United Nations Development Programme

Country: Costa Rica

PROJECT DOCUMENT[1]

Project Title:

Promoting the application of the Nagoya Protocol through the development of nature-based products, benefit-sharing and biodiversity conservation in Costa Rica

UNDAF Outcome(s): Environmental Sustainability and Risk Management

The United Nations Development Assistance Framework (UNDAF) 2012 - 2015 identifies as one of its desired outcomes the implementation of development policies that promote the sustainable use of natural resources and recognize the economic and social values of environmental services and of biodiversity conservation

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:

The UNDP Strategic Plan for Environment and Sustainable Development determines that growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded. The project is fully compatible with this mandate, seeking for more sustainable agriculture production methods and to identify opportunities for the development of new products and innovations from the biodiversity, generating more economic growth and employment.

UNDP Strategic Plan Secondary Outcome:

Expected CP Outcome: Strengthened mechanisms of rehabilitation and conservation of wetlands, protected areas and environmental service payments

In the UNDP **Country Programme Document 2012 – 2015 (CPD) for Costa Rica**, environmental sustainability is addressed as a key axis of work. In the application of this Programme, UNDP favours the implementation of initiatives oriented at the sustainable development of natural resources. In complement to this, UNDP will strengthen the portfolio of projects that aim to support the country in complying with its international commitments, and initiatives will be promoted that generate viable economic alternatives for the generation of income in local communities in conditions of social and economic vulnerability. The proposal therefore is highly compatible with the guidelines of UNDP for the period 2013-2016

This project will also 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

[1] For UNDP supported GEF funded projects as this includes GEF-specific requirements

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.

Expected CPAP Output (s):

The CPAP in force between UNDP and the Government of Costa Rica highlights the need to improve national capacities regarding responsible environmental management of watersheds, **biodiversity** and terrestrial and marine protected areas- The Project will contribute to the conservation and sustainable use of biodiversity in the Country improving the understanding of its value and role for the economic and social development.

Executing Entity/Implementing Partner: UNDP and INBio.

Implementing Entity: National Biodiversity Institute (INBio)

Brief description

Costa Rica is a country renowned for its leadership in innovative environmental mechanisms being one of the pioneering countries in creating legislation for biodiversity (particularly in the field of access and benefit sharing) on the basis of the Biological Diversity Convention.

This project will implement the Nagoya Protocol on Access to Genetic Resources and Benefit-Sharing through the development of nature-based crop protection agents, the strengthening of the capacity of the Technical Office of the National Commission for Biodiversity Management of Costa Rica- the ABS National Competent Authority- and the improvement of the knowledge and skills of different stakeholders to negotiate fair and equitable ABS agreements. GEF funds will be used to complete the gaps in the scientific research (scaling and licensing of products) needed to validate the potential sugar alkaloid derived from the tree of the genus *Lonchocarpus* and a micro fungus derived compound for crop protection products. The Fungi-derived compound is an activator of the natural defense systems of plants and has the potential to be developed into a product that could be labeled as Bio-Activator of Resistance against both the fungal and bacterial diseases in selected crops like bananas and coffee. GEF funds will also be used to strengthen the national institutional capacity on ABS, resulting in a proposal to modify the current national ABS framework and in the ratification of the Nagoya Protocol, which will thus contribute to the early entry into force of this legally binding instrument.

In summary, the project seeks to validate efficacy of these crop protection agents these crop protection agents and to promote the scaling up and licensing conditions of new natural products, generating economic benefits to be shared between the different stakeholders and used to support conservation. At the same time, it will improve the skills and capacities of the private sector to negotiate good models of access and benefit sharing contracts. Finally, the project will update and strengthening the national ABS legal framework- especially in the light of the Nagoya Protocol provisions- and develop new mechanisms in order to improve the administrative permitting system and the decision making process.

