

**Global Environment Facility  
Proposal for PDF Block B Grant**

Country	Costa Rica
GEF Focal Area	Biodiversity
Project Title	Biodiversity Resource Development Project
Requesting Agency	World Bank
Implementing Agency	Instituto Nacional de Biodiversidad (INBio)
Total Project Cost	US\$ 20 million
Financing Plan	US\$ 7 million GEF US\$ 1 million Government of Costa Rica US\$ 12 million Bilateral Donors
PDF Block B Funds Requested	US\$ 283,000
PDF Co-Funding	US\$ 397,087 NORAD US\$ 120,000 INBio
Block A or B Grant Awarded	No

**Summary Project Objectives and Description**

1. The overall objective of the project is to enhance the knowledge of Costa Rica's species, and to capture the values of those species through conservation and sustainable use. Specific project objectives are to: (a) support the development of a framework for undertaking a comprehensive biodiversity inventory; (b) complete an inventory of at least five major plant and animal groups; (c) develop human capacity in systematic biology; (d) develop revenue and non-revenue generating activities, and increasing awareness of the environmental values of biodiversity; (e) and strengthen the institutional capacity at INBio, a private non profit association that will be the implementing agency for the project. The proposed project would build on successful pilot activities, and would initiate new activities. Project activities would take place in the Guanacaste Conservation Area (GCA) and in the surrounding buffer zone, and at INBio. The project is expected to take five years to implement.

2. The project would finance : (a) workshops and national and international consultant services to develop a framework for collection and cataloging activities; (b) the actual collection and identification of specimens within the GCA, cataloging and information management activities at INBio, and the infrastructure necessary for research and specimen storage; (c) the training of parataxonomists from the local communities surrounding the GCA, and the training of Costa Rican taxonomists, curators, and information systems specialists; (d) the development of revenue generating applications such as bioprospecting, ecotourism, and cultivation of wild species, and non-revenue generating applications such as integrating biodiversity conservation in land use planning, the use of biological indicators in environmental impact assessments and environmental monitoring; and (e) incremental costs of additional personnel and equipment for the project coordination unit.

## Eligibility

3. Costa Rica ratified the Convention on Biological Diversity in September 1994. This project addresses the three main objectives of the Convention - conservation, sustainable use, and equitable sharing of benefits. The project is consistent with the guidance from the Conference of the Parties. It has been identified as a national priority; identifies and monitors biodiversity (inventory); builds capacity; provides opportunities for international cooperation in the joint development of technology; promotes sustainability; serves as a demonstration project; encourages scientific excellence; takes innovative measures to conserve biodiversity including economic incentives; strengthens involvement of local communities; and strengthens the conservation, management and sustainable use of ecosystems.

4. Costa Rica is at the forefront of biodiversity conservation and management. The Government has articulated three strategies: (i) the establishment of large areas for conservation; (ii) the assessment of the biodiversity that lies within the conserved areas; and (iii) the integration of the non-destructive use of biodiversity into the intellectual and economic fabric of the society. This project clearly supports the latter two strategies. This project would be an important model and a pioneering effort to address the issue of intellectual property rights and equitable sharing of benefits. It will support Government commitment to integrate conservation and sustainable use of biodiversity with sustainable development. This model will apply not only to the rest of Central and South America, but could be replicated globally. GEF financing would be important in leveraging large amounts of additional donor resources.

## Description of PDF Activities by Component

5. PDF grant funds are requested to complete the detailed design of the project components, and to address the issues identified as critical to project preparation.

(a) **Detailed Component Design.** PDF resources would finance consultants and studies for the detailed design of project components. Based on a review of pilot projects and other experience, the following activities would be undertaken: (a) establishment of criteria for selection of priority taxa; (b) design of the participatory planning process; (c) identification of personnel, equipment and transportation needs for collection and cataloging activities; (d) elaboration of infrastructure requirements and environmental assessment criteria for infrastructure; (e) design of the training program; and (f) preliminary testing of community outreach methods.

(b) **Financing Plan.** PDF resources would finance consultants, studies, and meeting expenses to prepare detailed cost tables, assess incremental costs for GEF financing, and identify and meet with bilateral donors, foundations, and development agencies to seek additional resources to finance total project costs.

