

# OFFICE MEMORANDUM

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DATE: January 12, 1999

TO: Mr. Kenneth King, Assistant CEO, GEF  
Attention: Program Coordination

FROM: Lars Vidaeus, GEF Executive Coordinator



EXTENSION: 3-4188

SUBJECT: **Ecuador – Wetland Priorities for Conservation Action  
GEF Medium-Sized Project (MSP)**

1. Please find attached the revised final Project Brief for the “Wetland Priorities for Conservation Action Project” submitted to the World Bank by EcoCiencia. We also attach a new endorsement letter from the GEF national operational focal point, based on the revised Project Brief.
2. The revised Project Brief incorporates changes made to address comments made by the GEF Secretariat Program Manager on the earlier version circulated in late October 1998. In particular, we have:
  - (a) revised the project title to more clearly describe the project emphasis and expected results;
  - (b) emphasized throughout the document the global significance of Ecuador’s wetlands, thereby justifying GEF funding support;
  - (c) emphasized throughout the document the action-oriented nature of MSP activities, and how they will lay the foundation for effective conservation action for wetlands over the medium term;
  - (d) provided information on conservation actions that have resulted from Pilot Phase activities, as an indicator of what could be expected after completion of this MSP; and
  - (e) revised the Incremental Cost section to exclude Pilot Phase expenditures; the IC analysis and MSP budget now include only Phase 2 expenditures. We have also clarified the discussion of national vs. global importance and direct vs. indirect benefits, explaining more clearly (we hope) the rationale for baseline funding.
3. With these modifications, we trust that the Secretariat will be able to circulate this MSP Brief to Council prior to final CEO endorsement. Please let us know if the Program Management team has any questions on the above. Thank you and best regards.

cc: Kumari (GEF); Parker (LCC4C); Arcos (LCCEC); Redwood, Lovejoy, Guadagni,  
Abedin (LCSES); Kimes, Castro, Bossard (ENVGC)

ENVGC ISC  
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Attachment

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**MEDIUM-SIZED PROJECT BRIEF**  
*WETLAND PRIORITIES FOR CONSERVATION ACTION*

**Project summary**

<b>PROJECT IDENTIFIERS</b>	
<p><b>1. Project Name:</b> Wetland Priorities for Conservation Action</p>	<p><b>2. GEF Implementing Agency:</b> World Bank</p>
<p><b>3. Country or countries in which the project is being implemented:</b> ECUADOR.</p>	<p><b>4. Country eligibility:</b> Date of ratification of the Convention on Biological Diversity: February 23, 1993.</p>
<p><b>5. GEF focal area(s), and/or cross-cutting issues::</b></p> <p style="text-align: center; padding: 10px;"><b>BIOLOGICAL DIVERSITY</b></p>	<p><b>6. Operational program/short-term measure:</b> Activities in coastal, marine and freshwater ecosystems (including wetlands): includes lakes, rivers and other wetlands; their conservation and sustainable uses of the biodiversity present in these ecosystems. Management of lakes and rivers (OP2).</p>
<p><b>7. Project linkage to national priorities, action plans and programs:</b> The Ecuadorian Government, aware of the importance of wetlands and the threats they face, has integrated the category of wetlands within the new Forestry and Natural Areas Law as "Special Use Areas". Through various governmental and para-governmental institutions, actions have been undertaken that aim to create programs for the conservation and sustainable management of these wetlands. The constant availability of water determines the great importance of these systems for local communities whom, in many cases, have already developed their own management schemes. However, the lack of knowledge regarding the characteristics of their wetlands has led to cases in which the actions have been counterproductive, such as using wetlands as organic and chemical waste disposal sites, introduction of alien species and unsustainable natural resources extraction.</p> <p>With the ratification of the CBD, the Government is in the process of identifying national conservation priorities, and this project will contribute towards that goal. Identifying and characterizing wetlands of international importance also supports the objective of the Ramsar Convention. Hence, this project, carried out by EcoCiencia in coordination with the Government through INEFAN, is intimately linked to the National Management Plan for Natural Areas and Wildlife and is in direct support to the international agreements of Ecuador related to the CBD and the Ramsar Convention.</p> <p>Wetlands are threatened globally because the productivity of their soils, their year-round water availability, and the foodsource provided by associated fauna act as magnets for human populations. Their conservation will help to mitigate fresh water deficits and the disappearance of animal and plant species (especially migratory ones), and to fight one of the most serious problems that humanity will face in the next century: desertification. The Ecuadorian Government has begun management actions in specific wetlands and has designed a special legislation for these ecosystems. Several institutions such as the Coastal Resources Management Program (PMRC) and the National Institute of Hydric Resources (INERHI) are responsible for implementing some of these wetland management related activities.</p>	