Programme Period:	2010-2014
Atlas Award ID:	00080416
Project ID: PIMS #	00090102 4962
Start date: End Date:	June 2014 June 2017
Management Arrangements:	CSO Implementation
PAC Meeting Date:	_____

Total resources required	$ 5,517,375
Total allocated resources (grants):	1,761,375
o GEF	979,566
o ECOS	328,000
o FORMUQUISA	123,009
o INBio	226,800
o MONRERI	104,000
In-kind contributions:	3,756,000
o ECOS	1,287,000
o INBio	1,500,000
o FORMUQUISA	840,000
o MONRERI	129,000

Agreed by (Government: MINAE):

Date/Month/Year

Agreed by (INBio Executive Director):

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

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Acronyms	Meaning
ABS	Access and Benefit Sharing
BAR	Bioactive Activation Resistance
BL	Biodiversity Law
BS	Benefit-sharing
CONAGEBIO	National Commission for the Biodiversity Management
CENIBIOT	National Center for Biotechnology Research
CBD	Convention on Biological Diversity
CO	Country Office
NIM	National Implementation Modality
GR	Genetic Resources
GoCR	Government of Costa Rica
INBio	National Biodiversity Institute
IR	Inception Report
IP	Intellectual property rights (including patents, trademarks and others)
MEIC	Ministry of Economy, Industry and Commerce
MICITT	Ministry of Science, Technology and the Telecommunications
MINAE	Ministry of Environment and Energy
NBSAP	National Biodiversity Strategy and Action Plan
NP	Nagoya Protocol on Access to Genetic Resources and Benefit Sharing
NGO	Non-Governmental Organization
PC	National Project Coordinator
PIR	Project Implementation Review
PIU	Project Implementation Unit
QOR	Quarterly Operational Report
SC	Steering Committee
SINAC	National System of Conservation Areas
SME´s	Small and Medium Enterprises
TK	Traditional Knowledge
ToR	Terms of Reference
UNDP	United Nations Development Programme

I. SITUATION ANALYSIS

1.1 Legal, institutional, Policy and Environmental (biodiversity) Context.

1. **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. However, the distinctiveness of the country does not lie in the total number of described species recorded but in their density, meaning the number of species per unit area. In this category, Costa Rica surpasses all the megadiverse nations. Its tropical location between two continental land masses, with its varied marine and terrestrial geography, diverse climate conditions, and extensive system of rivers and lakes, foster conditions for the development of major biodiversity despite its small size. 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. It's considered among the 20 megadiverse countries in the world and has a well know reputation for its efforts to conserve and use its biodiversity in a sustainable manner. The Country has created more than 169 protected areas encompassing around a 26% of the terrestrial territory in different management categories.

2. **Institutional and legal context**. Costa Rica has a longstanding and comprehensive environmental legal framework which encompasses the recognition of the importance of natural environment including biodiversity conservation. This framework includes:

-Recognition by the National Political Constitution that the State has to ensure the right to a healthy and ecologically sound environment for all inhabitants of the country.

- Ratification and commitments from many International Conventions related to the environment

- Laws and decrees on environment and management of natural resources, this includes the Biodiversity Law, Forestry Law, Wildlife Conservation Law, Phytosanitary and Seeds Law, Environmental Organic Law, among others.

- Integration of key criteria and principles into BL: preventive, precautionary, environmental public interest, participation and the criterion of integration

The first diagnose of the state of the knowledge on biodiversity for Costa Rica was performed in 1992 and it was the basis for the development of the first National Biodiversity Strategy, which was published in 2000. There were established three key elements regarding biodiversity: saving, understand and use[2]. Since 70s Costa Rica has implemented a series of political tools for safeguarding the richness of ecosystems and biodiversity within it. These political initiatives are very well documented and had proven to be very successful, in this regard; the creation of a system of protected areas and a program for environmental service payments has facilitated to consolidate the actual framework for use of biodiversity in the country. Besides political instruments, the academic research, civil society organization and customary uses, such as medicinal plants have allowed to give a value to the use of biodiversity. At international level the country ratified the Convention of Biological Diversity in 1994 and has had a very active participation on the international arena of biodiversity.