(c) **Public Consultation.** In addition to the scientific and sectoral workshops being funded by NORAD on the biodiversity inventory, PDF resources would finance workshops on other project components, especially with potential users and beneficiaries of the

commercial and non-commercial applications of inventory outputs, including local communities.

- (d) **Institutional Coordination.** There are three primary institutions involved in project implementation - INBio, GCA management, and the Ministry of Environment. PDF resources would finance studies to outline the responsibilities of each institution, the coordination mechanisms between the institutions, and the functions of the project coordination unit. Institutional mechanisms to allocate funds to pilot projects in the GCA buffer zone would be developed. A detailed project implementation plan would be prepared.
- (c) **Revenue Sharing.** PDF resources would finance studies, and a seminar on the distribution of research fees, patents, royalties, and intellectual property rights based on the sustainable use of biodiversity. Policy recommendations would be made for the sharing of revenues between the Government, the society, and the different institutions and individuals involved in revenue generating applications.

### **National Level Support**

6. The project has been identified as a national priority in the National Biodiversity Strategy and is integral to Costa Rica's development program. The President of Costa Rica, the Minister of Finance, the Minister of Environment, the Director of INBio, and the Director of the GCA have all indicated that this project is a priority, and will receive their full support. The Minister of Finance has written that the project is 'without doubt of fundamental importance for the ecological future of Costa Rica' and has confirmed the provision of US\$ 1 million in counterpart funding. The Minister of Environment has written that 'the goals and future products of this project will not only address the social and economic conditions of the country as a whole, but will also make a significant contribution to our scientific development and the knowledge and understanding of tropical biodiversity.' INBio, with the support of the Government, has requested PDF resources to accelerate project preparation.

### **International Cooperation**

7. Since the establishment of INBio and the GCA in 1989 a large number of bilateral donors, foundations, non-governmental organizations and private agencies (such as the US Agency for International Development, the Swedish International Development Authority, the Pew Charitable Trusts, and Intergraph) have provided support for pilot projects for parataxonomist training, computerized biodiversity information management systems, bioprospecting, and participatory planning workshops. This project will expand and scale up these initiatives building on successes and lessons learned. In 1993 a group of systematic biologists, administrators, and information systems experts, financed by the National Science Foundation, met to determine options for undertaking a biodiversity inventory. Their work, in addition to the work of other groups such as the National Forum on Biodiversity, strongly endorsed the need for an inventory. In 1994 INBio was authorized by the Ministry of Environment to develop and execute an all taxa biodiversity inventory in the GCA.

### Justification for PDF Grant

8. The PDF grant would allow for detailed preparation of project activities and cost estimates, calculation of incremental costs and mobilization of donor resources, public consultations, definition of institutional responsibilities and coordination mechanisms, and the design of equitable revenue sharing schemes.

### Items to be Financed

9. The PDF grant would finance studies, workshops, seminars, meetings, and local and international consultants. The PDF resources will build on and complement activities funded by NORAD, the Norwegian Development Agency. NORAD has provided funding of US\$ 397,087 for the design of the biodiversity inventory component, and electronic information management system, and for strengthening INBio's project preparation management capacity. A critical element of the NORAD-supported preparation program consists of a series of essential participatory workshops to take place with potential scientific and non-scientific clients and users of an inventory so as to determine the nature of the information that should be provided, as well as the benefits and risks of undertaking the inventory. Several workshops have already taken place, and summaries have been prepared for further discussion. INBio would also provide co-funding, as described below.

### Preparation Costs (in US\$)

ACTIVITY	PDF	NORAD	INBio	TOTAL
Detailed Component Design	72,000			72,000
Financing Plan	48,000		10,000	58,000
Public Consultation	30,000	149,150		179,150
Institutional Coordination	48,000			48,000
Revenue Sharing	60,000			60,000
Information Management		92,500		92,500
PDF/Preparation Management	25,000	155,437	110,000	290,440
TOTAL	283,000	397,087	120,000	800,087

### Implementation of the PDF

10. INBio would be the PDF grant recipient and would be responsible for executing the PDF work program. PDF activities are expected to be completed by March 1996.



