAN). This report was recently presented by the national president in an official ceremony, ratifying the government's formal commitment as well as his own regarding implementation of the plan.

The PAN established the following priorities: i) to create a National System of Protected Areas, ii) to create a National System of Environmental Accounts, as a financial support for the protected areas system, and iii) to review and update Uruguayan environmental legislation in the light of new international trends. The presentation of an Environmental Impact Law to Congress for discussion and approval will be a first step towards a legal framework that guarantees the country's sustainable development. Within this context, conservation of biodiversity has been defined as a top priority, particularly in the Eastern Wetlands region.

The Municipal Intendency of Rocha defined a Departmental Project for Environmental Preservation with the aims of: i) projecting and carrying out actions that advance environmental preservation, ii) coordinating public and private efforts towards conservation, and iii) promoting the organisation and implementation of an overall plan of territorial zoning for the Department. This plan proposes to use the structures that rice growing has left (canals, roads, electric power) and to step up the application of new technologies, such as the use of irrigated pastures for swine and cattle.

In view of the country's current situation, this project constitutes the keystone for consolidating a multidisciplinary group of experts—decision-makers and scientists—all of whom work to conserve biodiversity in the context of sustainable development.

Legal and institutional framework

Although Uruguay's constitution does not expressly contain a list of human rights, the right to a healthy, ecologically balanced environment and its protection can be interpreted from the fundamental rights outlined in the constitution, the national legislation, and the international standards incorporated into Uruguayan Law. These decrees, mainly approved during the last two decades, are the framework for the government's environmental policy, with ecological balance being a legal goal pursued by the government and citizenry.

Other regulations strengthen this framework. Forestry laws, soil and water conservation laws, and laws that control or ban the hunting of endangered species promote specific environmental goals. The Water Code mandates environmental protection generally, as well as by declaring the need to conserve particular fauna species and their habitats in planning construction of the Salto Grande hydroelectric dam. Uruguay has also signed numerous international treaties in accordance with its environmental policy. The bilateral treaty with Brazil for development of the Merín Lake Basin exemplifies Uruguay's international commitment.

Beyond these regulations, Uruguay lacks adequate legislation to enact concrete environmental protection measures. As one step in that direction, the current administration created MVOTMA to formulate, execute, supervise, and evaluate the implementation of national environmental protection plans.

The Eastern Wetlands are mainly located in the Department of Rocha. The local government, the Municipal Intendency of Rocha, has major powers in territorial zoning, flood prevention, and other services and control measures linked with environmental management. Other governmental agencies related to the environment have broad representation in the Department of Rocha: Sanitary Works of the State and the Ministries of Defense; Interior; Public Works; Public Health and Transport; Livestock, Agriculture, and Fishing; and Industry, Energy, and Mining.

B. PROJECT JUSTIFICATION

1. Problem to be addressed and the present situation

After having named the essential characteristics that give national and international importance to the zone, the threat to the zone was identified through a highly participatory process. It involved technicians from the Municipal Intendency, from MVOTMA, and from the University of the Republic, all of whom held numerous meetings and made personal contacts with local stakeholders. This process was supported by UNDP through cooperation by several local consultants and one international expert who participated in the different stages of discussion and analysis. In the course of this process, the main threats to biodiversity in the Eastern Wetlands of Uruguay were identified, and a strategy was designed to address them. The problems to be solved are:

- Rice production. The conversion of Wetlands into rice fields, the consequent modification of the hydrological regimes (dikes, ditches, and dams) and the way pesticides and fertilizers are used constitute a threat. In five to ten years, pressure to intensify rice production (through greater use of herbicides and investment in large-scale drainage and irrigation projects) will increase because very little new land will be available. Rice is Uruguay's 4th-largest export commodity, and it is growing steadily. In 1989 rice accounted for 5 percent of all exports (in current US\$), and by 1991 this had risen to 7 percent. This region grows about 80 percent of Uruguay's total rice production.
- Tourism. Intensive—although seasonal—use of beaches, dunes, and lakes on the Atlantic coast increases water pollution, soil degradation, and pressure on biodiversity.
- Infrastructure projects. Water management and highway projects, sponsored by the government and by private sectors, have altered the hydrological regime in several areas of this region. Construction in both projects is expected to increase in the future, along with tourism and rice production.
- Over-utilisation of natural resources. Constant pressure on wild flora and fauna for hunting, fishing, and removal of natural products has reduced the renewable resources of the Wetlands.
- Livestock production. The region's current landscape is the outgrowth of several centuries of interaction among the population, fire, and wetlands. Although cattle-raising has negatively affected some species (such as the butfa palm tree), it does not, at present grazing levels, threaten the Wetlands' biodiversity. Still, most of the region's land is in the cattlemen's hands and most rice is grown on the land rented to them, so the role of ranchers remains important.

2. Expected end-of-project situation

At the end of the project, the planned research will have been completely implemented, producing information to meet the project's immediate objectives in the following areas.

Training and research

- The Regional Station will have become an international centre for environmental research, training, information, and assistance, particularly for the conservation and sustainable development of the Wetlands.
- The training process will produce post-graduate research trainees, environmental management technicians and administrators, and park rangers, all of whom will ensure operation of the Regional Station. An ongoing educational system for schoolteachers will be established to perpetuate the project's goals and the Regional Station.

- Field guides will have been published for the region's flora and fauna, as well as manuals and texts to support the ongoing efforts of local educators. At the same time, top-level scientific communications and research findings will have been published.
- Public awareness among both the permanent and floating population will have been enhanced, along with local community participation in conservation and development actions, with the corresponding strengthening of the zone's institutions and organisations.
- Income from family businesses will have increased through diversification into new areas (such as dairy production, bee-keeping, otter-raising, improved swine-raising, small ecotourism establishments). New jobs will have been created by promoting new products and services and by forming new, small enterprises.
- Agricultural production will have benefited from the programme's research findings, because farmers will be using appropriate fertilisers, herbicides, and pesticides in amounts suitable for the zone's characteristics.

