



PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: MEDIUM-SIZED PROJECT
TYPE OF TRUST FUND: NPIF

PART I: PROJECT INFORMATION

Project Title:	Promoting the application of the Nagoya Protocol through the development of nature-based products, benefit-sharing and biodiversity conservation in Costa Rica		
Country(ies):	Costa Rica	GEF Project ID:	TBD
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4962
Other Executing Partner(s):	National Biodiversity Institute (INBio)	Submission Date:	April 29, 2013
GEF Focal Area (s):	Biodiversity	Project Duration (Months)	36
Name of parent program (if applicable):	N/A	Agency Fee (\$):	93,059
<ul style="list-style-type: none"> • For SFM/REDD+ <input type="checkbox"/> • For SGP <input type="checkbox"/> 			

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
BD-4: Build Capacity on Access to Genetic Resources and Benefit Sharing	NPIF	979,566	4,619,309.00
Total Project Cost		979,566	4,619,309.00

B. INDICATIVE PROJECT FRAMEWORK

Project Objective: To implement the Nagoya Protocol on ABS through the development of nature-based crop-protection products and the strengthening of the capacity of the national authority (CONAGEBio).						
Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing(\$)
1. Proof of concept for nature-based crop protection agents applied to two crops of economic importance in Costa Rica.	TA	1.1 Positive results derived from testing the two crop protection agents (identified through plant and microfungus assays) on coffee and bananas	1.1.1 Standardized extracts with known concentrations of the active component for formulation tests 1.1.2 Formulations ¹ for each of the extracts and for combination of both. 1.1.3 Biological assays and their evaluation in terms of crop protection and comparison with traditional agrochemical management	NPIF	410,626	2,768,061
2. Optimizing, scaling up and licensing crop protection agents	TA	2.1 Increased yield of active chemical compounds 2.2. Crop-protection products ready to be licensed to companies in charge of manufacturing	2.1.1 Extraction and fermentation protocols to increase yield of active chemical compounds 2.2.1 Market analysis of large scale production and business plans for licensing products.	NPIF	267,155	982,917

¹ Formulation is a mixture consisting of at least one active compound and one or more excipients (i.e., inactive substances) that stabilize, facilitate or potentiate the application of the product. Formulations are a very important aspect of creating crop-protection agents, since they are essential for ensuring the delivery of the active compound to the correct part of the organism (target), in the right concentration and rate (not too fast and not too slowly).

		the products	2.2.2 Definition and implementation of appropriate intellectual property rights for the products			
3. Sharing benefits derived from genetic resources	TA	3.1 Monetary and non-monetary benefits shared with relevant parties 3.2 Value chain for future development of products (derived from the crop-protection agents) identified	3.1.1 ABS agreements negotiated between the users and providers of the project's genetic resources 3.2.1 Protocol on the value chain derived from the identification of national capabilities for development and commercialization of products according to the Nagoya Protocol.	NPIF	112,734	206,400
4. Increasing national capacity to ratify and implement the Nagoya Protocol	TA	4.1 Nagoya Protocol ratified by the Legislative Assembly 4.2 A revised national ABS framework that incorporates lessons from the previous components and the provisions of the Nagoya Protocol which in turn facilitates the implementation of the Nagoya Protocol 4.3 Strengthened institutional capacity for the effective implementation of the Nagoya Protocol	4.1.1 Increased political support and knowledge by the Costa Rican government related to the potential benefits for the country of ratifying the Nagoya Protocol 4.2.1 Draft law proposal to modify the current national ABS framework in order to make it consistent with the Nagoya Protocol 4.3.1 Mechanisms institutionalized to facilitate access, benefit sharing and compliance under the Nagoya Protocol	NPIF	100,000	200,000
Subtotal					890,515	4,157,378
Project Management Cost (PMC)				NPIF	89,051	461,931
Total Project Cost					979,566	4,619,309

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount(\$)
Private sector	BIOTÉCNICA	In kind	50,000.00
Private sector	BIOTÉCNICA	Grant	31,500.00
Private sector	ECOS	In kind	1,287,000.00
Private sector	ECOS	Grant	328,000.00
Private sector	INBio	In kind	1,500,000.00
Private sector	INBio	Grant	226,800.00
Private sector	FORMUQUISA	In kind	840,000.00
Private sector	FORMUQUISA	Grant	123,009.00
Private sector	MONRERI	In kind	129,000.00
Private sector	MONRERI	Grant	104,000.00
Total Co-financing			\$ 4,619,309.00

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b)	Total (\$) c=a+b
UNDP	NPIF	Biodiversity	Costa Rica	979,566	93,059	1,072,625
Total Grant Resources				979,566	93,059	1,072,625

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

E. PROJECT PREPARATION GRANT (PPG)²

Please check in the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)³</u>
\$50k for projects up to & including \$1 million	25,000	2,375