3. 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. Presently, there is also a 'General Access Procedure' (GAP) that functions as a by-law of the LB. This was approved by the Minister of Environment and Energy and the President through an executive decree (December 15 2003). The GAP was proposed by the National Commission for the Management of Biodiversity (CONAGEBIO) in conformity with Article 62 of the above-mentioned Law. Also the regulations for access to genetic resources found in ex situ conditions were approved by Decree No. 33677-MINAE of 27 April 2007. It should be mention that Costa Rica BL was awarded in 2010 the gold price for the BL as an exemplary law implementing the convention on biological diversity by the World Future Council (see www http://www.worldfuturecouncil.org/fileadmin/user_upload/PDF/Survey_of_Future_Just__Biodiversity_Policies_and_Laws.pdf)

4. The BL was designed to implement the CBD in Costa Rica. The BL established that, without prejudice to the fulfillment of regulations relative to the trade of endangered species of flora and fauna, the application of sanitary and phytosanitary measures, and technical procedures and biosafety, the provisions on access to GRs will constitute neither a concealed restriction nor an obstacle to trade (Article 68). The general goal of the BL is to promote the conservation and sustainable use of biodiversity and to ensure the fair and equitable sharing of benefits derived from it (Article 1). The entire BL responds to this goal as put forth by the CBD. Likewise, all research or bioprospecting programs on the genetic or biochemical material of biodiversity that are to be carried out in Costa Rican territory require an access permit,[3] unless they fall into one of the exceptions provided by the Law.[4] These exceptions include: access to human genetic resources; the non-profit exchange of genetic and biochemical resources and the associated traditional knowledge of indigenous peoples and local communities; and research by Costa Rican public universities, which had

[2] MINAE, Estrategia Nacional de Conservación y Uso Sostenible de la Biodiversidad (2000)V Obando et al (eds) at 13. [ENCB], available at: http://www2.inbio.ac.cr/es/biod/estrategia/Paginas/PDF/Conservaci%BEn/ENBCRfinal.pdf

[3] In accordance with Costa Rica, Biodiversity Law, No. 7788, 1998 Articles 62 and 69.

[4] Costa Rica, Biodiversity Law, No. 7788, 1998 Article 4.

one year (until 7 May 1999) to establish their own controls and regulations for research that implies non-profit access to biodiversity.[5] If none of these exceptions apply, all sectors (pharmaceuticals, agriculture, plant protection, biotechnology, ornamental, herbal etc.) that wish to access genetic components are subject to the Law and must follow its access procedures. The access regulations apply to genetic resources in public or private lands, terrestrial or marine environments, under *ex situ* or *in situ* conditions, and in indigenous territories. In addition, the decision-making rules of indigenous people should be taken into account for access in their territories as should their *sui generis* intellectual rights. Similarly in accordance to the Biodiversity Law it is recognised that communities and indigenous peoples have the right to oppose access to their resources and associated knowledge for cultural, spiritual, economic or other reasons.[6]

5.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 and Energy 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.

6. Since 2004, Costa Rica has diligently granted access to genetic resources through more than 300 access permits and 176 ABS agreements which have been negotiated between with private companies, universities, farmers, national and international research centers. Most of these agreements have been facilitated by INBio which has over 24 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 involving processes for the extraction, isolation, fermentation, and characterization of compounds of interest in the pharmaceutical, agrochemical and biotechnological industries (See Annex 7)

7. **INBio´s experience**. 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 MINAE. 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 Verenium Corporation - http://www.verenium.com/prod_cottonase.html).

8. **Public and private sector experience and capabilities**. The Costa Rican private sector has demonstrated enough capacities to scale, innovate and develop new products The private sector has developed over the past years several

[5] Only one university, the University of Costa Rica has developed its own ABS regulations: See Reglamento de Acceso a la Biodiversidad en Actividades de Docencia, Acción Social e Investigación Sin Fines de Lucro de la Universidad de Costa Rica published in La Gaceta Universitaria, No 13-99.