Institutional strengthening

- The zone's hydrological system will undergo the process of re-ordering based on the natural flow of the region's rivers and gullies.
- The Water Code will be strictly enforced with concrete mechanisms to guarantee observance. Natural resource use in the area will be regulated.
- Public and private protected areas will have been established, and, in some of them, experimental re-stocking of endemic species raised under the project may be carried out. In others, the development of controlled ecotourism may be attempted, with mechanisms for information dissemination.
- The management plan for the Eastern Wetlands, with measures for sustainable development, will have been formulated and presented.

3. Target beneficiaries

This programme's direct beneficiaries will be the inhabitants of the region of the Eastern Wetlands. The management and development plan will enable these people to tap the Wetlands' natural resources in ways compatible with conservation. They will also benefit from the Regional Station with its direct community information service. Indirectly, all Uruguayans, neighbours, scientists, and nature-lovers the world over will be able to enjoy and utilise a region with great specific diversity and beautiful scenery.

4. Project strategy and institutional arrangements

A general framework is proposed to organise specific objectives into strategies for conserving the biodiversity of the Eastern Wetlands.

Internationally, public awareness of the region will be fostered to achieve greater international support for preservation of the Eastern Wetlands. Contacts and information exchange will be established with conservation institutions and groups in other countries, as well as international agencies working with environmental defense and sustainable development. Researchers from other countries will be invited to work in the area.

Nationally, the protection of the Eastern Wetlands and the heightening of the public's awareness of the area's value will be accomplished through the following activities:

- Greater enforcement of existing national laws and regulations regarding conservation. Publicity campaigns will work to elicit formal commitments to conservation from pertinent agencies.
- Public environmental education in schools and universities, and seminars, workshops, and courses for scientists and technicians. The public will better support conservation, and environmental management professionals will be trained specifically in conservation of wetlands.
- Formation of conservation NGO groups with particular interest in the Eastern Wetlands.
- Propose new management policies to make sustainable development possible, with conservation as a priority.

Locally, a regional framework will be provided for planning, management, and conservation, focusing on the Wetlands' biodiversity in the Department of Rocha. The framework will be developed in cooperation with the municipal government and central administration.

A concrete management plan will be developed, and laws, regulations, and municipal policies will be revised to become compatible with the plan. The plan will guide development of private-sector proposals and help solve water and land-use conflicts in the Wetlands. More sustainable technologies for rice-growing, extraction of natural Wetlands products, and swine, dairy, and beef cattle production will be promoted.

Examples of strategies

To illustrate how this strategy may guide conservation of biodiversity in the Eastern Wetlands, we propose three examples: the butía palm tree, a resource of particular scientific importance; the "bañado," an area of particular scientific importance; and water pollution, a particular environmental problem.

Butta Palm Tree

Associations of this unique palm species are scattered throughout approximately 70,000 hectares of the Eastern Wetlands. Recent studies indicate that regeneration has been prevented by cattle, sheep, and swine browsing in palm stands. The regional Wetlands management plan will identify the palm's distribution and make it possible for the palm stands to regenerate. On government land, public protected areas will be established, with small areas of exclusion (enclosed with wire fencing) for research use. On private land, critical areas will be the basis for organising private protected areas within which the establishment of rotating areas of exclusion will be promoted. Work with landowners will increase the economic value of palm products.

Research will compile information about the palm's phenology, local lore regarding its management, and techniques to grow the young trees and sustainably harvest their products. Public consultation will spread this information. National and international support for palm protection will be obtained through the Montevideo Botanical Garden, university researchers, and personnel from other botanical gardens and conservation groups, with close collaboration from property owners. Relevant national legislation will be applied and developed in order to protect this palm tree and highlight it within Uruguay.

Bañados

These areas are the very heart of the Wetlands, providing the habitat for abundant and diverse flora and fauna. Studies will identify the most sensitive bañados by their area, biophysical features, and landholding pattern. On government land, certain bañados could be proposed as public protected areas and special access and usage rights will be investigated to allow access by local user groups in exchange for monitoring the zone and adopting more sustainable strategies for local resource use. This access would be controlled by the corresponding public agency, which would resolve conflicts and detect illegal activity.

On private land, a control-group bañado will be selected for a private protected area. Landowners will be encouraged to form a civil association by offering tax exemption, technical assistance, and access to the departmental government for resolution of local conflicts generated through the use of these bañados. In exchange, this association would handle conservation of biodiversity on their land. Alternative income-generating activities will be explored, including ecotourism and sustainable harvesting of the Wetlands' natural production. This private protected area will be used as a model for other bañados of the region.

Water pollution

Biocides and fertilizers used in rice-growing greatly contribute to the degradation of the region's water quality. The main pollutants associated with rice production will be identified, assuming that these also are the biggest threats to biodiversity, and national standards will be established. These standards will use outside norms (such as EPA, CEPIS) as a guide for preliminary study of water and sedimentary pollution in the region. This survey will identify the most affected areas, and more detailed studies will identify sources. Then, the project will promote the use of less toxic chemicals directly with growers to reduce concentrations and prevent them from

entering the Wetlands system. This effort will also make the public more aware of the danger of these chemicals and promote safer handling of chemicals in general.

Institutional arrangements

A Board of Directors will be created with delegates from the MVOTMA, the University of the Republic, and the Intendency of Rocha, with UNDP participating as an observer. The Board will meet at least once every six months and will be responsible for decisions concerning compliance with the project's goals and objectives. For selection of consultants and the rest of the staff, a Committee will be formed, composed of Board members and a UNDP delegate.

Wetlands Environmental Management Unit

A Wetlands Environmental Management Unit will be established to direct and coordinate efforts to conserve biodiversity of the Eastern Wetlands. The Unit will comprise a Director, six area coordinators with different specialties, and an administrator. Finance, personnel, and day-to-day operations will be handled by the Unit. Foreign technical assistance will be provided, especially during the project's early stages, to advise the Director and team in designing and implementing the biodiversity conservation framework and the specific strategies and methods to be applied. For effective area management, given the remote location of the research centre, it is crucial for technical and administrative staff to live in the zone and maintain a relationship with local stakeholders. This reality justifies the construction of a research and environmental information station where community services will also be provided by the project. This Regional Station will attract foreign researchers and teachers, as well as international funding. All of these factors will strengthen the the region and promote effective decentralisation of management.