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF PROJECT ONLY

Trust Fund	GEF Agency	Focal Area	Country Name	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
NPIF	UNDP	Biodiversity	Costa Rica	25,000	2,375	27,375
Total PPG Amount				25,000	2,375	27,375

PART II: PROJECT JUSTIFICATION⁴

A. PROJECT OVERVIEW

Biodiversity importance: Costa Rica holds a significant proportion of the world's known species (4.7%, SINAC 2009) in a relatively small territory due to its strategic geographic position (constituting a bridge between North and South America), its tropical location and variable topography which contributes to its microclimates. Hence, the country can be regarded as a complex mosaic of terrestrial and marine habitats, each one holding a particular combination of species. These elements help explain the unique high density of known species found in Costa Rica which no other country in the region exhibits. The best known groups of species are plants and vertebrates; for these two groups, an impressive 96% (11,467 plant species out of an expected 12,000) and 87% (2,665 vertebrate species out of an expected 3,073) have already been described. Costa Ricans have undertaken several initiatives to conserve and use its biodiversity in a sustainable manner. Today, after successfully reversing a national deforestation trend and creating a number of wildlife protected areas, approximately 52% of Costa Rica's land area is covered with forests and slightly more than one third of its land area is protected through diverse categories of wildlife protected areas. Additionally, new initiatives are increasing the protection of marine ecosystems and some of them are already protected as marine national parks. Biodiversity has taken center stage in Costa Rica and this statement is supported by the following:

Biodiversity is a main attraction for tourists which visit the country every year, making tourism one of the main sources of income. There are several eco-tourism enterprises –spread throughout the territory- that help improve the economy of people living in rural areas. In addition, Costa Rican society has implemented other economic incentives, such as the payment of ecosystem services, which are contributing to conserve its biodiversity. As a result, Costa Ricans have a heightened awareness about the value and contribution of biodiversity to development.

The Convention on Biological Diversity (CBD) became effective in Costa Rica in 1994, giving rise to the need to draft a national law that would implement this international agreement in a clear, simple and precise manner. The process of drafting and approving the proposed Biodiversity Law, took several years to be completed. There were several draft regulations since 1996, but they were not well received by different social sectors. Finally, the Legislative Assembly created a Special Joint Commission, which submitted a text that was approved as Biodiversity Law No. 7788 of April 30, 1998 and was published in the Official Gazette No. 101 of May 27, 1998.

The Biodiversity Law created the National Commission for the Management of Biodiversity (CONAGEBio) as the Competent National Authority in Costa Rica, to propose policies regarding access to genetic and biochemical elements of biodiversity and related traditional knowledge that ensure proper scientific and technology transfer and the fair and equitable sharing of benefits arising from access. The Commission reports to the Ministry of the Environment, Energy and Telecommunications (MINAET) and it is the National Focal Point on ABS under the CBD. It acts through a Technical Office as the entity that processes, approves or rejects and monitors access-related activities.

² On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

³ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

⁴ Part II should not be longer than 5 pages.

Since 2004, Costa Rica has diligently granted access to genetic resources through 272 access permits and 176 ABS agreements which have been negotiated with private companies, universities, farmers, national and international research centers. Most of these agreements have been facilitated by INBio which has over 20 years of experience targeting the systematic search for secondary metabolites and products of commercial interest, many of which have coupled the knowledge generated in plants and microorganisms in the areas of biotechnology and chemistry. INBio has implemented numerous projects related to the extraction of plants and the isolation, characterization, fermentation, and extraction of compounds of interest in the pharmaceutical, agrochemical and biotechnological industries.

Even before the creation of the Biodiversity Law of Costa Rica in 1998, INBio had already proposed a benefit-sharing model when access to genetic and biochemical resources occurred for bioprospecting research collaborations. This model channeled funds for the development of national capacities related to conservation of biodiversity through contributions to the National System of Conservation Areas (SINAC), an agency of MINAET. INBio has contributed 10% of the research budgets as an advance payment for the access to protected areas. Additionally, 50% of the royalties received from four products currently on the market have been shared with SINAC, namely phytomedicines Cuassia® and Estilo® (developed by the national pharmaceutical company Laboratorios Lisan - <http://www.lisanatura.com/>) and the enzyme-based products Cottonase™ and DiscoveryPoint™-Green FP (developed by Verenum Corporation - http://www.verenum.com/prod_cottonase.html).