[6] Costa Rica, Biodiversity Law, No. 7788, 1998 Article 66.

products from the Costa Rican biodiversity through the application of science and technology. The Government has developed different strategies to promote innovation such as MEIC programs for incubators specially designated to benefit Medium and Small Enterprises (SMEs). In the case of the Costa Rica and in particular for SMEs, innovation and competitiveness have become key concerns due the conclusion of free trade agreements and in general because of the economic openness, free market policies and globalization. Additionally, in a biologically rich region, innovation could be increasingly linked to the intelligent use of biodiversity – not only as for economic growth and job creation – but also for the conservation of natural resources. Innovation represents an important challenge for the country not only for competition in international markets but also for the advancement of the standard of living, in particular in the farming sector. On innovation and competitiveness, few now doubt the role of knowledge for sustainable economic development, to the point where current economic conditions are commonly described in terms of a "global knowledge economy." In the context of what has been termed the "bioeconomy", scientific development, technology, innovation and their applications for biological resources have become an important imperative. This is particularly the case in Costa Rica due to the region's biological wealth. Public and private alliances aiming to advance innovation and the marketing of products and processes are another mechanism that promotes innovation (See Annex 7).

9. National research and development institutions like CENIBIOT (the National Center for Biotechnology Research) has well established capacities for the scaling up and generation of new products, particularly arising from the use of biodiversity (which support the proof of concept of this project). CENIBIOT (www.cenibiot.go.cr) has a platform supporting the linkages between the private and the academic sector with the aim of scaling up potential products especially in the agroindustrial field, thus contributing to the country competitiveness.

10. In addition, there are several institutions capable to support the development of the project especially research centers of the public universities such as the University of Costa Rica and the Technological Institute ("Instituto Tecnológico"). Some private labs and companies such as those involved in this project have also experience and expertise in the research and development of innovations arising from the use of natural resources (See Annex 7)

11. **Policy context (national strategies).** The country has put in place and endorsed several strategies and actions plans related to this Project. The National Biodiversity Strategy adopted in 2000 (currently being revised to incorporate the Aichi Targets and the CBD Strategic Plan 2011-2020) considers as an specific Strategic Objective, No. 9 (access and benefit sharing). The NBS requires the establishment of mechanisms to facilitate access and to promote the fair and equitable benefit sharing; addresses the need to build capacity for the different stakeholders and promotes the development of a sui generis system for the protection of Traditional Knowledge (intellectual communitarian rights) envisaged in the BL among others. The country´s update of the NBSAP will include the achievement of Aichi Target 16 (ratification and implementation of the Nagoya Protocol by 2015). The Strategy will incorporate commitments for the implementation of the NP and for the revision of the legal ABS framework associated to ensure the full implementation of the Protocol. In the agriculture field, for instance, the National Policy for the Agrifood Sector and Rural Development (2010-2021 available at http://www.infoagro.go.cr/Politica/index.html at http://www.infoagro.go.cr/Politica/index.html among others) requires the promotion of more sustainable agriculture practices, including the reduction in the use of pesticides and provides other recommendations and guidance to support sustainable agriculture practices. Additional relevant strategies have put in the center of the national development the use of biodiversity, through the application of science, research and development. For instance the Science, Technology and Innovation Plan (2011-2014 available

at http://www.micit.go.cr/images/stories/plan_nacional/Plan_Nacional_de_CTI.pdf) recognizes the role of biotechnology and biodiversity innovation in the country development as one of the key sectors to be promoted because its potential as a convergent technology[7]. The National Protected Areas Policy (adopted in 2011) also recognizes the relevance of the ABS component for the functioning of the SINAC (available at **http://www.sinac.go.cr/documentacion/Paginas/ASP.aspx** see National Protected Areas Policy, Strategic Lines No 6.1.5 y 6.1.6). The country has also a administrative system in place for the promotion and support of innovation and the development of new products and services especially coming from the SME´s which includes: a policy for the promotion of the SMEs and for the " emprendurismo" or " entrepreneurship" (2010-2014) as well as several tools and mechanisms supporting the SMEs, including by access to funding and technical assistance (see. http://www.meic.go.cr/images/stories/descargas/estrategia/politica-pyme/politicapyme.pdf and http://www.meic.go.cr/images/stories/descargas/estrategia/politica-emprendedurismo/politica-emprendedurismo2011.pdf). The MEIC is also promoting the creation and operation of a network of " incubators" to provide technical advice to SMEs in different areas, including IPRs, development of innovations, marketing of products and services, etc (see http://www.meic.go.cr). Finally, the climate change strategy includes a national goal to become carbon neutral in 2021 (http://cambioclimaticocr.com/2012-05-22-19-42-06/estrategia-nacional-de-cambio-climatico). The contribution of the agricultural sector to this goal will require actions towards the reduction of emissions through the use of more sound crop protection products and practices, among others.