<b>8. GEF national operational focal point and the date of country endorsement:</b> Ministry of Environment <span style="float: right;">Approved: December 29, 1998</span>	
<b>PROJECT OBJECTIVE AND ACTIVITIES</b>	
<b>9. Project rationale and objectives:</b> <b>Goal:</b> to conserve globally significant biodiversity in wetlands in Ecuador. <b>Objective:</b> To assist and promote the conservation of Ecuador's wetlands through the identification, characterization, and prioritization of wetlands in the country.	<b>Indicators:</b> a) Effective approaches to conservation and sustainable wetland management. b) Updated information exists on features and status of Ecuadorian wetlands, with priority lines of actions for their conservation and sustainable management.
<b>10. Project outcomes:</b> The project will: a) Identify wetlands, proposed through a participatory process, that require protection at the provincial or national level. In addition, the most appropriate management categories will be assigned. This will support the job of pertinent agencies to implement wetland conservation and sustainable management. b) Identify wetlands that need restoration and rehabilitation through the evaluation of social variables and the environmental characteristics of each wetland. c) Help to increase the number of wetlands included in the "Ramsar Site" list through the presentation of objective information and technical matrices by the National Wetland Work Group. d) Facilitate economic valuation of the benefits and functions of wetlands through social research on the existing relationship between people and wetlands. e) Circulate results of the study at every level within interest groups and stakeholders.	<b>Indicators:</b> a) Data will be generated and a technical report will be produced which will be the basis for the future preparation by INEFAN and the Ministry of the Environment of a Wetland Conservation Action Plan. b) Prioritized management and rehabilitation actions identified according to the social and environmental characteristics of each wetland. c) A documented list and supporting technical information of those national wetlands that comply with the criteria for inclusion in the Ramsar Convention's list of wetlands of international importance. d) Rapid economic evaluations used for the characterization of identified wetlands. e) At the end of the project, three technical publications containing the project results (including the pilot phase), distributed and sold (at a nominal price) throughout the country, as well as two sets of posters regarding the functions of wetlands and the threats they face, published and distributed through agreements with universities and National Wetland Workgroup organizations.

<p><b>11. Project activities to achieve outcomes (including the cost in US \$ of each activity):</b></p> <p>a) <b>Identification, characterization, and prioritization of Ecuador's wetlands (US\$ 727,850) (generation of information).</b></p> <p>b) Through the National Wetland Work Group, implementation of a participatory process to prepare a technical report with recommendations on specific wetland management actions and a National Plan (US\$91,110).</p> <p>c) Dissemination of the importance of wetlands and of project results (US\$90,928).</p>	<p><b>Indicators:</b></p> <p>a) Increased wetland representation within the National System of Protected Areas, through the identification of clearly defined priority actions to achieve wetland conservation.</p> <p>b) National Wetlands Work Group effectively strengthened and with clear lines of action toward sustainable wetland management.</p> <p>c) Three publications with the project results (including the pilot phase) sold at a nominal price, and two posters produced and circulated.</p>												
<p><b>12. Estimated budget (in US\$):</b></p> <table border="0"> <tr> <td>Phase I (Pilot phase):</td> <td>143,450</td> </tr> <tr> <td>MSP (Phase 2):</td> <td></td> </tr> <tr> <td>GEF</td> <td>718,388</td> </tr> <tr> <td>Co-financing</td> <td><u>191,500</u></td> </tr> <tr> <td>TOTAL:</td> <td>909,888</td> </tr> <tr> <td>TOTAL GEF (MSP + BLOCK A):</td> <td>\$743,388</td> </tr> </table>		Phase I (Pilot phase):	143,450	MSP (Phase 2):		GEF	718,388	Co-financing	<u>191,500</u>	TOTAL:	909,888	TOTAL GEF (MSP + BLOCK A):	\$743,388
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<p><b>INFORMATION ON INSTITUTION SUBMITTING PROJECT BRIEF</b></p>													
<p><b>13. Information regarding the applicant institution:</b>  EcoCiencia is a private, non-profit, scientific entity, founded in 1989 with the mission of promoting conservation of biodiversity, maintenance of ecological processes, and improvement of the quality of life of human populations through research, education, environmental communication, and sustainable management of natural resources. EcoCiencia seeks to increase scientific knowledge, recuperate traditional knowledge, modify attitudes and practices which negatively affect the environment, and promote the sustainable management of natural resources. EcoCiencia lead the process which resulted in the ratification of the Ramsar Convention by the Ecuadorian Government and the inclusion of this type of ecosystem in the new Forestry Law; today, it continues to be at the forefront of this process with the aim of achieving integrated, sustainable wetland management.</p>													
<p><b>14. Information regarding the executing institution:</b>  EcoCiencia (see Box 13)</p>													
<p><b>15. Date of initial submission of project concept:</b>  Project idea: December 11, 1997. Block A approval: May 15, 1998.</p>													
<p><b>INFORMATION TO BE COMPLETED BY IMPLEMENTING AGENCY</b></p>													
<p><b>16. Implementing Agency contact person:</b></p> <table border="0"> <tr> <td>Maurizio Guadagni</td> <td>Gabriela Arcos,</td> </tr> <tr> <td>Washington, DC 20433</td> <td>Quito, Ecuador</td> </tr> <tr> <td>Tel. 1 (202) 458 – 7144</td> <td>Tel (593) 2-566-861</td> </tr> <tr> <td>Fax. 1 (202) 522 – 0262</td> <td>Fax (593) 2-566-862</td> </tr> <tr> <td>E-mail: <a href="mailto:mguadagni@worldbank.org">mguadagni@worldbank.org</a></td> <td>E-mail: <a href="mailto:garcos@worldbank.org">garcos@worldbank.org</a></td> </tr> </table>		Maurizio Guadagni	Gabriela Arcos,	Washington, DC 20433	Quito, Ecuador	Tel. 1 (202) 458 – 7144	Tel (593) 2-566-861	Fax. 1 (202) 522 – 0262	Fax (593) 2-566-862	E-mail: <a href="mailto:mguadagni@worldbank.org">mguadagni@worldbank.org</a>	E-mail: <a href="mailto:garcos@worldbank.org">garcos@worldbank.org</a>		
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**18. Project linkage to Implementing Agency program(s):**

The World Bank is financing several related operations in Ecuador:

- (i) The Biodiversity Protection Project is co-financed by a GEF Grant (TF-28700-EC) and implemented by INEFAN. The main objective of this project is to support: (a) the strengthening of the institutional capacity and overall policy and legal framework for adequate management of the National System of Protected Areas (NSPA); and (b) on-site conservation and protection activities at 8 priority national parks;
- (ii) The Environmental Management Technical Assistance Project (3998-EC) is implemented by the Ministry of Environment. Its main objectives are to: (1) strengthen the institutional capacity of the Ministries of: Urban Development (MIDUVI), Energy and Mines (MEM) and Industries, Commerce and Fisheries (MICIP) in the areas of environmental policy analysis, program design and management; and (2) carry out the participatory processes and technical analysis required to tackle priority environmental problems. Collaboration with this project would help carrying out the participatory process to design and disseminate wetland management plans;
- (iii) The Agricultural Census and Information System Project (EC-7135), implemented by MAG and INEC. Its main Objective is to improve the availability and use of data for decision-makers in the agricultural sector. This project would help disseminating the results of the National Wetlands Inventory;
- (iv) The Indigenous and Afro-Ecuadorian People Development, PRODEPINE, (EC-40086), implemented by the National Board of the Black and Indigenous People. The main objective of this project is to improve the quality of life of poor rural indigenous and Afro-Ecuadorian communities by providing improved access to land resource and financing for investment subprojects. The information generated by this MSP project will be the basis for the design and implementation of small-scale natural resource management subprojects defined in the Rural Investments Component, particularly for communities living close to identified wetlands.

## RATIONALE AND OBJECTIVES

Ecuador covers 283,520 km<sup>2</sup> and is considered a “megadiverse” country due to the high number of native species and unique ecosystems found in its territory. The ratio of area and biodiversity in Ecuador is extremely high, higher than Indonesia, the country catalogued as the top-ranking megadiverse country in the world (Johnson 1995). Ecuador has 9.2 species of vertebrates (exc. fish) per 1,000 km<sup>2</sup> (Mittermeier et al. 1997), the highest rate in the world. Furthermore, it possesses 11 endemic bird areas and occupies the eighth place among the most bird-biodiverse countries in the planet (Johnson 1995; Biodiversity Support Program 1995). The country ranks second (after the Philippines, which is an archipelago) when considering endemism, and is fifth when diversity and endemism are considered together (Mittermeier et al. 1997). From a global perspective, the great majority of habitats in Ecuador, including its wetlands, can be considered important or critical for biodiversity.

Ecuador’s richness of ecosystems greatly enhances the availability of evolutionary niches for speciation. The presence of the Andes and other lesser mountains in the Coast and the Amazon generates a great climatic, edaphic and topographic variety where an elevated number of species thrive in a limited area. Wetlands occur at all of these altitudes and display characteristic species that considerably increase native biodiversity, as was demonstrated by the pilot study of Ecuador’s wetlands (Briones et al. 1997). In other words, almost any wetland in Ecuador, whether it is a coastal mangrove, a high altitude lake or lagoon, or a freshwater Amazonian ecosystem can be considered of top global biodiversity importance. This statement is supported by global priority setting exercises including the WWF Global 200 map, Birdlife’s Endemic Bird Areas of the World, the Directory of Wetlands of International Importance, and Wetlands International’ upcoming Assessment of the Wetlands of South America.

As an outcome of the pressure on natural resources, a large percentage of wetland-covered area is threatened (ca 50%; Edberg 1998), mainly by agricultural and livestock expansion, oil exploitation and the high population expansion in Ecuador (see 2.). Roads, irrigation projects, dams and drainage projects developed in recent years are changing natural drainage systems in the lowland watershed basins of Ecuador.

In view of this situation, the government of Ecuador demonstrated its commitment to wetlands conservation and their sustainable use by ratifying the Ramsar Convention in 1991. Furthermore, the Government took specific actions in support of the treaty such as the sponsorship of the pilot phase of this project carried out by EcoCiencia. This phase included fresh water non-flowing wetlands in two of the 22 provinces in Ecuador. Even though the Pilot Phase covered only two provinces, it allowed the generation of data concerning the legal and management framework that could be applicable at the national level. Additionally this phase allowed the testing of the methodology, producing guidelines for its validation, modification and complementation. As a result of this phase, specific conservation and policy actions followed, including the expansion of protected areas (Madre Vieja); expansion of environmental education by an NGO (Laguna de Cube); the development of participatory management plans (Ciénaga de la Segua); and the future development of conservation strategies (Embalse Poza Honda).

The Ecuadorian Government supports the continuation of this initiative, aware of the need for further actions to update and characterize the status of wetlands in the rest of the country, leading to preparation of a national action plan for wetlands. Such analysis is an indispensable requisite to

find the correct method for their conservation and management. The identification of wetlands in their social, political and ecological contexts will determine the most appropriate management regime for them.

This GEF medium-size project will build upon the experience gained from the pilot phase to expand the identification, characterization, and prioritization to a national level, facilitating the establishment of regional workgroups that will act according to local realities and with the support of the generated information. The project will also promote the importance of wetlands among environmental and decision-making groups. It will last 3 years.

The objective of this project is to promote and support the conservation of wetlands in Ecuador through their accurate identification, characterization, and prioritization. The Project will contribute to the maintenance of global biodiversity by producing technical data for a National Wetlands Conservation Action Plan which will be the basis for future government action. It will also help increase the number of Ecuadorian wetlands in the list of Wetlands of International Importance.

## CURRENT SITUATION

The Ecuadorian Government, aware of the importance of wetlands and of the threats that affect them, has integrated the wetland category into the new Law of Forestry and Natural Areas as "Special Use Areas". Through several governmental and para-governmental agencies, the Government has implemented actions to create sustainable development programs for these wetlands.