Threats: Despite the recognized contribution of Costa Rica's biodiversity to the national economic development, there are still threats that jeopardize the progress achieved. Unsustainable development projects threaten natural habitats due to the increasing demand of more services and goods for a growing society. Agricultural activities -in particular- have been responsible for negative impacts on ecosystems and biodiversity such as pollution of water sources and misuse of herbicides, pesticides and fertilizers affecting human health. Three main facts that may reflect the actual pressure on the agricultural sector are: production must increase in almost 70% to supply world's food demand by 2050, oil crops must increase in 90% for renewable fuels by 2018 and Costa Rica annually imports 12 million kilograms of active ingredients for agro-industrial applications. As a result, there is an urgent need to develop environmentally-friendly products based on research and innovation to increase productivity, but it's also necessary to strengthen the national technological platform to accomplish the use of natural capital to generate incomes through an ABS scheme.

The underlying problem: Typically, benefits derived from the exploration of genetic resources have been expected to return -in the form of royalties from final products being sold in the marketplace- to the country of origin. However, in the particular case of agriculture, the development of any promising candidate must rely on the capacity of determining its efficacy in field trials and the availability of technological infrastructure to scale-up its production for commercialization. Additional compensatory measures such as milestone payments and license fees need to be fully explored. Therefore, an active participation in the product development lifecycle, establishment of the baseline conditions for technology transfer, joint ownership of relevant intellectual property rights and the strengthening of competencies for the administration and enforcement of access regulations need to be achieved.

The long term solution to this threats and problem, which will be pursued by this project, is the promotion of the sustainable use of the genetic and biochemical resources through research and development and a strengthened national ABS framework. Costa Rica must increase its capacity to add value to genetic resources by developing scientific practices and procedures that facilitate the flow of these resources from their natural habitat to the market. This process must be legitimized by a strengthened national ABS framework that incorporates Nagoya Protocol obligations, including benefit-sharing agreements that socialize the value of genetic resources and compensate relevant stakeholders.

The baseline project builds on two particular collaborative initiatives which contribute to the said long-term solution:

DMDP: A plant derived compound. In 1980s, Dr. Daniel Janzen observed that mice would not eat the seeds of a tree (*Lonchocarpus spp*) found in the Guanacaste Conservation Area (GCA). Subsequently, a collaboration between the University of Pennsylvania, the Royal Botanical Gardens, Kew and the University of Strathclyde determined that a mixture of flavonoids obtained from the seeds of the tree was causing this rejection, and also identified the presence of a key compound known as DMDP (2,5-dihydroxymethyl-3,4-dihydropyrrolidine) with potential as a crop-protection agent. In fact, a collaboration between the Royal Botanical Gardens, Kew and the Scottish Crop Research Institute determined that a series of sugar alkaloids, DMDP among these, affect nematode behavior. In 1990, the British Technology Group (BTG) funded a project to further develop these compounds, and DMDP was chosen because its use as nematocide was patentable⁵, no immediate toxic effects were evident and *Lonchocarpus* was considered a sustainable commercial supply. Between 1999 and 2002 a collaboration between BTG and INBio was initiated in order to generate samples of DMDP for their assessment in several crops under tropical and temperate conditions. INBio and ECOS-La Pacifica S.A. jointly initiated a study for the evaluation of species of the *Lonchocarpus* genus, quantification of DMDP levels in other plant parts such as leaves and domestication and management conditions for establishing crop plantations.

Metabolite from strain 468B: A microfungus derived compound. In 2004 a collaboration agreement was established between the national company Biotecnica Analisis Moleculares S.A (hereafter referred to as "Biotecnica") and INBio, in order to evaluate the potential of microorganisms from Costa Rica's biodiversity as inducers of disease resistance in plants. Biotecnica was interested in applying functional genomics tools in the identification of microorganisms with the capacity of activating natural defenses in plants,

⁵ US Patent 5,376,675 Control of parasitic nematodes December 27, 1994 Inventors: Alphey; Thomas J. W. (Dundee, GB6), Birch; Andrew N. E. (Dundee, GB6), Fellows; Linda E. (London, GB2), Robertson; Walter M. (Perth, GB6)
Assignee: British Technology Group Limited (London, GB2)

and since one the major concerns in agriculture was Black Sigatoka disease affecting banana crops, INBio established a culture collection isolated from Musaceae from plantations owned by EARTH University. Molecular analyses of different crops (greenhouse trials) and chemical profiling of the promising microorganisms were performed and led to strain 468B. The strain 468B includes a polyketide-derived substance which is the main metabolite responsible for the observed capacity to activate natural defenses in experimental crop models.

During the next three years **the baseline project** implemented by INBio, CONAGEBio and other stakeholders will invest US\$1.7 m in improving DMDP and strain 468B compounds as precursors for crop-protection products and increasing the national capacity in order to comply with the Nagoya Protocol on ABS. Specifically, INBio will initiate the process towards: a) scientific validation of formulations for DMDP and strain 468B against one pest; b) standardization of extracts for DMDP and 468B; and c) assessment of activity of DMDP and strain 468B for one crop. CONAGEBio will contribute to the ratification of the Nagoya Protocol by creating awareness among representatives to the legislative assembly and the identifications of gaps in the national ABS framework that must be addressed in order to comply with the Nagoya Protocol.