Project areas

The Environmental Management Unit will guide the activities to be carried out in each of the six areas of the project, according to the following breakdown:

- Research and monitoring
 - Fauna
 - Flora
 - Physical environment
 - Pollution
- Human resource training
- Community information services
- Sustainable development
- Environmental education and social promotion
- Protected area system.

Staff

Project staff will include the Director of International Technical Advisory Support, the Director of the Environmental Management Unit, the Legal Department, and Area Coordinators.

5. Reasons for assistance from UNDP

The Eastern Wetlands of Uruguay are part of the richest complex of wetlands in the subtropical zone of South America, comprising the broadest range of ecosystems and ecotones in Uruguay. The region's biological importance was formally recognized when it was designated as a MAB Biosphere Reserve in 1976 and as a Ramsar site in 1982 because of its migratory aquatic birds. Several species of the region's flora and fauna are included in the Convention on International Traffic in Endangered Wildlife Species. The National Environmental Study highlights this region as the country's most important for biodiversity conservation.

The region is severely threatened by expansion and intensification of rice-growing, tourism, roadbuilding projects, and unplanned extraction of the Wetlands' renewable resources. This destruction will significantly reduce available habitat for migratory bird populations and numerous other endemic flora and fauna species, and it will affect coastal fishing and the beach ecosystem.

In addition to promoting conservation and management of biodiversity in the Eastern Wetlands, the project will create a model for other regions and countries where this kind of institutional development and professional experience is limited. The government of Uruguay has made protection of this region a national priority, as stated in the Uruguay Environmental Plan (IDB, OAS, OPP) which proposes to incorporate the region into a national system of protected areas. Such a system will require specialised professionals trained in both the sciences and in environmental management under this project. Meanwhile, pressures continue to grow, threatening the region's ecological integrity and biodiversity. Quick action is needed to conserve the biodiversity of the Eastern Wetlands and to ensure that such an ecologically rich and diversified region is maintained for future incorporation into the national system of protected areas.

Within this context, the government has requested UNDP technical cooperation with GEF funding to rapidly undertake actions for conserving the Eastern Wetlands. This has been explicitly established in the Fifth National Programme (1992-1996): i) as part of the national development goals and strategies, stating that "the Government has established the strategy of promoting Uruguay as a natural country, and developing sound ecological awareness among the population, to make rational management of ecosystems possible and to prevent the degradation of non-renewable natural resources," and ii) within proposals for UNDP cooperation, including "the preservation of natural resources and conservation of the environment." This cooperation proposal has materialised in an express request from the Government to UNDP through MVOTMA and OPP.

6. Special considerations

The Programme will actively involve women, from drafting documents to planning and execution. Implementation involves work with women educators who will continuously disseminate knowledge to the public, an aspect critical to programme sustainability. It will also incorporate female professionals, researchers, social workers, artisans, growers, and fishers. Given the importance of rural family economies in the area, women will directly benefit from social promotion, training, and the resulting increase in family income brought about by the project.

Professionals and technicians will cooperate among regions and be actively involved in all programme areas. Experts and institutions have already been contacted to carry out the following planned activities: joint research work, exchange of teachers and students, and expert collaboration. In particular, an application for collaboration has been sent to the National Forestry Corporation of Chile (CONAF), which has extensive experience in handling National Parks and all protected areas in that country.

Active participation by local, national, and international NGOs in promoting the project is also critical to ultimate success. The project will use their scientific expertise whenever possible, as well as benefit from the multiplier effect of their proposals.

Sustainable development specifically implies a future relationship with the private sector, particularly with agricultural producers, artisanal groups and fishers, and businesspersons working in ecotourism. The information system established at the Regional Station is designed to collaborate closely with all these stakeholders, providing them with the required information and gaining a more comprehensive view from their concerns. The Station will help them search out suitable solutions on a scientific basis and put them into action. The project can also help these groups through joint formulation of pre-investment or investment projects, and by facilitating contacts with financing agencies.

7. Counterpart support capacity

Coordination among national institutions related to the Eastern Wetlands began at the conception of this project and will be consolidated into a Board of Directors for project implementation. On another level, activities will be specifically related to those participating in the National Environmental Plan, which grew out of the National Environmental Study. At the express request of UNDP and ICI by the Government, ongoing coordination has been provided between this project and the Project for Ordering of Natural Resources of the Department of Rocha, funded by the Andalusia Board through the Spanish International Cooperation Agency (AECI), scheduled to begin during the last quarter of 1992.

The country has ample capacity to meet project objectives effectively. The Department's government, the Municipal Intendency of Rocha, is located in its capital city. It is responsible for urban and rural territorial allocation, building regulations, green areas and urban public walkways, transport and vehicular circulation policy and administration, commercial and industrial establishment authorisation (including those with particular relevance for pollution), and hygiene and social welfare. The Intendency's interest in environmental problems is channeled through its Departmental

Development and Environmental Unit, which is mandated to: identify, execute, and evaluate development projects; compile and update the necessary information for project formulation; coordinate with governmental, non-governmental, national, and international agencies for the financing, execution, and follow-up on referral projects; and intervene when necessary to guarantee natural resource maintenance and ecosystem protection.

The MVOTMA formulates, executes, supervises, and evaluates national environmental protection plans. It will participate through its National Environmental Directorate, which has specialised laboratories and expertise in studying environmental problems.

The University of the Republic, through various Departments, Centres, and Schools, such as the Science Department, Engineering Department, Mathematics Centre, Chemistry Department, and Agronomy Department, will provide first-rate researchers for basic and applied research work and instructors who can train young post-graduate students in environmental management.

The Botanical Garden, Anthropological Museum, and National Archaeological Recovery Commission, in their capacities as national institutions devoted specifically to conserving their respective piece of the national heritage, will actively collaborate in activity design and implementation.

The Ministry of Livestock, Agriculture, and Fishing (MGAP) will collaborate in this project through its National Directorates of: Parks and Fauna, Forestry, Renewable Natural Resources, and the National Fishing Institute (INAPE). The National Agricultural Research Institute (INIA) will also cooperate through its Eastern Research Station. This listing is not exhaustive.