1.2 Threats, impact and root causes.

12. **Threats**. Despite the recognized contribution of the Costa Rica´s biodiversity to the national economic development, there are still threats that jeopardize the progress achieved. Unsustainable development projects threat natural habitats due to the increasing demand of more services and goods of a growing society. Agriculture activities in particular have been responsible for negative impact on ecosystems and biodiversity, being the main user and polluter of water sources and affecting human health through the misuse of herbicides, pesticides and fertilizers. Three main facts that may reflect the actual pressure on the agro-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. Regarding the use of chemicals the State of the Nation Report (Informe del Estado de la Nación) indicates that one of the main environmental concern in the agriculture sector is the use of chemical products and its negative environmental impacts. Use of pesticides in the Country is estimated around 10 millions of active ingredient kg per year. The factors behind this high trend are the increase in the production of some crops for export such as melon, pineapple and ornamentals and the decline in the technical assistance provided by the State. In particular for the banana and coffee production the use of chemical substances is highly important. For banana cultivation, it is estimated that 64.9 Kg for Hectare of active ingredient is used and a total estimation of 1502-1202 tons per year are utilized, while in the case of coffee 6.5 kg per hectare of active ingredient is required with a total estimation of 644 tons per year. Although coffee implies a moderate use of pesticides the total production area is almost 98.700 hectares[8].

[7] See page 40.

[8] XVIII Informe del Estado de La Nación, Capítulo Armonía con la Naturaleza, páginas 197-198, Comisión Nacional de Rectores, San José, 2011

As a result, there is an urgent need to develop environmentally-friendly products based on research and innovation to increase productivity. It is also necessary to strengthen the national technological platform to promote the generation of income through an ABS scheme. Likewise the national legal framework -in order to support properly these initiatives- needs to be improved and modernized in the light of the Nagoya Protocol; capacities (legal, technological and others) to implement the ABS permitting system (including informatics and on line facilities) and to negotiate fair and equitable benefit sharing agreements (among private and public sector organizations) needs to be improved as well.

13. **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. In Costa Rica, the majority of research centers have developed experience in determining potential applications of natural sources in the first stages of discovery, but there is still a gap for the development of biodiversity-based products where knowledge and investment in terms of formulation, validation and commercialization (business plans) are required.One key problem is the lack of appropriate funding for scaling up products and to bring research and development results into the market. This fact impedes the generation of innovative products (with less environmental impacts) and makes more difficult to show to the society the value of the genetic resources for the improvement of the quality of life of the people. Therefore, an active participation in the product development lifecycle, establishment of the baseline conditions for technology transfer, joint ownership of relevant intellectual property rights, improvement of the capacities to negotiate fair and equitable benefit sharing agreements within the private sector and the strengthening of competencies for the administration and enforcement of access regulations need to be achieved. Additional compensatory measures such as milestone payments and license fees need to be fully explored. The development of appropriate contractual arrangements between different partners for the development of natural products and innovations is a key component for the valorization of genetic resources and to enable the operation of a functional ABS scheme. However, there are few experiences in this are mostly concentrated in INBio which need to be expanded and extended in order to replicate in the future successful ABS agreements and best practices.

1.3 Long term solution.

14. **The long term solution** to this 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, to put in the market sustainable innovative products and the strengthening of the national ABS framework. Costa Rica must increase its capacity to add value to genetic resources by developing scientific and contractual and trade practices and procedures that translate 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, creating new models of ABS agreements between private sector entities, research organizations and the public sector. The project aims to put in place by amending the Biodiversity Law -and other laws and regulations as appropriate - a revised national ABS framework which is compliant to the provisions of the Nagoya Protocol, enabling the generation of successful agreements for different products from CR genetic resources while ensuring full compliance with the provisions of the Nagoya Protocol. The project will enable CR to achieve the ratification and implementation of the Nagoya Protocol, as well as the technical and legal expertise to negotiate and implement ABS agreements which can be considered as best practices or models.