The great importance of these ecosystems for local communities is derived from the constant availability of water. These communities have already developed their own management methods; unfortunately, some lack an indispensable knowledge about specific features and requirements of wetlands, which result in contradictory and counterproductive management actions, such as using wetlands as organic and chemical waste disposal sites, introduction of alien species and intensive natural resources extraction.

The project's pilot phase showed that wetlands are subject to severe destructive pressure generated by the country's particular characteristics. The most important causes of wetland damage and destruction are: (1) rapid wetland eutrophication due to anthropogenic introduction of nutrients, coming either from residual water discharge or crop fertilizer being washed from neighboring fields; (2) wetland filling and drainage to expand the agricultural frontier, urbanizing and/or road building; (3) plant cover destruction to establish temporary and permanent cultivation, pastures, shrimp and pisciculture pools, and lumbering; (4) wildlife extinction due to habitat destruction, over-exploitation, poorly managed harvesting, disappearance of breeding and nesting sites and introduction of foreign species that out-compete native ones; (5) soil destruction due to cattle trampling which alters normal water absorption and affects benthic fauna, and (6) chemical water pollution from pesticides used in crops and poisons/explosives used for fishing.

As an example of the destructive pressure of these threats and the low level of wetland conservation, the pilot study showed that two out of the three largest wetlands in the provinces studied no longer exist. Of the ones that were studied, seven had suffered substantial size reductions and 13 are under an intense anthropogenic eutrophication process.



Only one of the wetlands studied was within a protected area at the time of study, and only two wetlands (both artificial) had an environmental management plan. If this is consistent with the other provinces in the country, the representation of lentic wetland<sup>1</sup> ecosystems within the national system of protected areas is very low.

The pilot phase also demonstrated the lack of information available to decision-makers concerning Ecuador's wetlands. All 16 identified wetlands have global benefits due to their function as migratory bird nesting sites and as sinks for carbon sequestration (see Table 1); six met the criteria to become "Ramsar Sites"; and two (three if we include wetlands inside protected areas) were considered of National Importance (19%) due to the economic benefits for local communities and the Government (i.e. agricultural resources and hydric resources). Of the six that met the criteria for "Ramsar Sites", four were previously unknown by any conservation or management institution. The lack of information on these ecosystems and their low representation in the Ecuadorian System of Protected Areas became evident. It was also discovered that 67% of the inventoried wetlands were previously unknown by any government agency. This MSP project will supply information about those unknown wetlands and will facilitate the decision-making process based on priorities established upon technical considerations.

**Table 1 – Summary of Pilot Phase Results**

#	Wetland of International Importance	Province	Origin	Inside Protected Area	Management Plan	Meet criteria for "Ramsar Sites"	Previously known
1	<i>Las Penias</i>	<i>Esmeraldas</i>	Natural				
2	<i>La Cochita</i>	<i>Esmeraldas</i>	Natural				
3	<i>San Pedro</i>	<i>Esmeraldas</i>	Natural				
4	<i>Madre vieja</i>	<i>Esmeraldas</i>	Natural			6	
5	<i>La Ciudad</i>	<i>Esmeraldas</i>	Natural				✓
6	<i>Pater</i>	<i>Esmeraldas</i>	Natural			4	
7	<i>Cube</i>	<i>Esmeraldas</i>	Natural	✓		1	✓
8	<i>Ciénaga de Same</i>	<i>Esmeraldas</i>	Natural				
9	<i>El Paraiso</i>	<i>Esmeraldas</i>	Natural				
10	<i>La Segua</i>	<i>Manabi</i>	Natural			2	
11	<i>Ciénaga Grande</i>	<i>Manabi</i>	Natural				✓
12	<i>La Esperanza</i>	<i>Manabi</i>	Artificial		✓		✓
13	<i>Las Lomas</i>	<i>Manabi</i>	Natural			5	
14	<i>Poza Honda</i>	<i>Manabi</i>	Artificial		✓	3	✓
15	<i>El Tabacal</i>	<i>Manabi</i>	Natural				
16	<i>El Rosario</i>	<i>Manabi</i>	Natural				

The pilot phase also showed the need to gather together periodically all involved social actors to share information and to coordinate action related to wetlands. The first such event was the "National Wetland Workshop", which was organized jointly by EcoCiencia and IUCN in December 1997 in Quito and involved the participation of user groups, conservation and development NGOs, universities and public agencies. During the December workshop, the "National Wetlands Work Group" was created with representatives from user groups, conservation NGOs and the Government. This group will take the responsibility to disseminate knowledge, coordinate action, and integrate

<sup>1</sup> Wetlands that do not flow and that lack direct tidal influence.

wetland management needs. It will also work toward the inclusion of these ecosystems into Ecuadorian Environmental Law.

#### **EXPECTED PROJECT OUTCOMES, WITH UNDERLYING ASSUMPTIONS AND CONTEXT**

Expected project outcomes include:

- Identifying, characterizing and setting priorities for Ecuadorian wetlands, in order to incorporate them within conservation and sustainable management plans.
- Generating information to establish which inventoried wetlands meet the criteria and merit inclusion as “Ramsar sites”, thus increasing the number of such sites in the country.
- Determining priority of restoration, rehabilitation and management actions according to landscape considerations, to suggest to relevant authorities the most appropriate management category in each case.
- Designing methods to evaluate and monitor the status of wetlands and of their ecological and social importance. This methodology will facilitate the economic and ecological evaluation of wetlands and of the existing relationships between human beings and wetlands.
- Strengthening the National Wetland Work Group’s actions and elaboration of a technical report, based on socio-economic and ecological information identified during this study.
- Creating awareness nationally, especially among social actors interested in wetlands, information related to the importance and conservation status of wetlands, thus promoting sustainable activities for each type of wetland.
- Helping to reform and/or complete wetland legislation via the production of supply data for decision-making processes.