C. DEVELOPMENT OBJECTIVE

The ultimate goal of Uruguay's environmental policy is to achieve generalised, standard conditions for quality of life for the population, and a healthy, productive environment, goals which will be possible only within the context of environmental excellence. This is also the ultimate goal of the sustainable development process that Uruguay hopes to put in place.

D. IMMEDIATE OBJECTIVES, OUTPUTS, AND ACTIVITIES

IMMEDIATE OBJECTIVE 1

Increased knowledge and conservation of Eastern Wetlands fauna.

Output 1.1

An electronic data base on the Eastern Wetlands and related coastal and mainland fauna.

Activities for Output 1.1

1.1.1 Inventory of fauna species in the Wetlands and adjacent areas.

1.1.2 Identification and description of fauna communities.

Output 1.2

Technical reports on ecology and dynamics of migratory bird populations: migratory curlews (such as the pampa and pink spatula varieties), the peregrine falcon, and other species of particular interest.

Activities for Output 1.2

1.2.1 Identification and study of the dynamics of endemic and migratory bird populations.

Output 1.3

Technical reports on experiments in re-stocking endemic species in danger of extinction, such as field deer, guazú-birá, otter, carpincho, mountain lion, straw cat, ant-eater, yacaré, river wolves, creole duck, and dragon duck.

Activities for Output 1.3

1.3.1 Study of the dynamics of threatened populations, including feeding, reproductive cycles, and predators.

1.3.2 Experiments with raising endangered species.

Output 1.4

Technical reports on the dynamics of species that are of interest to science, tourism, and commercial business.

Activities for Output 1.4

1.4.1 Study of the population dynamics of species specified above, including pest species.

Output 1.5

Dissemination documents.

Activities for Output 1.5

1.5.1 Publication of findings in field guides and magazines with international circulations.

IMMEDIATE OBJECTIVE 2

Increased knowledge about and conservation of Eastern Wetlands flora.

Output 2.1

An electronic data base on the flora of the Wetlands and adjacent areas.

Activities for Output 2.1

2.1.1 Inventory of plant species of the Wetlands and adjacent areas.

2.1.2 Mapping of distinct plant communities.

Output 2.2

Technical reports on plant biocenosis, biomass, and productivity for dominant (bañados, estuaries, coastal dunes, algae) and endemic (butfa palm trees, native highlands, and coastal brush) communities.

Activities for Output 2.2

2.2.1 Identification of endemic species, dominant species, and species of scientific and economic interest.

2.2.2 Study of the phenology, physiology, biomass, and production of the plant biocenosis of the area.

Output 2.3

Conservation management of key plant communities.

Activities for Output 2.3

2.3.1 Monitoring the dynamics of recovery for the butfa palm trees in exclusion areas.

2.3.2 Monitoring the behaviour of the bañado in exclusion areas.

2.3.3 Monitoring the protected native brush.

Output 2.4

Dissemination documents.

Activities for Output 2.4

2.4.1 Publication of findings in field guides and magazines with international circulations.

IMMEDIATE OBJECTIVE 3

Sustainable use of water, soil, and geomorphological resources of the Eastern Wetlands.

Output 3.1

Characterisation of the geomorphological, geological, and sedimentological structures of the area.

Activities for Output 3.1

3.1.1 Study of geomorphological, geological, and sedimentological structures of Wetlands areas.

Output 3.2

Physical and chemical characterisation of bañados and estuaries.

Activities for Output 3.2

3.2.1 Systematic sampling of physical and chemical conditions.

Output 3.3

A model for water management calibrated and validated for simulation of the Eastern Wetlands.

Activities for Output 3.3

3.3.1 Fill gaps in existing data on the water dynamics of the Wetlands by identifying drainage basins, runoff, flow volumes, and flooding zones, and by studying the watershed's hydrology, rainfall, infiltration rates, and evapotranspiration rates.

3.3.2 Establish mathematical models that simulate the operation of the Wetlands under different hydrological and water-balance conditions.

Output 3.4

Water resources are managed compatibly with conservation of Wetlands.

Activities for Output 3.4

- 3.4.1 Identify uses of water resources for current and potential agricultural activity.
- 3.4.2 Survey problems that are currently posed by water resource management.
- 3.4.3 Establish a water resource management programme for the watershed that will make the zone's agricultural activity compatible with conservation of biodiversity.

Output 3.5

Recommendations on specific measures to reestablish the affected water balance.

Activities for Output 3.5

- 3.5.1 Analyze seasonal variations in the physical and chemical characteristics of the bañados and estuaries.

IMMEDIATE OBJECTIVE 4

Reduction of the pollution produced by dumping of polluted water and by the use of biocides in brooks and irrigation ditches.

Output 4.1

Evaluation of the impact of pollution caused by organic matter and biocide use on the area's ecosystems, including coastal areas.

Activities for Output 4.1

- 4.1.1 Identification of pollutants used in the zone, amounts applied, and frequency and seasonal variation of use.
- 4.1.2 Intensive, selective sampling of sediments to determine the concentration of organic matter and biocides.
- 4.1.3 Intensive, systematic sampling of benthic fauna in affected, semi-affected, and clean areas in each habitat.
- 4.1.4 Classification of pollutants by toxicity using bioassays.
- 4.1.5 Cartography of affected areas, classifying them by degree of exposure to pollutants and by their reversibility.

Output 4.2

Recommendations and draft standards for management of waste water and biocides.

Activities for Output 4.2

4.2.1 Revision of legal standards for pollutant management.

4.2.2 Definition of maximum tolerable levels of pollutants in affected ecosystems.

IMMEDIATE OBJECTIVE 5

Training of human resources in research and environmental management.

Output 5.1

Technicians trained in management of protected areas (such as park rangers and guides).

Activities for Output 5.1

5.1.1 Design curricula.

5.1.2 Conduct regular courses for park rangers and guides.

5.1.3 Conduct local and regional workshops on environmental management.

Output 5.2

Professionals trained in environmental management, including apprentice researchers.