The baseline project, however, is not sufficient to achieve the expressed long-term solution to address threats to biodiversity. There are three main barriers to achievement of the solution:

Barriers	Description
1. Limited research and development capacity to add value to Costa Rica's genetic resources	In Costa Rica, most research centers have developed experience in determining potential applications of natural sources in the first stages of discovery ("leads"), but there is still limited capacity for the development of biodiversity-based products where knowledge in terms of formulation and efficacy validation is required. Once an active compound such as DMDP and 486B polyketide has been identified, there is limited experience with the design and application of formulas effective against specific pests in different crops. These issues are compounded by the limited technological infrastructure required to develop the formulations and validations <i>ex situ</i> and <i>in situ</i> . In addition, there is limited capacity for the re-supply of microbes (i.e., bacteria, fungi and algae) used as sources for the development of nature-based products.
2. Limited capacity to negotiate ABS agreements	While Costa Rica has some experience negotiating ABS agreements, it still needs to develop capacity for the negotiation of ABS agreements among multiple parties that have made significant contributions to project development over a decade long period. This situation is illustrated by the process that has led to the identification of DMDP and strain 468B (see baseline project). It is important to develop a clear model for benefit sharing, in which each party determines its contribution and the group collectively determines the most suitable mechanism to protect the invention in the long-run.
3. Limited institutional capacity to reform and socialize the current national ABS framework	Costa Rica's Biodiversity Law has been globally recognized as a pioneering law in many aspects related to access to genetic resources. However, this law lacks the novel provisions proposed by the Nagoya Protocol that will not only streamline access and benefit-sharing but also clarify key obligations of providers and users of genetic resources. The Costa Rican government needs to strengthen its capacity in order to reflect the Nagoya Protocol mandate in its national ABS framework. Some of the novel and relevant aspects proposed by the Protocol include: a) using simplified measures of access for non-commercial research; b) facilitating expeditious access for emergencies under imminent threats or harm to human health, animal or plant, as determined nationally or internationally; c) building an Access and Benefit-sharing Clearing-House; c) designating national checkpoints; d) issuing an internationally recognized certificate of compliance and e) developing a sectorial and cross-sectorial benefit-sharing model. Although the current Law of Biodiversity has created the legal framework to facilitate ABS objectives, there is still a general perception in the population that ABS regulations are more focused on controlling than on promoting access. It is very important to facilitate opportunities for raising awareness on uses of biodiversity including benefit-sharing principles, particularly when expectations of sharing future revenues depend on whether a product has reached the market.

Alternative Scenario: The project has been designed to address these barriers, through four complementary components:

Component 1: Proof of concept for nature-based crop protection agents applied to two crops of economic importance in Costa Rica

This component will complete the gaps missing in the scientific research process needed to validate the potential of DMDP and isolate 468B as precursors for crop-protection products. It should be noted that strain 468B is an activator of the natural defense systems of plants and has the potential to be develop into a product that could be labeled as **BAR** (Bio-Activator of Resistance). **BAR** is a new concept for crop protection as it is of biological origin (not chemical) and presents activity in preliminary assays of key crops (i.e., tomato, banana and coffee) against both fungal and bacterial diseases. The proof of concept needed for these two compounds will be delivered through the following Outputs:

Output . 1.1.1 Standardized extracts with known concentrations of the active component for formulation tests

A standardized extract from the promising samples will be obtained in terms of a main chemical entity. Greenhouse experiments with at least two crops of economic importance for Costa Rica will be carried out by a Costa Rican company (e.g., MONRERI) with experience in developing greenhouse and field trials, to establish the active concentration and the crop model. The qualitative and quantitative determination of the active ingredients in the extracts from both, plant and microbial ferments is critical to generate quality parameters for the improvement of the extraction and overall production procedures. GEF funds will also be used to source fresh materials of the *Lonchocarpus* plant cultivated outside the Guanacaste Conservation Area by ECOS-La Pacifica. The plant material to produce **DMDP** will be dried, extracted with solvents, fractionated and the active ingredient will be isolated with no less than 90% purity. As well as the **DMDP**, **BAR** will be isolated by means of the extraction of the ferments obtained from the microorganism performing several variations of the culture media to increase its yields and purity.

Output 1.1.2. Formulations for each of the extracts derived and formulation for combinations of both extracts

After this stage, formulations will be prepared by a national agrochemical formulation company (e.g. FORMUQUISA), with experience in this market and biological activities will be tested on the selected greenhouse model defined under the previous output. At least three formulations for each product and crop will be prepared.