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Implementing Agency Representative

June 20, 1995

Date

MTE/IJ/Ali/Utam/Mario/KK/14 pages

THE WORLD BANK/IFC/MIGA

## OFFICE MEMORANDUM

Walter / Frank / Al Duda

File: Costa Rica: Biodiversity  
Resource Development  
Project

DATE: June 21, 1995

TO: Mr. Ian Johnson, GEF Secretariat

FROM: Ken Newcombe, Chief, ENVGC

EXTENSION: 36010

SUBJECT: JUNE 29, 1995 GEFOP Meeting - Background Documentation

Please find attached a preliminary draft project summary for the Costa Rica Biodiversity Resource Development Project (BRDP). We are circulating the project brief to provide background information to the PDF request distributed yesterday for consideration at the June 29 GEFOP meeting.

Please note: we are asking GEFOP to approve only the Costa Rica PDF Block B at this time; the brief is being circulated to GEFOP members for information purposes, not for entry into a specific GEF work program tranche. We look forward to your comments.

Attachment

**Distribution:**

Messrs./Mmes:

- I. Johnson, GEF Secretariat (Fax: 23240)
- R. Asenjo, UNDP (Fax: 212-906-6998)
- W. Mansfield, UNEP (Nairobi) (Fax: 9-011-254-2-520-825)
- R. Khanna, UNEP (Washington) (Fax: 202-331-9333)
- A. Cropper, Biological Diversity Convention Secretariat (Fax: 9-011-41-22-797-2512)
- M. Sanwal, Acting STAP Coordinator (Fax: 9-011-254-2-520-825)

cc: Messrs./Mmes. L. Vidaeus, C. Kimes, K. Mackinnon, J. Suter (ENVGC); G. Mohadjer (LA2NR); ENVGC ISC

**Global Environment Facility  
Proposal for Review**

<b>Project Title</b>	<b>Costa Rica Biodiversity Resource Development Project</b>
<b>GEF Focal Area</b>	<b>Biodiversity</b>
<b>Country Eligibility</b>	<b>Convention Ratified in 1994</b>
<b>GEF Financing</b>	<b>US\$ 7 million</b>
<b>Government Counterpart Financing</b>	<b>US\$ 1 million</b>
<b>Cofinancing</b>	<b>Bilateral Donors US\$ 12 million</b>
<b>Associated Project</b>	<b>None</b>
<b>GEF Implementing Agency</b>	<b>IBRD</b>
<b>Executing Agency</b>	<b>None</b>
<b>Local Counterpart Agency</b>	<b>Instituto Nacional de Biodiversidad (INBio)</b>
<b>Estimated Starting Date (Effectiveness)</b>	<b>October 1996</b>
<b>Project Duration</b>	<b>Five Years</b>
<b>GEF Preparation Costs</b>	<b>PDF Block B Requested US\$ 283,000</b>

**Global Environment Facility  
Proposal for Review**

**COSTA RICA  
Biodiversity Resource Development Project**

**Background**

1. **Costa Rica's Biological Diversity.** Costa Rica's 20,000 square miles of the isthmus joining North and South America contain at least half a million species in habitats ranging from near desert to exceedingly wet rain forests and cloud forests, and from sea level to over 10,000 feet. It is estimated that there are about 13,000 species of plants, 10,000 of fungi, 1,500 of vertebrates, 290,000 of insects, 75,000 of aquatic organisms from fresh to brackish waters, 15,000 of marine invertebrates, up to 50,000 of spiders, mites, and other terrestrial invertebrates, as many as 10,000 of nematodes, and innumerable species of bacteria and viruses. Eighty percent of these species have yet to be described and named. It is estimated that about 80 percent of the species found in Costa Rica have ranges that extend into other countries in Central and South America. Some species extend from central Brazil or Bolivia, through Costa Rica, to Guatemala or southern Mexico.

2. **Government's Biodiversity Strategy.** Costa Rica is at the forefront of biodiversity conservation and management. Recognizing that its biological resources are an important national asset, Costa Rica has actively pursued a policy of conservation and protection, and has encouraged innovation in financing and administration. The Government has articulated three strategies: (i) the establishment of large areas for conservation; (ii) the assessment of the biodiversity that lies within the conserved areas; and (iii) the integration of the sustainable use of biodiversity into the intellectual and economic fabric of the society.