Activities for Output 5.2

5.2.1 Provide scholarships for scientific master's degree study in environmental management.

5.2.2 Provide internships in biosphere reserves abroad.

5.2.3 Produce scientific texts on the area's biodiversity.

5.2.4 Promote an exchange of researchers among universities of the region.

5.2.5 Provide on-the-job training for junior researchers.

Output 5.3

Educators trained in environmental education.

Activities for Output 5.3

- 5.3.1 Incorporate practical experiences in professional training.
- 5.3.2 Train educators and promoters to become project trainers.
- 5.3.3 Exchange instructors specialising in similar programmes elsewhere in Latin America.
- 5.3.4 Conduct workshops and seminars on environmental management, using national and international instructors that specialise in the promotion of social ecology.

Output 5.4

Professionals in law and local stakeholders trained in environmental law.

Activities for Output 5.4

- 5.4.1 Update content and improve organisation of training programs in environmental law.
- 5.4.2 Educate stakeholders in environmental law.

IMMEDIATE OBJECTIVE 6

Increase flow of environmental information to local public and private stakeholders so that they better contribute to proper management in the area.

Output 6.1

Detailed mapping of the area.

Activities for Output 6.1

- 6.1.1 Assess the quality of spatial data available (satellite imagery and aerial photography).
- 6.1.2 Prepare data for GIS analysis.

Output 6.2

A GIS data base on magnetic media.

Activities for Output 6.2

- 6.2.1 Implement GIS.
- 6.2.2 Acquire and input digitalized data on base maps.

Output 6.3

A map of ecologically sensitive areas correlated with topographic data.

Activities for Output 6.3

- 6.3.1 Set boundaries and characterise the different geographical areas of the zone.
- 6.3.2 Produce working sub-maps for research groups.
- 6.3.3 Produce operating guidelines and maps for definition of protected areas and reserves.

Output 6.4

A thematic integrated atlas of findings.

Activities for Output 6.4

- 6.4.1 Produce reports and thematic maps.

Output 6.5

An environmental information service, supported by a data base that includes scientific data and data on local resource use.

Activities for Output 6.5

- 6.5.1 Advise local, national, and international groups and cooperate in interpretation of research issues, integrating results on thematic maps.
- 6.5.2 Systematically update the information centre by maintaining data bases on flora, fauna, coastal geomorphology, water resources, and economic resources of the area.
- 6.5.3 Provide information and advise public and private stakeholders.

IMMEDIATE OBJECTIVE 7

Make resource use (particularly that which raises local standards of living) compatible with conservation.

Output 7.1

Identification of alternatives (current or potential) for various types of production and services that impact the environment, taking into account their economic and social outcomes.

Activities for Output 7.1

- 7.1.1 Survey technological alternatives for agricultural activities in the zone (pastures, breeds, fertilisers, and management techniques), based on available information and project research findings, including the results of tests performed on the "demonstration agricultural units."
- 7.1.2 Survey other economic activities in the zone (hunting, fishing, crafts), identifying technical criteria for subsequent economic evaluations.
- 7.1.3 Survey tourism in the region and identify new alternatives. The survey should include information that can be used to evaluate tourism's economic return.
- 7.1.4 Evaluate economic results at the production and service unit levels for the various alternatives (current and projected).
- 7.1.5 Evaluate social impact of the different alternatives and assess the impact of different combinations of alternatives on management of the zone.
- 7.1.6 Evaluate the environmental impact of the various alternatives identified.

Output 7.2

Production and service units to be included in the zone's management plan. Units selected after an assessment of their economic, social, and environmental impacts and infrastructure requirements.

Activities for Output 7.2

- 7.2.1 Select the alternative production and service units to be promoted in the zone according to the following criteria: i) technical feasibility, ii) economic yield at the productive unit level, iii) contribution to the zone's and country's socioeconomic development, and iv) environmental impact.
- 7.2.2 Measure and compare the overall economic outcome in social terms, including environmental impact, for different management plans resulting from various combinations of human activities in the zone.
- 7.2.3 Evaluate the infrastructure needed to undertake the selected production activities.

Output 7.3

Proposals for economic support and encouragement measures (loans, subsidies, and tax exemptions) for activities or changes promoted by the management plan.

Activities for Output 7.3

- 7.3.1 Select appropriate economic incentive instruments for specific activities and changes, such as subsidies, tax exemptions, credit, and so on.

Output 7.4

Programmes for dissemination or extension regarding the various economic alternatives proposed.

Activities for Output 7.4

- 7.4.1 Design a programme to disseminate knowledge gained about the impact of current Wetlands use compared with alternative uses.
- 7.4.2 Implement the programme of agricultural dissemination and extension.
- 7.4.3 Support small enterprise promotion activities (such as crafts and tourism).
- 7.4.4 Provide technical support for a programme to organise hunting and fishing.

IMMEDIATE OBJECTIVE 8

Raise public awareness of the ecological, economic, and sociocultural value of Wetlands biodiversity and promote local community participation in its conservation.

Output 8.1

Identification of top-priority local communities and population groups to be involved in the project, taking into account their sociocultural values. Each community sub-project has specific work plans.

Activities for Output 8.1

- 8.1.1 Identify and describe major zones in the Department of Rocha from geographic, economic, and sociocultural viewpoints.
- 8.1.2 Compile the history and the most outstanding characteristics of the population nuclei that interact with the region, highlighting sociocultural values, quality of life, and relations with the Department's decision-making system.
- 8.1.3 Survey and analyse the current perception of major local stakeholders (Rice-Growers Association, Rural Association, cattle associations, agricultural co-operatives, Rice-Mill Association, development associations, and neighbours' commissions,) regarding the current use of natural resources in Wetlands areas, through semi-formal interviews.

8.1.4 Identify local stakeholders in the Wetlands by exploring local community commissions, groups, leaders, and institutions.

8.1.5 Survey opinions of economically productive stakeholders about natural resource conservation and possible behavioural changes proposed by the project.

Output 8.2

An evaluation of the extent to which existing conditions can accommodate equitable, sustainable development projects and other alternative proposals that respond to the zone's critical needs.

Activities for Output 8.2

8.2.1 Evaluate actual conditions in the zone.

8.2.2 Contrast the project's general conclusions with the opinions of the local stakeholders involved in the process.

8.2.3 Document the theoretical and practical knowledge that emerges from promotional practice.

Output 8.3

Established coordination with local and Department-level stakeholders in facilitating the involvement of the population in conservation efforts.