The Project also intends to promote sustainable wetland management and development policies by incorporating not only the Government but other social actors involved in the management of this ecosystem, and by circulating the project updates and results among the largest number of interested parties and the population at large.

#### **ACTIVITIES AND FINANCIAL INPUTS NEEDED TO ENABLE CHANGES**

The main goal of this project is to identify and characterize Ecuadorian wetlands for the purpose of developing a framework for action and for prioritizing sites. This will help the Government, local communities and NGOs to achieve their sustainable management objectives. The project components needed to fulfill these objectives, with their estimated costs, are:

##### **1. Identification, characterization, and prioritization of existing wetlands in the country (US\$727,850).**

The technology to be used for identification purposes will include satellite imaging, aerial photographs, topographic maps and on-site interviews<sup>1</sup>. During a first stage of the research all

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<sup>1</sup> The Pilot Phase revealed that satellite imaging was not always effective due to high levels of evapotranspiration and cloudiness; complementary resources will therefore be used to diminish the chances of overlooking important wetlands.

permanent wetlands larger than 10 ha will be taken into consideration<sup>1</sup>. The final selection and characterization of this wetlands will be made by specialists in the fields of sociology, economy, ecology, limnology, botany and zoology, with the help of criteria matrices developed on the basis of the experience gained during the pilot phase.

## **2. Implementation of a participatory process to achieve sustainable wetland management (US\$91,110).**

This process will include regional workshops intended at receiving and discussing criteria and concerns toward the management of wetlands, which will be the basis for the preparation of a National Wetland Conservation Action Plan. Workshops will be designed to allow the participation of stake-holders, policy makers, scientific community and will be conducted and supervised by the National Wetlands Work Group (NWWG) that was established during the pilot phase.

A core team within the NWWG will be responsible for collecting the information from each workshop and will produce a consolidated report after all programmed regional workshops take place. The project team will submit this report to INEFAN and the Ministry of the Environment, which will be the agencies responsible for the preparation of the National Wetland Conservation Action Plan<sup>2</sup>.

The described process will reinforce the role of the National Wetlands Work Group, and will ensure that management and/or policy recommendations given as a result of this MSP will be taken into account for the preparation of the National Wetland Conservation Action Plan. It will also motivate the inclusion of this Plan in the Government's Sustainable Development Strategy<sup>3</sup>.

## **3. Public dissemination of the importance of wetlands and of project results (US\$90,928).**

The Pilot Phase made evident the fact that the concept of wetlands is new for local natural resources managers (pertinent governmental agencies, NGOs, research institutions) and broadly unknown to general population and decision makers. In order to achieve the sustainability of wetlands and the proper adoption of MSP results, it is necessary to enhance the understanding of the concept of wetlands and of the importance of sustainably managing these ecosystems.

This MSP will contribute significantly to disseminate important information about wetlands, through the generation of posters and publications that will be broadly distributed among stakeholders and population at large. Local universities and other organizations (by means of existing or intended inter-institutional agreements with EcoCiencia), will provide assistance for the distribution of these materials.

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<sup>1</sup> Shrimp and piscicultural pools are excluded from the inventory, otherwise, the number of wetlands would become unmanageable; rivers are also excluded, since they cover extensive geographic zones and would require the elaboration of complicated watershed management plans that are beyond our expectations and methods.

<sup>2</sup> The National Wetland Conservation Action Plan will be prepared after MSP completion based on data generated by this project. It is an official document to be prepared by INEFAN.

<sup>3</sup> The Ministry of the Environment is going to lead the process for the preparation of the National Sustainable Development Strategy; through INEFAN's participation in the NWWG, MOE will receive the necessary information on wetlands for integration in the Sustainable Development Strategy.

GEF support would broaden the project's coverage to components, localities, and variables, whose economic benefits are not immediately evident to the Government and which would not otherwise take place in the normal course of events (see Incremental Cost Section).

## **SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT**

The project has a strong governmental support through INEFAN, the agency responsible for managing protected areas, ascribed to the Ministry of the Environment. This agency assigned funds and personnel during the pilot phase and has pledged to continue support of the project. However, due to economic constraints, the project risks the possibility of not receiving the complete financial contribution comprising the Government's counterpart. EcoCiencia, aware of this risk, is coordinating with the Government and other national and international donors to assure this contribution or to cover for it, if the need arises.

There are some climatic (e.g. *El Niño* phenomenon) and upper-level considerations (e.g. strikes, emergency situations) that could retard the achievement of the project goals. The existence of a core working team will allow enough flexibility in the time table as to change scheduled work sites (provinces) if necessary. Besides, timely project implementation will be supported by the fact that EcoCiencia, the institution in charge, is an NGO with nine years of experience in the execution of this kind of project activities.