3. Since the early 1970s, about 25 percent of the country's territory has been designated as national parks, national forests, and equivalent reserves. In 1986, these protected areas were transferred to the newly created Ministry of Natural Resources, Energy and Mines (MIRENEM). Based on the National Biodiversity Conservation Strategy of 1989, a National System of Conserved Areas was created with the goal of consolidating small, separate conserved areas into seven Conservation Areas. Guanacaste Conservation Area (GCA) was created in 1989 when five adjoining parks and reserves were amalgamated, and new areas were added, to provide biological corridors and ease of administration. The 120,000 hectares of the Conservation Area contain a wide range of habitats from sea level to 6,000 feet, and include rain forest and tropical dry forest. It is estimated that about 300,000 species live within the GCA.

4. The creation of the National Biodiversity Institute (INBio) by Presidential Decree in 1989 as a private non-profit association, has greatly advanced the identification of the

biodiversity within conserved areas. INBio was founded to: (i) develop a strategy and carry out an inventory of Costa Rica's biodiversity; (ii) begin integrating all national collections into one physical and administrative entity; and (iii) put biodiversity information into an easily accessible format for public access. INBio has conducted various innovative pilot projects. For example, the parataxonomist training project was started in 1989 with initial support of US\$ 120,000 from the US Agency for International Development and then with support from other donors including the Swedish International Development Authority and the Pew Charitable Trusts. So far about 100 adults living in the rural areas close to conservation areas throughout Costa Rica have received intensive classroom and on-site training to work as parataxonomists in the collection and identification of multiple specimens. Another innovative pilot project is the US\$ 750,000 INBio-Intergraph project to develop easily accessible computerized biodiversity information management systems using bar-coding to identify the specimens collected by the parataxonomists. Ground breaking bioprospecting projects have also been initiated with Merck and Co. and with Bristol-Myers Squibb.

5. In 1993 a group of systematic biologists, administrators, and information systems experts held a workshop financed by the National Science Foundation, to determine options for undertaking a biodiversity inventory. Their work, in addition to the work of other groups such as the National Forum on Biodiversity, strongly endorsed the need for an inventory. In 1994 INBio was authorized by MIRENEM to develop and execute an all-taxa biodiversity inventory in the GCA. NORAD, the Norwegian Development Agency, has provided funding of US\$ 400,000 to enable a series of essential participatory workshops to take place with potential scientific and non-scientific clients and users of an inventory so as to determine the nature of the information that should be provided, as well as the benefits and risks of undertaking the inventory. Several workshops have already taken place, and summaries have been prepared for further discussion.

**Project Objectives**

6. The overall objective of the project is to enhance the knowledge of Costa Rica's species, and to maximize the values of those species through conservation and sustainable use. Specific project objectives are to: (a) support the development of a framework for undertaking a comprehensive biodiversity inventory; (b) complete an inventory of at least five major plant and animal groups; (c) develop human capacity in systematic biology; (d) develop revenue and non-revenue generating activities related to the inventory; (e) and strengthen the institutional capacity at INBio.

**Project Description**

7. The proposed project would build on successful pilot activities, and would initiate new activities. Project activities would take place at the GCA and in the surrounding buffer zone, and at INBio. The project is expected to take five years to implement. The project would have the following components:



- (a) **Frameworks (Estimated US\$ 2 million).** This component would finance workshops and consultant services to develop a framework for collection and cataloguing activities. A participatory planning process involving Costa Rican and international taxonomists, ecologists, biologists, and potential clients of the inventory, would be undertaken to design the criteria for selection of priority taxa for collection, and the protocols and methodologies to be used for inventories, surveys, and specimen and inventory transfer. After testing in the GCA, this framework would be replicable in other areas both in Costa Rica and elsewhere.
- (b) **Biodiversity Inventory (Estimated US\$ 13 million).** This component would finance the actual collection of specimens within the GCA, cataloguing and information management activities at INBio, and the infrastructure necessary for research and specimen storage. This component would have three sub-components:
- (i) **Collection Activities.** This sub-component would finance incremental costs for salaries, equipment, and transportation for parataxonomists and taxonomists to collect specimens for at least five priority major plant and animal groups in the GCA, undertake preliminary sorting in the GCA, and transfer the specimens to INBio for further processing.
  - (ii) **Cataloguing Activities.** This sub-component would finance equipment, salaries, and other operating expenditures at INBio to process and store the specimens, identify and catalogue each one, and record the relevant data in a computerized information management system.
  - (iii) **Infrastructure.** This component would finance civil works, equipment and operating expenditures to expand the laboratory facilities at the GCA and the laboratory and specimen storage facilities at INBio necessary to accommodate the additional collections.
- (c) **Training (Estimated US\$ 1 million).** This component would finance the training of additional parataxonomists from the local communities surrounding the GCA to work specifically on the biodiversity inventory in the GCA, and the training of Costa Rican taxonomists, curators, and information systems specialists. On-site training programs would take place in the GCA.
- (d) **Applications (Estimated US\$ 3 million).** This component would finance the development of applications based on the inventory. It would have two sub-components:
- (i) **Revenue Generating Applications.** This subcomponent would finance consultants and studies to seek out revenue generating joint ventures between the private sector and INBio and the GCA based on the inventory, such as bioprospecting for pharmaceutical products, ecotourism, training

and research opportunities, and the preparation of media products. It would also establish a fund to finance small scale pilot projects in the GCA buffer zone to assist local communities to develop alternative livelihood opportunities based on the cultivation and propagation of marketable wild species. Criteria for access to the fund, and institutional arrangements for managing the fund by a committee with broad scientific and social representation, would be established during project preparation.

- (ii) **Non-Revenue Generating Applications.** This subcomponent would finance studies and consultants to identify potential applications of the inventory for non-commercial activities, such as integrating the value of biodiversity conservation in land use planning, and the use of biological indicators in environmental impact assessments and environmental monitoring. It would also finance community outreach programs such as public awareness campaigns and primary school programs.
- (e) **Institutional Strengthening (Estimated US\$ 1 million).** This component would finance incremental costs of additional personnel and equipment for the project coordination unit at INBio.

8. **Expected project outputs of global and national significance include: a framework for undertaking a comprehensive biodiversity inventory; an inventory of at least five major plant and animal groups; trained Costa Rican parataxonomists, taxonomists, curators and information systems specialists; and models for revenue generating and non-revenue generating applications of the biodiversity inventory. An important benefit from this project would be an increased understanding of the inter-relationships and inter-linkages between biodiversity and ecosystem functioning and the crucial role biodiversity plays in sustainable development.**

#### **Rationale for GEF Financing**

9. **Costa Rica ratified the Convention on Biological Diversity in September 1994. This project addresses the three main objectives of the Convention - conservation, sustainable use, and equitable sharing of benefits. The project is consistent with the guidance from the Conference of the Parties. It has been identified as a national priority; identifies and monitors biodiversity (inventory); builds capacity; provides opportunities for international cooperation in the joint development of technology; promotes sustainability; serves as a demonstration project; encourages scientific excellence; takes innovative measures to conserve biodiversity including economic incentives; strengthens involvement of local communities; and strengthens the conservation, management and sustainable use of ecosystems. This project would be an important model and a pioneering effort to address the issue of intellectual property rights and equitable sharing of benefits. It will support Government commitment to integrate conservation and sustainable use of biodiversity with sustainable development. This model will apply not only to the rest of**

Central and South America, but could be replicated globally. GEF financing would be important in leveraging large amounts of additional donor resources.

10. This project is fully consistent with the Government's strategies to assess the biodiversity in conserved areas and to integrate the sustainable use of biodiversity into the country's development strategy. The Government is firmly committed to the project. The President of Costa Rica, the Minister of Finance, the Minister of Environment, the Director of INBio, and the Director of the GCA have all indicated that this project is a priority, and will receive their full support. The Minister of Finance has written that the project is 'without doubt of fundamental importance for the ecological future of Costa Rica' and has confirmed the provision of US\$ 1 million in counterpart funding. The Minister of Environment has written that 'the goals and future products of this project will not only address the social and economic conditions of the country as a whole, but will also make a significant contribution to our scientific development and the knowledge and understanding of tropical biodiversity.'