Activities for 8.3

8.3.1 Implement dialogue with public and private institutions, NGOs, and social and environmental groups on conservation issues, involving them in the evaluation and advancement of certain issues in the Department.

8.3.2 Facilitate relationships among existing organisations or groups, including the acceptance of new players mobilised by the issues.

8.3.3 Define working objectives with the population groups willing to become directly involved in project activities.

Output 8.4

Information and training that engenders understanding of the importance of the zone's natural resources and the need to conserve them.

Activities for Output 8.4

- 8.4.1 Improve information dissemination and create suitable instruments for training: videos, audiovisuals, news bulletins, and posters.
- 8.4.2 Implement joint work programmes with educational institutions of the Department of Rocha to share outcomes of research conducted at the Regional Station.
- 8.4.3 Organise and execute training actions for the public at large and for specific population sectors, making action plans flexible enough to meet the changing demands of the zone. Adapt the contents and methodology to be used in each case.
- 8.4.4 Disseminate specialised information for defined target audiences.
- 8.4.5 Implement an ongoing programme for promoting environmental issues in the media (radio, television).

IMMEDIATE OBJECTIVE 9

Implementation of a system of protected areas in the Eastern Wetlands.

Output 9.1

Formation and management of public protected areas (reserves, national parks, exclusion zones), including monitoring stations and services.

Activities for Output 9.1

- 9.1.1 Establish categories of public protected areas and their legal and institutional frameworks.
- 9.1.2 Demarcate and classify the protected areas, ensuring the preservation of the whole ecosystem. Include wetlands, riverbank brush, plains, highlands, coastal areas, and the interfaces among them.
- 9.1.3 Prepare operating plans for each area's management. Plans should include: i) the infrastructure and equipment required, ii) the conservation and monitoring methods to be used, iii) the services to be rendered, iv) the modes of public access available, and v) the posting of educational signs.
- 9.1.4 Manage these areas.

Output 9.2

Establishment and management of private protected areas.

Activities for Output 9.2

- 9.2.1 Define a "private protected area," its legal framework, and its fiscal system.
- 9.2.2 Demarcate and classify private areas to be protected.
- 9.2.3 Give land owners and tenants economic incentives to isolate and protect endangered endemics such as palm stands, native bañados brush, estuaries, and native fauna.
- 9.2.4 Constitute associations for conservation of biodiversity in lands declared private protected areas with the participation of owners and tenants.
- 9.2.5 Prepare operational plans for each area's management, including services, conservation methods and tasks (such as educational sign-posting), and modes of public access.
- 9.2.6 Advise and supervise protected area managers.

Output 9.3

Fund for conservation of the Eastern Wetlands.

Activities for Output 9.3

- 9.3.1 Evaluate investment, operating, and maintenance costs for project actions.
- 9.3.2 Develop national and international strategies to obtain funds for purchasing land and infrastructure and for building and operating the project on a permanent basis.

Output 9.4

Archaeological recovery in the region.

Activities for Output 9.4

- 9.4.1 Demarcate and preserve archaeological sites.

IMMEDIATE OBJECTIVE 10

To create a Regional Station for scientific research, community service, and environmental information and training.

Output 10.1

A fully functional Regional Station.

Activities for Output 10.1

- 10.1.1 Identify a suitable site to set up the Station and design it.
- 10.1.2 Construct necessary infrastructure.
- 10.1.3 Prepare the site and provide the necessary technical equipment.
- 10.1.4 Start Station activities.

IMMEDIATE OBJECTIVE 11

To incorporate national and international laws into conservation of the Eastern Wetlands. Apply and integrate existing standards and create new legislative, administrative, and constitutional provisions, as applicable.

Output 11.1

A well-ordered, systematised legal framework.

Activities for Output 11.1

- 11.1.1 Order and compile laws, decrees, and resolutions that are related to the project in one or more publications.

Output 11.2

Proposals for regulatory updates and draft projects for legal and administrative norms that will facilitate proposed management plans and sustainable use of the zone's natural resources.

Activities for Output 11.2

- 11.2.1 Prepare draft proposals for laws, regulations, and resolutions and present them to the respective entities.

Output 11.3

Assess the region's legal and administrative system and recommend modifications as appropriate.

Activities for Output 11.3

- 11.3.1 Investigate the region's legal and institutional framework and publish the findings.
- 11.3.2 Prepare proposals for reorganisation, as required, and publish the findings.

Output 11.4

Advisory support for public and private participants in conservation of the Wetlands.

Activities for Output 11.4

11.4.1 Implement and operate an environmental law advisory service.

E. INPUTS

1. Government of Uruguay

Research and monitoring

National personnel

University researchers and professors	150 p/m
Technicians and assistants from MVOTMA	50 p/m
Technicians from the Botanical Garden	20 p/m

Non-expendable equipment

Laboratory equipment from the University of the Republic

Premises

Laboratories of the University of the Republic and of the MVOTMA in Montevideo.

Human resource training

National personnel

Primary and secondary-school teachers, university professors

Premises

Municipal Intendency of Rocha, rural schools of the Department

Community information system

Non-expendable equipment

Hardware and software from the University of the Republic

Sustainable development

National personnel

Technicians from the Municipal Intendency of Rocha

50 p/m

Expendable equipment

Agricultural inputs, fertilizers, posts, wire

Environmental education and social promotion

National personnel

Technicians from the Municipal Intendency of Rocha

50 p/m

Premises

Municipal Intendency of Rocha, rural schools of the Department

Protected area system

National personnel

Park rangers, wildlife rangers, guides, foremen and labourers of the MVOTMA, MGAP, and the Municipal Intendency of Rocha.

Infrastructure

Land where the Public Protected Areas will be implemented, with the necessary improvements, such as roadways, paths, wire fences, storage buildings, electrical energy, telephone, etc.

Regional station

Premises

A piece of property with infrastructure to be remodeled and adapted as needed.

Support personnel

Administrative officials and service staff of the Municipal Intendency of Rocha.