Project sustainability would be assured by the following factors:

- The Ecuadorian Government, aware of the importance of wetlands and the threats they face, has integrated the category of wetlands within the new Forestry and Natural Areas Law as "Special Use Areas". This, together with INEFAN's direct participation in this MSP would ensure the inclusion of the results of this project into current and future planning and policy making. Actions on Pilot Phase recommendations by the Govt. of Ecuador and non-governmental organizations are already underway, indicating that this is a reasonable assumption for MSP activities also (see para 4, page 5).
- INEFAN will lead the National Biodiversity Strategy process. This process will provide the Government of Ecuador with overall policies for sustainable development and it will include wetlands as priority ecosystems for conservation and sustainable management. INEFAN is represented in the National Wetlands Work Group, thus ensuring an effective interface between MSP activities and the biodiversity strategy process.
- The National Wetlands Work Group has been created. Its members are representatives of several social groups who will collaborate in the proclamation of sustainable development policies for these ecosystems and coordinate actions aimed at the dissemination and eventual incorporation of said policies within local, sectional and central governments.
- The methodology to be implemented through this MSP would not require high level expertise and would be cost and time efficient. This would allow its further use in long-term wetland monitoring activities, expected to be carried out by key stakeholders (e.g. INEFAN, local communities). This methodology could be easily transferred to stakeholders by training programs to be carried out by future initiatives (not by this MSP).

## STAKEHOLDER INVOLVEMENT AND SOCIAL ASSESSMENT

The entity in charge of managing and conserving wetlands is the Ministry of the Environment (through INEFAN). This ministry is one of the main stakeholders and will have a national wetland representative in the National Wetland Work Group.

As demonstrated in the pilot phase, local communities substantially depend on these ecosystems and are aware that current management practices are, in many cases, a threat against their own quality of life; therefore, they are the main interested party.

The national inventory should also include the implementation of regional workshops with the presence of local actors to encourage their participation in the elaboration of guidelines that could serve as inputs for sustainable management plans. Likewise, gender should be taken into account in social analyses to identify the way in which men and women differ in their use of natural wetland resources. Based on this process, the national inventory will lead to preparation of a National Wetlands Conservation Action Plan.

The National Wetlands Work Group will foster support from multiple official and private agencies with which actions are already being coordinated. By means of existing cooperation agreements, actions will be coordinated with several national universities such as Universidad Técnica de Loja, Universidad Estatal de Guayaquil, Universidad San Francisco de Quito and Universidad Católica de Ibarra. The specific interest of these institutions is to offer their students field experience, and to strengthen their libraries, museums and herbaria.

## INCREMENTAL COST ANALYSIS

The present and potential economic benefits of Ecuador's wetlands has not been studied. However, based on the pilot phase of this project and on experiences in other countries, this importance can be measured in three ways: direct benefit, indirect benefit and non-use benefit (Table 2). The meaning of each term is briefly summarized below:

- **direct benefit:** such as agricultural resources and nutrients retention. Typically this is the most tangible benefit of wetlands and the one currently recognized by local communities and the Government when there is a need to make management decisions related to wetlands. Wetlands characterized as having "direct benefits" may not in fact generate such benefits today; rather, the use of the term is indicative of a wetland's potential.
  - **indirect benefits:** such as the support and protection provided to economic activities and property by the wetlands' natural functions (flood alleviation, maintenance of the hydrological cycle); due to a lack of quantified data and knowledge on the importance of indirect economic benefits provided by wetlands, these "other service categories" are not typically considered in decisions that might affect wetland conservation and management.
- non-use benefit: this refers to the value derived from non-economic uses such as cultural heritage or biodiversity conservation.

For the purpose of defining system boundaries, these direct (with no current economic benefits), indirect and non-use values should be included as economic causes of system boundaries (Giesen & King 1997) that justify incremental costs.

TABLE 2

Wetlands values	Direct Benefit	Indirect Benefit	Non-use Benefit
<b>Components</b>			
1. Forestry resources	<><>		
2. Wildlife resources	<>	<>	
3. Fish resources	<><>	<>	
4. Forage resources	<><>		
5. Agricultural resources	<><>		
6. Hydric resources	<><>		
<b>Functions/Services</b>			
1. Aquifer recharge		<	
2. Flood control		<>	
3. Coastal stabilization		<><>	
4. Sediment retention		<><>	
5. Nutrient retention	<>	<><>	
6. Recreation/Tourism		<>	
7. Water transport		<>	
8. CO <sup>2</sup> sequestration		<>	
9. Heavy-metal sequestration		<	<>
<b>Diversity attributes</b>			
1. Biological diversity	<>	<><>	<><>
2. Representativeness	<		<>
3. Cultural heritage	<>		<>

Legend: <>=low <><>=medium <><><>=high  
 Modified from Barbier et al. (1996)

The incremental cost analysis is based on the conceptual framework described above, enhanced by the results of the Pilot Phase.

**Pilot Phase.** The Pilot Phase (8 months) has been completed and resulted in the implementation of the following activities: (1) development of a survey and characterization methodology for wetlands; (2) testing the methodology on lentic wetlands in 2 representative provinces (Esmeraldas and Manabi); (3) implementation of a participatory process that culminated in the establishment of a National Working Group on Wetlands; and (4) dissemination of Pilot Phase results through publication of information on surveyed and characterized wetlands. The total cost of the Pilot Phase was \$143,450. As a past contribution (sunk cost) to MSP objectives, the cost of Pilot Phase activities has been excluded from the following IC analysis.

**Baseline Scenario.** Under the Baseline Scenario, a second phase of the Wetland Inventory Pilot Project would be carried out over a 10 month period. The scope of Baseline activities was determined by the available financing from GOE and NGO resources, based on expected national benefits from surveyed wetlands. Under the Baseline Scenario, three major activities would be carried out for a total cost of US\$ 191,500.

(a) **Inventory Process:** the field-tested and refined methodology developed under the Pilot Phase would be applied in two additional provinces with known important wetlands (Guayas and El Oro). Due to funding limitations, only lentic wetlands would be surveyed, and, during the characterization process, priority would be given to wetlands that satisfy the following two basic criteria:

- (i) they are included in the National System of Protected Areas (NSPA); or
- (ii) they provide direct benefits (as per column 1 in Table 2, above).