### **Sustainability and Participation**

11. The goal of undertaking an all-taxa biological inventory is ambitious and would require a sustained program in investment and institutional development. The proposed project, which is limited in scope to an inventory of five major groups, would contribute to the development of an all-taxa biodiversity inventory by establishing the framework for such inventories, increasing human capacity, and developing applications which illustrate the benefits to be derived from the enhanced knowledge base provided through biodiversity inventories. The project has defined outputs, that are expected to be completed by the end of the project implementation period.

12. Financial sustainability would be ensured by the ongoing use of available funds and financing mechanisms, and the establishment of equitable revenue sharing mechanisms. Operating costs for the GCA during and after the project implementation period would be financed out of the GCA's US\$ 16 million endowment fund. INBio's share of any revenues generated from income-generating activities would support INBio's own operating expenditures. Institutional sustainability would be ensured by further strengthening scientific, technical and management capacity in Costa Rica, and providing training for local communities. The project would finance the training of a significant number of parataxonomists, taxonomists, curators and information systems specialists, who could continue working after the project implementation period.

13. Participation would be ensured through continued participatory planning workshops and through the use of oversight bodies with community representation. Regular consultations and workshops of local, national and international clients and users of the inventory will be held during project implementation to guide the process and determine the needs - currently funded by NORAD and eventually to be funded by the project. The GCA Regional Council, INBio's Assembly, and the National Technical

**Advisory Committee for the biodiversity inventory, all have community representation, and provide input and advice to the institutions.**

#### **Lessons Learned and Technical Review**

14. **GEF has financed two projects in Costa Rica: Biodiversity Conservation and Sustainable Development in the Osa and Amistad (Pacific) Conservation Areas with UNDP as implementing agency; and Institutional Development for Biodiversity Management Project with UNEP as implementing agency. INBio is the implementing agency for one component of the UNDP project. After initial start-up problems, implementation is proceeding smoothly. Valuable lessons are also provided by the preparation of the Indonesia Biodiversity Collections Project, which aims to strengthen the management of systematic collections and establish a computerized database for biodiversity inventory and monitoring. This project has shown the value of client driven activities and capacity building at the local level.**

15. **An independent technical review meeting was held in May 1995. The meeting endorsed the project for GEF financing. The technical reviewers noted that in terms of innovation, potential replicability, and significance for global biodiversity conservation the project would rank highly according to GEF project selection criteria. The STAP reviewer noted that the implementing agencies were considered appropriate in terms of both their capacity and mandate, that the project fit well with the national agenda for environmentally sustainable development, and complemented other Costa Rican initiatives in biodiversity conservation and management. The most important recommendations from the meeting are that: the project be designed as a free-standing operation with clear outputs; priorities be established for the inventory component; potential clients and users of the inventory be involved in determining its outputs; incremental costs be assessed; more attention be paid to lessons learned from similar projects; cofinancing be confirmed; and criteria for access and use of the fund for pilot projects be determined. Project design and preparation have been adjusted to take into account the technical comments received.**

#### **Project Financing and Incremental Costs**

16. **Total project costs are estimated at US\$ 20 million, of which US\$ 7 million would be financed by the GEF grant, US\$ 1 million would be financed by the Government of Costa Rica, and US\$ 12 million would be financed by other donors. As part of project preparation, detailed project costs and incremental costs will be calculated following recent guidelines endorsed by the Council. Incremental costs will be estimated conservatively using the following principles: (i) since some activities are already underway, the assumption in the incremental cost analysis will be that the same level of funding that is currently available would be available from outside sources during the entire project period; and (ii) only those activities which provide global benefits and which would not be undertaken in the absence of the GEF grant or from which Costa Rica might not benefit directly would be included in the incremental cost analysis. Rough estimates**

indicate that the US\$ 7 million GEF grant would be justified using a conservative incremental cost analysis.