Miscellaneous

Fuel for vehicles

2. UNDP

Research and monitoring

International consultants

Expert in watersheds 1 p/m

National consultants

Area coordinator 36 p/m
Full-time senior researchers 180 p/m
Part-time senior researchers 50 p/m
Technical assistants 240 p/m
Artists to draw flora and fauna 12 p/m

Expendable equipment

Non-expendable equipment

Human resource training

National consultants

Area coordinator 36 p/m

Training

Internships in protected areas abroad (travel fare and daily subsistence allowance)

Group training (hourly fees of instructors and their travel expenses and meals)

Seminars, workshops, and scientific meetings

Expendable equipment

Non-expendable equipment

Community information system

National consultants

Area coordinator 36 p/m
GIS operators 72 p/m
Analyst/programmer 5 p/m
Map drafters 12 p/m

Expendable equipment

Non-expendable equipment

Sustainable development

International consultants

Expert in agroecology 1 p/m

National consultants

Area coordinator 36 p/m
Economist 36 p/m
Agronomical engineer specialising in production systems 36 p/m
Agronomical engineer specialising in extension education 36 p/m
Technical assistants 36 p/m
Focal consultants 25 p/m

Subcontracts

Training and technical assistance for production and service undertakings

Expendable equipment

Non-expendable equipment

Environmental education and social promotion

National consultants

Area coordinator 36 p/m
Social assistant for community development 33 p/m
Social communicator/journalist 36 p/m
Social promoter 20 p/m
Educators 20 p/m

Subcontracts

Assessments and studies of local areas

Expendable equipment

Non-expendable equipment

Protected area system

International consultants

Expert in protected area management 2 p/m

National consultants

Area coordinator 36 p/m
Agronomical engineer specialising in extension education 36 p/m
Technical assistants 36 p/m
Focal consultants 25 p/m

Expendable equipment

Non-expendable equipment

Premises

Monitoring stations and services in each protected area: Construction of 5 cabins, 100 square metres each, with hardwood walls and floors, bathrooms, kitchen, laboratory, and a tiled roof.

Regional station

Premises

Regional Station: A fund of US\$ 260,000 will be allocated to remodel and add on to the building that will house the Regional Station and serve as Programme headquarters. The specific use of this allocation will be decided by the Programme's Board of Directors in agreement with UNDP.

Legal advisory assistance

National consultants

Attorney with experience in environmental law, part-time 30 p/m

Subcontracts

Legal support in environmental law

Support staff

Secretaries, administrative and service aides, full-time

National consultants

Programme Director (with extensive experience in development projects) 37 p/m

Administrator, economist or public accountant 36 p/m

Travel and missions

Fund for missions abroad by professional Programme personnel and international monitoring and evaluation missions.

Miscellaneous

Funds for team operation and maintenance, reports and publications, and miscellaneous expenses.

F. RISKS

Initial risks involve the availability of Government inputs. These include: i) infrastructure for Regional Station installation, ii) land for public protected areas to be implemented by the project, and iii) the personnel to work there. To reduce these risks, the pertinent agreements are being arranged with the public agencies involved.

A second level of risks has to do with the capacity for the project outcomes to actually achieve the immediate objectives and contribute to the development objective. These objectives require the intervention of other social stakeholders (departmental government, national government, producers, and local communities). Failure to enforce recommendations for suitable conservation of biodiversity and/or execution of projects that clearly interfere with such conservation and with a sustainable development approach would be the most serious risk at this level. In order to reduce it, the strategy focuses on local information dissemination and participation in development.

A third risk level regards the project's capacity to generate lasting conservation and sustainable development in the Eastern Wetlands. For this purpose, the national and departmental governments and the University of the Republic will be involved in programme implementation, and activities have been planned to achieve increasing participation by local communities and other agencies.

G. PRIOR OBLIGATIONS AND PREREQUISITES

1. Prior obligations

None.

2. Prerequisites

The Municipal Intendency of Rocha, MVOTMA, and the University of the Republic must sign an Inter-Administrative Agreement committing their participation as project executing agencies.

The government will provide the land and basic infrastructure to set up the Regional Station.

To constitute Public Protected Areas, the government will make government-owned land available to the project in areas to be protected in the Department of Rocha, and will incorporate any necessary improvements for this purpose.

The government will place at the project's disposal the premises, equipment, and the technical and support staff indicated in Section E.

UNDP will sign the Project Document and provide assistance only if the above obligations and prerequisites have been fulfilled to its complete satisfaction. If one or more of the prerequisites is not fulfilled, UNDP may, at its sole discretion, suspend or terminate assistance.

H. PROJECT REVIEW, REPORTING, AND EVALUATION

The Project will be examined by the parties thereto on a semi-annual basis, beginning on the date when activities have fully begun.

The Project Director shall prepare a report every six months to evaluate the project's performance, according to UNDP norms, and shall submit it to the parties for their consideration well in advance of the examination actions provided for above.

After 18 months of execution (mid-term), an in-depth evaluation of project progress will be made.

The Project Director shall also prepare a final report to be considered at the final meeting to evaluate project outcomes.

I. LEGAL CONTEXT

The present Project Document is the instrument referred to in Article 1 of the Basic Assistance Agreement between the Government of the Eastern Republic of Uruguay and the United Nations Development Programme, signed by those parties on December 12, 1985.

The following types of revisions to the present Project Document may be made simply with the signature of the UNDP Resident Representative, providing that Representative has the assurance that the other Project Document signatories have no objections to the proposed changes:

- i) Revisions of any Attachment to the Project Document or additions thereto.

- ii) Revisions implying no significant changes in immediate objectives, Project outcomes or activities, which are not due to any redistribution of inputs already agreed upon or cost increases.
- iii) Annual mandatory revisions through which actual costs incurred by the Project during the calendar year are recorded, and resources are transferred to future years to fund expenses that have already been agreed upon.

J. BUDGET

The project budget is attached.