1.4 Barrier analysis.

15. **Barriers**. The achievement of the solution proposed above has to date been impeded by a number of barriers. The barriers are:

16. Limited research and development capacity to add value to Costa Rica's genetic resource especially in the field of scaling up, validation, development and licensing products derived from the genetic resources.

In Costa Rica, there are many research centers which have developed enough expertise in determining potential leads in the field of natural products. Several cases of positive and promising lab results have been documented in the past, However, there is still a main constrain in the process of development of biodiversity-based products where additional formulation, validation and scaling up is required to put a product into the market. Part of the process involves the approach and identification of suitable companies and the consideration of a natural source as an essential component for developing a pre-commercial lead, for which a technological infrastructure must be available to guarantee that the initial material would not be a limitation. An important constraint for some promising projects is the lack of financial resources to advance the process of formulation, validation, development, and scaling up of the research results (including the drafting of business or market plans). This scenario also impedes bring to the market new products and the generation of economic benefits to be distributed between different stakeholders including the public and private sector and research institutions. The Science, Technology and Innovation Strategy and the SMEs Policy and the Policy for entrepreneurship o "emprendedurismo" have emphasized that this is fundamental problem for the development of products using biotechnology and the genetic resources of the country. Especially due to the fact that a high percentage of SMEs lack access to external resources for innovation and have to utilized their own capital to support the financial cost involved in research and development on natural products.

17. **Limited institutional capacity to reform and socialize the current national ABS framework.**

Costa Rica's Biodiversity Law has been appreciated globally as a pioneer legislation in many aspects especially those regarding access to genetic resources. However, the BL has not incorporated some of the novel provisions included in the Nagoya Protocol (adopted years after the entry into force of the BL). The Costa Rican government needs to strengthen its capacity in order to mainstream the Nagoya Protocol provisions into its national ABS framework. Some of the new instruments incorporated in the Protocol are: a) the use of simplified measures of access for non-commercial research; b) the expeditious access of genetic resources in cases of emergencies that threaten or damage human, animal or plant health; c) building and operation of an access and benefit-sharing Clearing-House Mechanism; d) the designation of national checkpoints at all stages of the value-chain, including research, development, innovation, and pre-commercialization ; f) the issuance of an " internationally recognized certificate of compliance"; g) the support of the development of sectorial and cross-sectorial benefit-sharing codes of conducts and contractual models clauses; f) support and recognition of f Biocultural Protocols and the recognition of customary law of ILCs; etc. The BL has created the legal framework to facilitate ABS and the achievement of the Third Objective of the CBD. However, there is still a general perception in the population that ABS regulations are more focused on controlling than on promoting access. Therefore it is critical to update the legal framework in the light of the current international developments. The improved legal framework can increase the trust and confidence of the different users and providers of genetic resources and the legal certainty. The permitting and decision making process will be facilitated by using new technologies, disseminating relevant information and drafting ABS Manuals.

18. **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 isolate 468B (see the comments on the baseline project above). It is crucial 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. The capacity to negotiate these agreements for the private sector is less developed since most of the experience has been generated by INBio. Improve the capacities, knowledge and skills of other participants and identify and document good practices and models is key for the replication of successful ABS agreements (including benefit sharing provisions). At the same time, the experience dealing with other types of legal instruments such as licensing of products or the management of IPR are less known in the country, at least in the field of natural products. Overcome this barrier, may provide appropriate conditions for the potential replicability of ABS good practices involving other cases of natural products (some of them are already in the pipeline) to be developed by INBio or by other private o public institutions

1.5 Stakeholder analysis.

19. A description of their roles is presented in the following table:

Chart 1. Stakeholders participation in the Project.