Output 1.1.3. Biological assays and their evaluation in terms of crop protection and comparison with traditional agrochemical management

The different formulations obtained in the previous outputs will be tested by means of field assays. Both products (one of plant origin and the other from a microbial source) will be studied at the same time and in this way the possibilities of developing a product will be maximized. Similar products in the market will be considered as positive controls. The success of a proposal of this kind is the proper coordination among members of the consortium. The project team must be focused to ensure the objectives permeate through the laboratory tests and field trials which will result in the suggested conditions of use for an optimized product. The development of formulations of an active ingredient, natural or synthetic, must be accompanied by an experimental design in field test geared towards demonstrating its effectiveness. This can ensure the successful development of appropriate formulations for the active ingredients being considered in this proposal.

Component 2: Optimizing, scaling up and licensing crop protection agents

Optimizing the laboratory protocols established by INBio is required in order to define the best conditions for scaling-up production. Standardized extracts (meaning that they have a major chemical constituent for each plant or microbe source) will be obtained in order to prepare several formulations and perform greenhouse trials with at least three crops of economic importance in Costa Rica (i.e., banana, coffee and pineapple). Using this strategy, the best formulation for proper crop management will be established. Subsequently, it will be necessary to implement procedures to scale up production and in parallel, to improve the formulations of both products for activity confirmation at the field level with the crop model selected. This component will be implemented through the following outputs:

Output 2.1.1. Extraction and fermentation protocols to increase yield of active chemical compounds

Once the chemical evaluation has been determined in Component 1, the best conditions for extraction and fermentation for both active compounds will be selected for scale-up and continuous production. The production yields for plant-based and microbial ferment-based extracts typically depend on several laboratory or environmental conditions. Based on previous experience, it is anticipated that samples from the same plant species collected in various parts of the country will differ in the extraction yields of active ingredients, while isolates of the same microorganism in different culture media may differ in producing or not a particular metabolite. Therefore, it is important to identify the best conditions to enhance the production of an active component.

Output 2.2.1. Market analysis of large scale production and business plans for licensing products

A key stage of the project is a market analysis of large scale production and the development of the business plans for products that can be licensed to third parties. The licensing of products will be an important strategy to facilitate the negotiation and sharing of benefits between parties. The products generated by this project are expected to compete with the current synthetic products available in the market in terms of efficacy and price, but will have an added bonus: the added value of not having a negative impact on human health and on the environment and having a positive impact in terms of providing resources for re-investment in research and conservation in the mid-term.

Financial consultants will be engaged to design an attractive, practical and realistic business plan to competitively license the products obtained. The proposed business model may include a licensing model, through which a third party can produce and commercialize the products. The license fee will be an amount that makes sense in the context of a fair and equitable relationship between biological resource providers and consortium partners.

Output 2.2.2. Definition and implementation of appropriate intellectual property rights for the products

Together with legal consultants, the best models to protect the products generated and data associated will be discussed and defined, as well as the markets in which the products will be protected and sold. Under this intellectual property protection model, the consortium will have the tool to negotiate and assign licenses for production and marketing of the optimized products.

Component 3: Sharing benefits derived from genetic resources

As suggested in Component 2, licensed products sold in the market are likely to deliver monetary benefits in the long run and ABS agreements will be negotiated with these partners as soon as they are identified. In the meantime, this project will negotiate ABS agreements between key providers and users of genetic and biochemical resources that participate in the research process.

Output 3.1.1 ABS agreements negotiated between the users and providers of the project's genetic resources

Specifically, this project will facilitate the negotiation of ABS agreements between INBio and Ecos-La Pacifica. ECOS-La Pacifica will be the supplier of the plant material needed to develop the product based on the DMDP compound. It should be noted that INBio already has an ABS agreement with the Guanacaste Conservation Area (GCA) which harbors the *Lonchocarpus sp* that produces the DMDP compound. This agreement includes the sharing of benefits for biodiversity conservation.

A second ABS agreement will be negotiated between INBio and EARTH University. EARTH is the resource provider of the samples from which the microorganism yielding BAR was identified and extracted. It must be underscored that even though this sample was not collected in a protected area, INBio's common practice is to share 50% of all royalties with SINAC for biodiversity conservation.

Output 3.2.1 Protocol on the value chain derived from the identification of national capabilities for development and commercialization of products according to the Nagoya Protocol.

This output will provide a flow chart of actions required to develop products with commercial applications based on the experiences of this project. INBio has experience mapping value chains using UNCTAD's Biotrade methodology. Through an adequate registry and by the simplification of procedures, an increase in private sector engagement and interaction with local providers of genetic and biochemical resources the relevant value chain steps can be identified and aligned with the Nagoya Protocol requirements.