### Issues and Actions

17. The following issues would be addressed during project preparation:
- (a) Will there be sufficient donor funding? There is a significant amount of donor commitment to project activities, as evidenced by the large number of bilateral donors, foundations, and development agencies that have already provided funding for pilot activities. Meetings will be held with donors, and they will be asked to commit further funding of US\$ 12 million. If this level of funding is not forthcoming, the project will be scaled back.
  - (b) Does INBio have the capacity to manage this project? INBio is recognized internationally as an outstanding environmental institution. It manages environmental projects of between US\$ 2 to 3 million annually. This project would represent a one-time, significant jump in the amount of resources and activities INBio would manage annually. An institutional audit of INBio will be undertaken to analyze the current capacity of INBio and to recommend ways in which the capacity can be strengthened to achieve project objectives.
  - (c) Will the institutions work well together? There are three primary institutions involved in project implementation - INBio, GCA management, and MIRENEM. The project coordination unit will be at INBio. Institutional mechanisms will be designed during project preparation to ensure coordination and accountability. A project implementation plan will be prepared that would include monitorable performance and impact indicators, as well as timetables for procurement, disbursement, supervision and mid-term review.
  - (d) How will the inventory be client and user driven? A participatory planning process is already underway, with funding from NORAD. These workshops will determine the initial five priority groups to be inventoried. Consultations and workshops will also be held with the communities around the GCA during project preparation. Consultations and workshops will be continued during project implementation, and will establish the methodological framework and priorities for further action.
  - (e) How will conservation be assured? If the inventory or prospecting work is unregulated, the resource could be severely depleted. The GCA has strict conservation guidelines, which will be followed during project preparation and implementation. Conservationists will be involved in the planning workshops for the development of the framework for sampling and sustainable harvesting, and will ensure that protocols and methodologies protect the resource. National guidelines for environmental assessments will be followed. At the same time, attempts will be made to establish alternative livelihood activities for the local

communities to produce those species that are in demand under semi-wild or cultivation conditions.

- (f) What is an equitable distribution of revenues? Significant work has already been undertaken by INBio regarding the distribution of revenues from bioprospecting and other activities related to a biodiversity inventory. During project preparation, further work will be undertaken regarding research fees, patents, royalties, and intellectual property rights related to biodiversity use for commercial and scientific purposes.

### **Institutional Framework and Project Implementation**

18. INBio would be the project implementing agency. A project coordination unit would be established at INBio, with responsibilities for overall management, monitoring and evaluation. The management at the GCA, who are employed by MIRENEM's National Park Service, would have line responsibility for activities that take place in and around the GCA, such as collection, on-site training, pilot projects, and the development of infrastructure. INBio would have line responsibility for activities taking place within the INBio, such as cataloging, commercial activities, and the development of research and specimen storage infrastructure. Some activities, such as implementing training programs, could be contracted out to experienced agencies, such as the Biodiversity Support Program. Details would be provided in a project implementation plan.

### **Review Arrangements**

19. The STAP Reviewer is Dr. Thomas E. Lovejoy, Counselor for Biodiversity and Environmental Affairs, Smithsonian Institution. Internal Peer Reviewers are Ms. Jessica Mott, SAZAG, and Ms. Claudia Sobrevilla, LA1NR.

### **Attachment**

STAP Review Comments by Dr. Thomas E. Lovejoy, dated May 8, 1995.



SMITHSONIAN INSTITUTION  
Washington, D.C. 20560  
U.S.A.

SCANNED

May 2, 1995

FAX # 522-3119

Mr. Carlos Quintala  
Environmental Specialist  
The World Bank  
1818 K Street, NW  
Washington, DC 20433

Dear Carlos:

I am very familiar with both of the institutions involved with development of this Project. Both INBio and GCA have distinguished records of achievement in innovative program design and effective implementation of scientifically based local conservation initiatives. The technical capacity of INBio for information management and data system design is without parallel within the region. Both INBio and GCA have been and continue to be on the cutting edge in developing and promoting an expanded range of sustainable uses of biodiversity through a variety of novel and innovative contract, royalty, and other arrangements with the private commercial sector.

There is a strong analogy between the Costa Rica Biodiversity Resource Development Project and the Human Genome Project supported by the National Institutes of Health although the level of biodiversity involved is at the level of the gene in the latter case. Both can be labeled "big science" but in fact are the aggregate of the work of a lot of individual investigators with all the benefits of added creativity which they bring to an exercise. Both are worthwhile no matter what increment of the total exercise is achieved. Both have obvious immediate economic and welfare pay offs but also have huge, essentially inestimable, benefits in the long term. One of the latter is that it will undoubtedly reveal unanticipated insights into ways biodiversity contributes to both the structure and function of ecosystems and therefore important implications for natural resource management.