STAKEHOLDER	ATE 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. INBio will host a Project Management Unit (PMU) for directing, supervising and coordinating the project implementation and development, according to the Working Plan. It will participate in technical activities such as the extraction, isolation of compounds and analysis of extracts as well as the fermentation of microfungi and will collaborate in obtaining the access permits and in the ABS negotiation processes.
CONAGEBIO:	The National Commission for Biodiversity Management (CONAGEBIO) is the Competent National Authority and the CBD ABS Focal Point. The 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

STAKEHOLDER	ATE AND RELEVANT ROLES IN THE PROJECT
	resources. It defines policy, provides advice to the government and grants permits for the access to genetic and biochemical resources in strict accordance with Costa Rica's Biodiversity Law. It is composed of eleven representatives of the following ministries: Environment and Energy, 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 for Technical Support which takes care of the processing, granting and monitoring of ABS of permits. CONAGEBIO will provide guidance for the implementation and execution of the IV Component of this project.
ECOS-LA PACÍFICA:	The botanical material supplier for production of DMDP. ECOS Group is committed to a triple bottom line approach (sustainable development, social and environmental responsibility) and business ethics.
BIOTÉCNICA:	A pioneering initiative in Costa Rica in using the tools of molecular biology and biotechnology to develop innovative solutions grounded in research of biological processes. Biotécnica is a private laboratory, which conducts research, development and innovation by applying biotechnological techniques, in order to add value, improve processes and develop products of interest to the national or regional productive sector, especially in the agricultural sector Biotécnica had been involved in the selection of extracts and fractions according to assays for the plant natural defenses activation and will share methodologies with INBio for the molecular analysis of plants treated with the formulated products.
FORMUQUISA: Formulaciones Químicas S.A	Formulaciones Químicas S.A. was established in the year 1982. Right from the start, the company aimed at providing services of formulation of plant protection products for other national as well as international companies with markets in Central America, South America and in the Caribbean. In the case of Formuquisa its involvement will be through the support of a chemical laboratory with modern analytical equipment and an infrastructure of 17000 m^2 . Formulaciones Químicas S.A. has contributed to the development of formulations for clients such as Basf, Helm Ag, Cerexagri, Syngenta, Nippon Kayaku and Amvac, among others (Reporte RCT N° 6, june 2013). The company has been focusing in 3 main areas: agrochemicals, natural products for organic production and animal health. Their experience is a key component for the project, in which flowables, granulated products and liquid and powder formulations must be develop according to the bioactive molecules proposed as well as the crop model and the selected pathogen(s) in order to

STAKEHOLDER	ATE AND RELEVANT ROLES IN THE PROJECT
	validate the efficacy of the product at field level.
MONRERI:	Is an agricultural research private company founded in 1993 in order to offer a research department in the area of plant pathology. Monreri cover the full range of laboratory services, "in vivo" testings and field trials. The company has experience with several crops, particularly bananas, for which they perform fungicide "*in vitro*" assays against Black Sigatoka, single leaf test, experimental plots, semi-commercial trials and post-harvest tests. MONRERI collaborated in the evaluation of the tea tree oil-based product Timorex Gold^{TM} in the control of Black Sigatoka in banana (International Innovation, 2012). Due to the company's experience, the green house and field trials necessary for the validation of the proposed products will be conducted by MONRERI.

1.6 Baseline Analysis.

20. Specifically the baseline analysis can be divided into two areas: scientific and technical and legal-institutional:

21. **Scientific and Technical.** 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-dihydroxypyrrolidine) 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 patentable[9], 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.

[9] 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)

Metabolite from isolate 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, 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 isolate 468B (i.e., a polyketide substance). The team identified the main metabolite responsible for the observed capacity to activate natural defenses in experimental crop models.

22.During the next three years **the baseline project** implemented by INBio and other stakeholders will invest US$1.7 m in improving DMDP and isolate 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 isolate 468B against **at least** one pest; b) standardization of extracts for DMDP and 468B; and c) assessment of activity of DMDP and isolate 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.

23. INBio´s 24 years of experience constitutes a key contribution to the baseline of this project. INBio has implemented over 200 projects related to the extraction, the isolation, fermentation, and characterization of compounds of interest in the pharmaceutical, agrochemical and biotechnology industries. In the case of agro-industry, two particular cases have been worked through a series of collaborations that constitute the basis for the activities proposed by this GEF project.