Component 4: Increasing national capacity to ratify and implement the Nagoya Protocol

The capacity of Costa Rica to ratify and implement the Nagoya Protocol will be strengthened by INBio's experience and outcomes achieved through the previous three components. This component will strengthen the national ABS framework through the following three main interventions: First, by increasing awareness among institutional and governmental authorities through dissemination of information related to INBio's experience, achievements and the Nagoya Protocol; second, by drafting a Law Proposal and stimulating discussions through different forums to amend the existing legal framework, in order to be consistent with the Nagoya Protocol's provisions regarding ABS; and third by establishing a data management platform that will enable an on-line registry and enhanced monitoring and status updates of information related to genetic and biochemical resources-access permits.

Output 4.1.1: Increased political support and knowledge by the Costa Rican government related to the potential benefits for the country of ratifying the Nagoya Protocol

The project will facilitate policy dialogue leading to the ratification of the Nagoya Protocol by the National Legislative Assembly, through the facilitation of meetings amongst CONAGEBio's Technical Office, key members of Congress and their advisers, in order to share information and increase awareness about the objectives, contents, scope and potential benefits of this international legal instrument for the country. This initiative will also support the implementation of fora to enable the dissemination of information among the public in terms of the actual legal framework and gaps regarding the Nagoya Protocol's provisions, and encourage discussions around topics regarding use of genetic and biochemical material and simplified procedures of access for non-commercial research. The organization of workshops for strengthening the National Authority and interested stakeholders in terms of intellectual property rights and possible protection models and implications will also be undertaken. These may catalyze the drafting of a modification proposal through a selection of checkpoints and in a parallel, integrate the preliminary work being done related to simplification of procedures for granting access to resources and promoting research, development and innovation.

Output 4.2.1. Draft law proposal to modify the current national ABS framework in order to make it consistent with the Nagoya Protocol.

Once Costa Rican's legislators have gained awareness about ABS and the Nagoya Protocol, the current ABS framework will be reviewed and insight will be gathered in order to spearhead the most adequate reforms to the existing legislation. The consultancy team and ABS experts will articulate recommended changes, amendments and additions to the existing legal framework into a draft law that will be shared with all political parties for comments during the development process. The project will gather additional relevant information for this purpose and produce an updated stakeholder analysis regarding ABS in Costa Rica. The processes will be participatory and will conclude with national validation workshops where all the relevant institutions and stakeholders involved will share their opinions before the documents are formally materialized. Furthermore, as part of the future modifications to the existing legal framework, it will include a draft law proposal for the selection and application of the ABS checkpoints, including other provisions and obligations of the Nagoya Protocol.

Output 4.3.1. Mechanisms institutionalized to facilitate access, benefit sharing and compliance under the Nagoya Protocol.

Although Costa Rica has made significant progress and investments in developing procedures to facilitate access and ensure benefit sharing stemming from the use of the national genetic and biochemical resources, it is still necessary to develop and implement mechanisms to simplify the access procedures and in the meantime, to strengthen national capacities. Three main mechanisms are proposed: a) development of a technological platform that enables the creation of a national database of *ex-situ* collections of genetic and biochemical resources; b) enhanced usability of the current national information system of genetic resources related to reporting services and online access and; c) the preparation of user-friendly manuals regarding rules and procedures for users and providers of genetic and biochemical materials.

Since the *ex-situ* collections registry and request permission of access to genetic resources are currently being undertaken by CONAGEBio's Technical Office based on printed documents or files in word format sent by e-mail, it is an aim of this project to develop supporting infrastructure for a dynamic information management process through which databases can be established and updated. This will lay the foundation to achieve elements such as digital signature, validation processes, and an on-line application systems.

Global environmental benefits: The project will contribute significantly towards the conservation and sustainable management of Costa Rica's biodiversity, which as mentioned above, constituted around 4% of the world's species in terms of both terrestrial and marine organisms. Through the development of nature-based crop-protection products and the strengthening of the capacity of the National Authority, Costa Rica can be positioned as an example for practical implementation of the Nagoya Protocol focused on ABS, which will also help demonstrate that it is possible to achieve sustainable and cost-effective use of the biological resources and ensure that the benefits will accrue to the nation and its people. Thus, the project will play a critical role in safeguarding the country's biological resources and their genetic diversity.

Innovation, sustainability and scale-up potential:

Considering that the use of pesticides can represent as much as 35% of the production costs of food crops, and the particular concerns over their negative impact on the environment and worker's health, there's an urgent necessity for more sustainable crop protection practices. This project aims to develop crop protection agents from an innovative perspective, based on the improvement of the plant's general health by activating natural defense mechanisms and stimulating growth and nutrient intake. Additionally, one of the active principles proposed could also be considered as a natural nitrogen source, leading to a potential decrease in the need of chemical pesticides and fertilizers while making the agro-sector more competitive in terms of food safety and quality.