The cost of the Baseline inventory/characterization work is estimated at US\$95,875.

- (b) **Participatory Process:** Implementation of a participatory process at the local level to define general management actions related to the surveyed wetlands. The cost of these activities is estimated at US\$53,132; and
- (c) **Dissemination Process:** Activities to disseminate results to local stakeholders in the areas close to the surveyed wetlands. The cost of these activities is estimated at US\$42,493.

Implementation of the Baseline Scenario would result in the following outcomes: (i) lentic wetlands in Guayas and El Oro Provinces would be identified and those under direct Government responsibility or with economic benefits would be characterized; (ii) stakeholders would define guidelines for sustainable management of the surveyed and characterized lentic wetlands in these 2 provinces; and (iii) a dissemination program would be carried out among the communities surrounding those wetlands characterized as priorities and also among local representatives.

However, under the Baseline Scenario, funding would be insufficient to:

- (a) include coastal wetlands in the inventory of the two Pilot Phase and 2 Baseline Provinces;
- (b) extend the inventory exercise to the remaining 18 provinces;
- (c) lay the foundation for preparation of a National Wetlands Conservation Action Plan, due to the incomplete coverage and insufficient data;
- (d) expand dissemination activities beyond the local milieu/stakeholders to reach the whole country and to promote national wetland management awareness;

Due to the aforementioned limitations, management actions on a national scale would not be guaranteed beyond the end of the project.

**GEF Alternative.** The GEF Alternative would also consist of a Phase 2 project, building on the Pilot Phase project experience. The GEF Alternative Phase 2 would require 36 months, and the coverage of program activities would be national in scope. Project activities would fall into three major categories (see below), with a total estimated cost of US\$909,888.

- (a) **Inventory Process:** During the Phase 2 MSP, the field-tested and refined Pilot Phase methodology would be applied to all coastal and lentic wetlands in the remaining 20 provinces of the country, and to the coastal wetlands not surveyed during the Pilot Phase in Esmeraldas and Manabi provinces; all significant wetlands would be characterized, not just those meeting the "direct benefit" test; the total estimated cost of this component is US\$727,850.
- (b) **Participatory Process:** The GEF Alternative would promote participation at the local, regional and national levels. The GEF Alternative will also strengthen the National Wetlands Work Group (NWWG), created during the Pilot Phase with users, administrators and other people interested in this type of ecosystem. Through a national-scale participatory process, it will generate the information needed by the NWWG to design guidelines that will establish the basis for the National Wetlands Conservation Action Plan. The total estimated cost of this component is US\$91,110.
- (c) **Dissemination Process:** In addition to the dissemination of information at the local level in the two participating Baseline provinces, the GEF Alternative would permit dissemination activities

to be carried out throughout the whole country. Cooperation agreements with universities and official, para-governmental and non-governmental organizations will allow project results to reach all interested parties. The total estimated cost of this component is US\$90,928.

Implementation of the GEF Alternative would result in the following outcomes: (a) identification and characterization of wetlands on a national scale, including lentic wetlands in the remaining 20 provinces (2 were covered under the pilot phase), and 100% of coastal wetlands (which would otherwise have been left out of the baseline course of action); (b) creation of a high quality database on Ecuador's wetlands, based on high-technology methods and benefiting from the participation of renowned national and international specialists; (c) development of technical recommendations regarding management categories for characterized wetlands (including guidelines for use at the local level), as input into GOE preparation of a National Wetlands Conservation Action Plan; (d) strengthened stakeholder capacity to sustainably manage the country's wetlands through the planned participatory process and information dissemination activities. The cumulative result of these various outcomes is expected to be improved management actions for many of the currently unmanaged wetlands in Ecuador, where the greater share of biodiversity is concentrated.

*Incremental Cost.* The cost of the Baseline Scenario is estimated at US\$191,500, and the cost of the GEF Alternative is estimated at US\$909,888, resulting in an incremental cost of US\$718,388 for the proposed medium-sized project. Hence, the amount that is requested from GEF for the Phase 2 MSP is US\$718,388, which would cover the incremental costs of the proposed GEF Alternative. The Baseline costs and GEF Alternative costs are summarized in the Incremental Cost Matrix presented below.

**TABLE 3. INCREMENTAL COST MATRIX  
(US\$)**

	<b>Baseline scenario</b>	<b>GEF Alternative</b>	<b>Increment (GEF)</b>
Identification and characterization of existing wetlands in the country	98,875	727,850	631,975
Implementation of a participatory process to achieve sustainable management of wetlands	53,132	91,110	37,978
Dissemination of the importance of wetlands and project results	42,493	90,928	48,435
<b>TOTAL</b>	<b>191,500</b>	<b>909,888</b>	<b>718,388</b>
Percentage	21	100	79

#### **PUBLIC INVOLVEMENT PLAN**

This project will integrate the largest possible number of interested groups, especially local representatives, in the process of planning of management and conservation planning, through regional workshops in which sustainable management policies will be discussed.

It will integrate the public and groups involved through regional planning and result-presentation workshops. Representatives of the largest possible number of inventoried wetlands will be present at such meeting. Results from the socio-economic and ecological analyses will also be



shown to allow for their modification and validation. The presence of these persons will be secured via the National Wetlands Work Group.

In order to increase public interest and commitment towards wetland conservation, results from this project will be summarized in three publications that will be sold at a symbolic cost as well as in three posters that will communicate the importance of wetlands and the ways of conserving them. These posters will be posted via agreements with universities.