1. PROJECT BUDGET COVERING UNDP CONTRIBUTION (in US dollars)

Project Component	Total \$ m/m	1993 \$ m/m	1994 \$ m/m	1995 \$ m/m	1996 \$ m/m
010 Project Personnel					
011-051 Gestión de Areas Protegidas	16,000 4.0		8,000 2.0	8,000 2.0	
011-052 Agricultura Sostenible	12,000 2.0		6,000 1.0	6,000 1.0	
011-053 Cuencas Hidrograficas	12,000 2.0		6,000 1.0	6,000 1.0	
11-99 Subtotal	40,000 8.0		20,000 4.0	20,000 4.0	
13 Admin Support Personnel					
013-001 Apoyo Administrativo	32,000	2,703	13,000	13,000	3,297
13-99 Subtotal	32,000	2,703	13,000	13,000	3,297
15 Official Travel					
015-001 Viajes Internos	90,000	10,411	40,000	30,000	9,589
15-99 Subtotal	90,000	10,411	40,000	30,000	9,589
16 Mission Costs					
016-011 Gastos de Mision	20,000		9,000	9,000	2,000
16-99 Subtotal	20,000		9,000	9,000	2,000
17 National Professionals					
017-011 Director de Programa	122,000 40.0	34,897 11.0	36,000 12.0	36,000 12.0	15,013 5.0
017-002 Administrador	64,000 39.0	5,733 10.0	24,000 12.0	24,000 12.0	10,267 5.0
017-003 Coordinadores de Areas	326,000 186.0	93,239 50.0	86,800 60.0	110,400 60.0	35,561 16.0
017-004 Investigadores Senior	244,000 254.0	36,496 70.0	88,000 85.0	84,000 85.0	35,504 14.0
017-005 Asistentes Tecnicos Investigaciones	25,000 160.0		12,000 96.0	12,000 64.0	1,000
017-006 Dibujantes Cientificos	6,000 11.0		2,000 4.8	2,000 3.2	2,000 3.0

Project Component		Total \$ m/m	1993 \$ m/m	1994 \$ m/m	1995 \$ m/m	1996 \$ m/m
017-007	Profesionales (Desa. Sust.)	132,000 108.0	15,072 30.0	54,000 36.0	48,000 36.0	14,928 6.0
017-008	Asistentes Tecnicos (Desa. Sust.)	10,000 24.0		5,000 14.4	5,000 9.6	
017-009	Consult. Puntuales	30,000 18.0		11,000 9.0	11,000 9.0	8,000
017-010	Profesionales (Educ.)	121,000 72.0	18,148 20.0	37,000 24.0	37,000 24.0	28,852 4.0
017-011	Promotores Sociales	10,000 17.0		4,000 8.0	4,000 6.0	2,000 3.0
017-012	Educadores	10,000 17.0		4,000 8.0	4,000 6.0	2,000 3.0
017-013	Profesionales (Gestión)	105,000 36.0	5,470 10.0	36,000 12.0	36,000 12.0	27,530 2.0
017-014	Asistentes Tecnicos (Gestión)	18,000 29.0		5,000 14.4	6,000 9.6	7,000 5.0
017-015	Consultores Puntuales (Gestión)	30,000 24.0	3,200 7.0	14,000 8.5	12,800 8.5	
017-016	Geografo	30,000 26.0		9,000 12.0	18,000 12.0	3,000 2.0
017-017	Operador GIS	30,000 20.0		12,000 8.0	12,000 8.0	6,000 4.0
017-018	Analista Programador	5,000 4.0		2,000 1.0	2,000 2.0	1,000 1.0
017-019	Dibujantes Cartografia	6,000 10.0		2,000 4.0	2,000 3.0	2,000 3.0
17-99	Subtotal	1,324,000 1095.0	212,255 208.0	443,800 429.1	466,200 381.9	201745 76.0
019	COMPONENT TOTAL	1,506,000 1103.0	225,369 208.0	525,800 433.1	538,200 385.9	216631 76.0
020	Subcontracts					
021 001	Capac. y Asis. Tec. Prod.	40,000		20,000	20,000	
022 001	Estudios de Areas Locales	25,000	14,600	6,000	4,400	
023 001	Asesoría Legal	25,000		12,000	10,000	3,000
024 001	Investigacion y Areas Prot.	140,000		60,000	60,000	20,000

Project Component	Total \$ m/m	1993 \$ m/m	1994 \$ m/m	1995 \$ m/m	1996 \$ m/m
029 COMPONENT TOTAL	230,000	14,600	98,000	94,400	23,000
030 Training					
032 001 Capacitacion en Grupo	35,000	2,754	13,000	13,000	6,246
032 002 Pasantias en el Exterior	25,000		15,000	10,000	
033 001 Capacitacion en Servicio	90,000	345	35,000	35,000	19,655
034 001 Seminario y Talleres Cient	40,000	1,911	14,000	14,000	10,089
039 COMPONENT TOTAL	190,000	5,010	77,000	72,000	35,990
040 Equipment					
041 001 Equipo Fungible Lab	50,000	117	23,000	22,000	4,883
041 002 Equipo Fungible Oficina	20,000	2,911	7,000	8,000	2,089
042 001 Transporte Terrestre	63,000	41,978	21,022		
042 002 Transporte Acuatico	20,000		20,000		
042 003 Equipo de Computacion	30,000	4,002	25,000	998	
042 004 Equipo de Lab	90,000		85,000	5,000	
042 005 Equipo de Muestro	40,000		37,000	3,000	
042 006 Equipo Audiovisual	35,000	1,243	33,757		
042 007 Equipo de Comunicaciones	21,000	567	17,000	3,433	
042 008 Muebles de Oficina	20,000	8,738	11,262		
043 001 Estacion Regional	320,000	13,953	306,047		
043 002 Estaciones Areas Protegidas	60,000		60,000		
049 COMPONENT TOTAL	769,000	73,509	646,088	42,431	6,972
050 Miscellaneous					
051 001 Mantenimiento de Equipo	95,000	19,016	35,000	30,000	10,984
052 001 Publicaciones	50,000	203	15,000	15,000	19,797
053 001 Varios	60,000	20,853	15,000	15,000	9,147
054 001 Costos Directos	100,000	50,000	25,000	25,000	
059 COMPONENT TOTAL	305,000	90,072	90,000	85,000	39,928
999 UNDP TOTAL	3,000,000 1103.0	408,560 208.0	1436,888 433.1	832,031 385.9	322,521 76.0