Since conditions for the plant production are already established, as well as the infrastructure and technology for the scale up of the microbial source at national centers such as CENIBiot, is quite feasible to obtain the standardized extracts and/or the active principles in the quantities required for further validation (other crop models and targets) and future commercialization.

A.2. The following stakeholders have been identified

STAKEHOLDER	MANDATE AND RELEVANT ROLES IN THE PROJECT
National Biodiversity Institute (INBio)	The National Biodiversity Institute of Costa Rica (INBio) will be the lead executing agency for the project. INBio is a non-profit research and biodiversity management center, established in 1989 to support all efforts made to gather knowledge related to the country's biological diversity and to promote its sustainable use. The institute works under the premise that the best way to conserve biodiversity is to study it, value it, and utilize the opportunities it offers to improve the quality of life of human beings. INBio is a non-governmental, non-profit, public interest organization of civil society that works in close collaboration with different government institutions, universities, private sector and other public and private organizations, both national and international. INBio's experience in bioprospecting research collaborations ensures that any access to genetic and biochemical resources through the institute is done in a fair and equitable benefit sharing model.
CONAGEBio	The National Commission for Biodiversity Management (CONAGEBio) is the National Authority as it relates to the Nagoya Protocol. This commission was created to draw up national policy in the conservation, sustainable use and restoration of biodiversity. CONAGEBio has proposed policies related to access to the genetic and biochemical resources and acts as the obligatory consultative authority regarding procedures for requests for protection of intellectual property rights related to biodiversity. It defines policy, provides advice to the government and grants permits for the collection of biological resources, in strict accordance with Costa Rica's Biodiversity Law. It is composed of eleven representatives of the following ministries: Environment, Energy and Telecommunications, which presides the Commission; Agriculture and Livestock, Health and Trade; a representative from the Costa Rican Institute for Fisheries and Aquaculture, as the body charged with overseeing marine resources; the Executive Director of the National System of Conservation Areas; representatives of: Association of the National Small Farmers' Board, Association of the National Indigenous Board, Costa Rican Federation for Environmental Conservation, Costa Rican Union of Chambers of Commerce and the National Council of Rectors. CONAGEBio has an Office

STAKEHOLDER	MANDATE AND RELEVANT ROLES IN THE PROJECT
	for Technical Support which takes care of the processing, coordination and granting of permits.
SINAC	The current protected areas administration framework - the so-called <i>National System of Conservation Areas - SINAC (Sistema Nacional de Áreas de Conservación)</i> – was introduced in 1989. This new model was intended to serve a number of purposes: (i) Integrating management of all protected areas under a single entity; (ii) decentralizing and de-concentrating management through "Regional Conservation Units", which subsequently gave rise to the present 11 " <i>Conservation Areas</i> "; (iii) grouping together adjoining or neighbouring protected areas for administrative purposes; (iv) creating collegiate structures for decision-making; (v) providing for agile financial mechanisms (including patrimonial funds), and (vi) integrating research and planning efforts as management and decision-making instruments. The Conservation Areas framework to facilitate protected areas' administrative management and biodiversity protection was officially adopted in 1998, by means of the <i>Biodiversity Law (Ley de Biodiversidad)</i> , leading to the creation of today's SINAC. Under this model, protected areas are brought together under a single <i>National Protected Areas System - SINAP (El Sistema Nacional de Areas Silvestres Protegidas)</i> . In turn, SINAP is an integral part of the above broader system – SINAC - that notably also provides for the management of natural resources found <u>outside</u> protected areas, given that the 11 Conservation Areas jointly cover the total territory of Costa Rica.
Private sector – Costa Rican companies (i.e., FORMUQUISA, MONRERI and ECOS-La Pacífica)	This project will provide opportunities for the private sector to develop joint ventures based on ABS in order to strengthen existing products and/or develop new products.
UNDP	At the request of the Costa Rican Government, UNDP will serve as the GEF Implementing Agency (IA) for the project. In this role, UNDP will ensure project execution on time, in scope and within budget and draw on technical services provided by its regional offices and headquarters to provide technical quality assurance. The project assurance and support functions will be provided by the UNDP Costa Rica Country Office as well as UNDP Latin America and Caribbean Regional Centre which houses technical advisors for these projects.

A.3 Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

The following risks have been identified. The risks table will be reviewed and updated during the PPG.