## BUDGET

Phase 2 MSP implementation costs total \$909,888, of which EcoCiencia, the Government and other donors would contribute about 21% (equivalent to the expected share of wetlands generating direct benefits, as per Table 2) and GEF would contribute about 79% to cover the incremental costs associated with the global benefits of MSP activities. Phase 2 MSP costs are presented below according to expenditure category.

**Table 4. Phase 2 MSP BUDGET  
(US\$)**

CONCEPT	ECOCIENCIA <sup>1</sup>	GEF	PROJECT TOTAL
<b>1. Goods</b>			
(a) Equipment acquisition <sup>2</sup>	86,300	92,000	178,300
(b) Workshop material	0	6,000	6,000
<b>2. Works</b>			
(a) Office renovation	3,000	6,000	9,000
<b>3. Services</b>			
(a) NGO personnel <sup>3</sup>	73,450	130,254	203,704
(b) Contracted personnel <sup>4</sup>	12,600	330,200	342,800
(c) Publication	6,000	24,000	30,000
(d) Mobilization/per diem	0	56,900	56,900
(e) Workshops <sup>5</sup>	0	10,000	10,000
(f) Miscellaneous expenses <sup>6</sup>	1,900	30,380	32,280
<b>4. Other</b>			
Unallocated	8,250	32,654	40,904
<b>TOTAL</b>	191,500	718,388	909,888
Percentages	21	79	100

1. Within EcoCiencia's contribution all national and foreign institutional contributions are included (e.g. Ecuadorian Government, Ramsar Convention, etc.).
2. These are all the equipment elements specifically acquired for the project or assigned to it 100% of the time (e.g. vehicles, computer equipment, satellite images, etc.).
3. This item includes all the project's support personnel working at EcoCiencia's headquarters, who will dedicate a percentage of their time to it (e.g. Executive Director, accountants, messengers, secretaries).
4. Includes all technical personnel specifically contracted for the project and who will dedicate 100% of their time to it (e.g. Project Director, technicians in several areas, etc.).
5. These includes regional planning workshops as well as National Working Group meetings.
6. This item includes communication, vehicle maintenance and other direct costs.

## PROJECT EXECUTION PLAN

EcoCiencia will execute planned activities with technical staff hired specifically for this project. This staff will be coordinated and supervised by a permanent member of EcoCiencia, who will be working as a full time Project Coordinator. The Execution Plan is designed to allow the flexibility mentioned in the Sustainability Analysis and Risk Assessment section and it is presented in the following table, according to the general activities contemplated in this MSP.

**Table 6. PROJECT EXECUTION PLAN  
(US\$)**

DURATION OF THE PROJECT: 36 months						
ACTIVITIES	MONTHS					
	6	12	18	24	30	36
1 Identify and characterize Ecuadorian wetlands	_____ ]					
2 Set priorities for national wetlands management actions	_____ ]					
3. Publicly circulate the importance of wetlands and project results	_____ ]					

## MONITORING AND EVALUATION PLAN

EcoCiencia has an internal monitoring and evaluation system for projects (general) and for the project personnel (individual) based on the monitoring of timetables, process and impact indicators, and performance standards. This process is done via bimonthly meetings among all project coordinators, where actions are coordinated, problems are discussed and solutions are proposed. Once a year there is a “closed house” general meeting where all projects are presented and evaluated, indicators are assessed and, if needed, modifications to activity plans are proposed by EcoCiencia’s technical personnel.

External monitoring will be provided by: INEFAN’s Natural Areas and Wildlife Directorate, which represents the Government in the Convention of Wetlands of International Importance (Ramsar); and (ii) the Ramsar Convention. Both INEFAN and the Ramsar Convention will monitor the project via a review of update reports and, eventually, site visits.

The MSP Monitoring and Evaluation Plan would build on the internal and external systems described above. Detailed performance benchmarks are being developed to complement the overall project objectives, outcomes, and activity indicators presented in the MSP summary sheets. These performance benchmarks will provide the basis for disbursement of GEF funds by the Bank during MSP implementation. EcoCiencia will report regularly to the Bank on project execution within this agreed framework.

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REPÚBLICA DEL ECUADOR  
MINISTERIO DE MEDIO AMBIENTE

'EL ECUADOR HA SIDO,  
ES Y SERÁ PAÍS AMAZÓNICO'

Quito, diciembre 29 de 1998  
Oficio No.1407-MMA

Señores

**FONDO PARA EL MEDIO AMBIENTE MUNDIAL**

1818 H. Street NW  
Washington, DC 20433  
EEUU

Por la presente, me permito indicarle que he recibido la propuesta para el desarrollo del **Inventario Nacional de los Humedales Ecuatorianos**. Esta propuesta fue diseñada por EcoCiencia y cuenta con el respaldo técnico del INEFAN.

La realización del **Inventario Nacional de los Humedales Ecuatorianos** constituye una de las prioridades ambientales del país, debido a la permanente destrucción que sufren estos ecosistemas. Por esta razón, me permito apoyar la ejecución de las actividades indicadas en la mencionada propuesta y solicitarle comedidamente que la entidad a su cargo continúe con los trámites correspondientes para obtener el financiamiento respectivo de los Proyectos de Mediano Tamaño de la Facilidad Ambiental Global (GEF).

El Ministerio de Medio Ambiente expresa su conformidad para que la Fundación EcoCiencia sea el organismo receptor de los fondos no reembolsables del GEF/Banco Mundial para la ejecución del Proyecto de Mediana Escala cuyos objetivos, actividades y resultados se detallan en el documento del proyecto respectivo (Project Brief).

Aprovechando la oportunidad para expresarle mis sentimientos de consideración y estima.

Atentamente,

  
**YOLANDA KAKABADSE**  
Ministra de Medio Ambiente