- 2 -

The All Taxa Biological Inventory component, though extremely ambitious in scope, has benefitted from creative input from a large and growing fraction of the global systematic biology community during the course of its development, and is already beginning to show promising outputs in terms of the innovations in methodologies, protocols and institutional arrangements emerging out of the initial planning workshops.

One important point is that taxa chosen for inventory in this first phase of inventory should be selected in a fashion that tends to maximize information to be gained as well as economic return. I suspect from what I have heard about taxa being considered at the moment that this in fact is being borne in mind. It is critical that the choices be made not only from a utilitarian and systematic biology view point but also from that of ecosystem structure and function. It is important to remember that there is no single set of users of the information to be generated and further that no single set is capable of representing the economic, taxonomic and ecosystem function viewpoints equally well.

The pioneering efforts by INBio in securing resources from the private commercial sector for development of biodiversity resources are without parallel. Expansion of these efforts into new areas such as genetic prospecting for crop improvements and biological pest control applications, though in their infancy, show considerable future upside potential and should be encouraged. The present efforts by SCA to involve local entrepreneurs in producing material for bio-prospecting and screening of organisms for products such as natural fragrances should also be encouraged.

Further, any analysis of potential short term economic return needs to bear two things in mind: 1) the technology for bioprospecting and the science underlying potential uses is changing very rapidly (i.e. what is marginal or unimaginable today may be very real tomorrow) and 2) that once a species has been looked at for one class of activity it still is useful as a potential source of many others. What this means is that the very organization of information and specimens makes further prospecting both easier and more promising. The methods being developed are a product in themselves.

One of the important aspects of INBio's efforts and this particular exercise is the electronic information management. While there may be a real need to modify or expand current hardware, the current outline of the information management is fundamentally sound. The ability to use the same data for generating checklists, field guides and related public education materials as is used for scientific or prospecting efforts, is wonderful and its value completely recognized by INBio's management.



- 3 -

I should also stress that this effort,, and INBio's undertakings in general are fully integrated in Costa Rica's remarkable sustainable development plan. This should be made explicit in the final document.

INBio's management has done a remarkable job of planning institutional capacity during what has already been a period of remarkable growth. I have every confidence in their ability to do likewise in the course of this ambitious exercise. They should be encouraged to make sure that the budget of this project covers this aspect as well.

The project document needs to identify how they will address the problem of rare scientific manpower in systematic biology. Systematists have in fact been showing sufficient interest. The other side of the coin is how can this project ease the pressure on this segment of the scientific community by further development of the parataxonomist concept and by produce electronic identification tools.

#### Global Significance for Biodiversity Conservation:

Global benefits will accrue from two factors: (i) the significant expansion of knowledge about tropical species and the increased availability of this knowledge to a wide variety of users which will be achieved by the progressive information management and communications capabilities being developed by INBio; and, (ii) the creation and dissemination of modern media products under the project to serve a wide variety of end users. Better understanding of ecosystem functions will be a likely outcome from the new knowledge of biotic interactions to be developed under the project. This diffuse benefit may have major future payoffs for improving ecosystem management of tropical systems.

#### Eligibility for GEF financing:

The vast increase and availability of knowledge expected from this project will benefit a broad community of users. The direct economic benefits to Costa Rica, cannot, however be easily calculated. What is known, however, is that knowledge placed in the public domain under the project will be relevant to biodiversity conservation, management and product development outside of Costa Rica as well as within, and it is unrealistic to expect that Costa Rica will "capture" all or even most of the economic benefits that accrue from the project. The incremental cost of producing these global benefits should be financed by the GEF.

In conclusion, a United States cabinet officer once said the world needs a Costa Rica to show what can be done. Once again it is the case. I strongly endorse this project for GEF funding.

- 4 -

With all best wishes,

Sincerely yours,

*Thomas E. Lovejoy*

Thomas E. Lovejoy  
Counselor for Biodiversity and  
Environmental Affairs

TEL/crd

OPTIONAL FORM NO. 10 (7-83)

FAX TRANSMITTAL

Page # 4

To	<i>Carlo Quintela</i>	From	<i>Thomas E. Lovejoy</i>
Date	<i>5-9-95</i>	Phone #	<i>786-2263</i>
Fax #	<i>522-2119</i>	Fax #	<i>986-2304</i>

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