Risk	Level	Mitigation Measures
The period of the project may be too short to result in a product development despite multiple agreements.	Medium	The project will build on promising results and on-going collaborations of INBio with national companies. The project duration is set at 3 years to allow enough time to validate the preliminary results and move forward to product development.
INBio and Earth University and Ecos-La Pacifica are unable to reach an agreement regarding ABS on utilization of an active compound	Low	The project will take advantage of UNDP mediation to ensure the negotiations between INBio and other parties are smooth. Project staff will put especial emphasis on the description of the tasks and benefits by each potential partner for all negotiations in order to reduce potential conflicts.
Nagoya Protocol is not ratified by the Legislative Assembly	Low	There is little chance that a majority of the political fractions in Congress will not support the Nagoya Protocol; however, to ensure a smooth and quick approval of this legislation there are mechanisms proposed to provide the information necessary for the members to understand the implications of the Nagoya Protocol ratification.

A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:

The project will follow closely the results achieved by the GEF/UNDP Overcoming Barriers to the Sustainability of Costa Rica's Protected Area System, that aims to strengthen the National System of Conservation Areas (SINAC). The outputs of the *Barriers* project will be leveraged when relevant and carefully reviewed, particularly in terms of the system-wide capacity building and financial sustainability work, to take advantage of baseline information gathered, tools and mechanisms developed, and lessons learned. The proposed project will provide an enhanced enabling environment for the SINAC regarding ABS through the

development of nature-based crop-protection products and the strengthening of the national ABS framework. During the PPG phase, mechanisms for actual coordination will be determined.

B. Description of the consistency of the project with:

B.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

This project will support the achievement of one of the indicative outputs of the country program specified in the draft UNDAF for 2013-2017, namely the compliance with multilateral environmental agreements. In addition, the Country Program document for 2013-2017 indicates that UNDP will focus on providing technical and financial assistance to Costa Rica to strengthen the protection, access and sustainability of its natural heritage, as well as to strengthen the capacity to promote adaptation to climate change, among other elements. The proposed project is fully in line with the country’s national strategies and plans in particular with the actions of the country’s National Development Plan related with the implementation of the Biodiversity Law. Under this legislation biochemical and genetic properties of components of biodiversity within the Costa Rican territory belong to the public domain, but the state has the responsibility to authorize the exploration, research, bioprospecting, and use.

In addition, Costa Rica is updating its National Biodiversity Strategy and Action Plan, which incorporates protection of species and genetic diversity in general but more especially realising additional benefits from its biodiversity and includes bioprospecting as one of the various means for achieving the benefits. The Action Plan is currently being revised to be better in line with the Aichi Targets.

B.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities:

This project has three inter-related goals: first to facilitate the development process of two crop-protection agents derived from Costa Rica’s plants and micro-fungi, second to ensure that monetary and non-monetary benefits are shared with relevant stakeholders and third to use lessons derived from the implementation of this pilot and the provisions of the Nagoya Protocol to strengthen the current national ABS framework. In particular, the project will facilitate scientific development and testing procedures of the effectiveness of crop protection agents on coffee and banana which are crops of economic importance to the economy of the country. The ultimate purpose of the project will be to create the conditions that facilitate turning the crop-protection agents into commercial products, taking these products to the market and ensuring that monetary and non-monetary benefits are shared with relevant stakeholders, including the Government, research institutions and the private sector. The project is consistent with the eligibility criteria and priorities of the fund as it will support the government of Costa Rica to strengthen the national legal framework regarding access of biological and biochemical elements of biodiversity and the fair and equitable sharing of benefits according to mutually agreed terms and recognition of the source of origin. In addition, the project will facilitate local and international private sector engagement targeting investments in the conservation and sustainable use of genetic resources. Lessons from this project will be used to update ABS laws and regulations and to improve the capacities in Costa Rica to facilitate ABS agreements and management of issues under the Nagoya Protocol.

B.3 The GEF Agency’s comparative advantage for implementing this project:


The staff of UNDP Costa Rica who will be involved in project oversight include an Environment and Climate Change Officer, who manages the environmental portfolio (with a Master’s in Economics, and a BSc in Economics and Administration, and over six years of experience); a Biodiversity and Environment Officer to focus specifically on projects in the Biodiversity focal area (with a Master’s in Environment and eleven years of experience); a Program Assistant with 25 years experience in the UNDP; and the Auxiliary Resident Representative who would act as senior supervisor (15 years of experience, a degree in Law and a Master’s in Development Studies). In addition, a Senior Technical Adviser (STA) for ABS will provide technical backstopping services. The STA holds a Ph.D on a related topic, has significant experience with ABS projects and is based in the UNDP/GEF Regional Coordination Unit in Panama City.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mr. Rubén Muñoz Robles	GEF Operational Focal Point / International Cooperation	Ministry of Environment Costa Rica	08/08/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator	Signature	Date	Project Contact Person	Telephone	Email Address
Adrian Dinu, UNDP- GEF Officer-in- Charge and Deputy Executive Coordinator		April 29, 2013	Santiago Carrizosa, Senior Technical Advisor, ABS, UNDP	+507 302- 4510	santiago.carrizosa@ undp.org