24.In order to develop business, the INBio Bioprospecting Unit has achieved the consolidation of an interdisciplinary team of professionals and external advisers who are initially in charge of defining the business strategy, determining the supply, identifying the opportunities with companies, foundations and research centres, setting up and maintaining contacts with current or potential partners. It also carries out the negotiation processes – which take an average of nine to twelve months – and draws up the confidentiality agreements, the material transfer agreements (MTA), the work plans and the scientific collaboration agreements, which are required throughout the process and which vary according to the partner and the type of project to be carried out. Each scientific collaboration agreement is unique. In the same way, the plan is to develop its own projects, from which to add value of scientific information to the items of biodiversity and thus be able to have access to new sources of financing and to the possibility of drawing up scientific collaboration agreements or basic research or bioprospecting contracts under better negotiating conditions. There are also actions directed towards setting up research and development projects with national industry. With the experience gained from the Program of support for the development of biodiversity by small businesses, carried out under the INBio/BID/FOMIN Non-Refundable Technical Co-operation Agreement, through the Bioprospecting Unit, INBio maintains a permanent supply of research services to the Costa Rican business sector for the development of new products from biodiversity. It also makes major efforts to obtain funds for the development of projects with small and medium companies in the national industry, as a way of transferring the know-how and experience gained with large industries. This is a way of promoting the sustainable use of biodiversity, in support of the economic development of the

country and improvement of the quality of life of the Costa Rican people. In this process, the activities carried out are the systematic search for molecules, compounds, chemical entities and secondary metabolites which are found in the extracts or fractions obtained from samples of plants, marine organisms, microfungi, and insects. In order to perform these activities, Bioprospecting now has a laboratory equipped with high technology which allows it to obtain extracts, semi-pure fractions on an industrial scale (from BioXplore technology), isolation and identification of compounds of interest to the pharmaceutical and agricultural industry. **Annex 8** describes the most important ABS contracts (including benefits accrued to INBio) negotiated and implemented by INBio over the last 20 years.

25**. Legal and Institutional Baseline**. The biodiversity legal framework of Costa Rica is one of the most complete ABS regulations in the region. However, several changes are required in order to be in line with the new requirements of the NP. The biodiversity legal framework in Costa Rica is based on the Biodiversity Law of 1998 and Executive Decrees No. 31514[10]of 2003, No. 33697[11]of 2007, No. 34433 of 2008.These rules and regulations are founded on International Conventions, Bonn Guidelines, national panel experts' consultations and national development goals of sustainable development, sound decision-making and environmental and biological protection. An important starting point in the legal biodiversity framework in Costa Rica is that the Law establishes the State has the exclusive sovereignty and control over the elements of biodiversity. The Biodiversity Law also set the rules for the use and exploitation of biodiversity elements that also constituting a public property such as exploration, research and bioprospecting. With the Biodiversity Law, Decree No. 31514 and Decree No.33697, the State of Costa Rica includes the three goals of the CBD by establishing as general objective the biodiversity conservation and sustainable use of resources and the fair and equitable sharing of benefits and costs arising. The law gives special emphasis to genetic resource including a special chapter that defines the use and management of it. Under this legal framework Costa Rica covers some of the provisions of the Nagoya Protocol, specifically those related with the establishment of appropriate legislation that ensuring the access of genetic resource, recognizing the importance of the traditional knowledge and practices of indigenous and local communities[12] and established that prior informed consent (PIC) and mutually agreed terms (MAT)' are basic requirements for any type of access in the country. The establishment of institutional arrangement and operational mechanisms are envisaged in the Law by utilizing cross-sectoral plans and policies and also creating new institutional and administrative structure. The institutional framework is constituted by the National Commission for the Management of Biodiversity (CONAGEBIO), Technical Commission of CONAGEBIO and the National System of Conservation Areas (SINAC). CONAGEBIO is a decentralized organ responsible for the formulation of policies and responsibilities established in chapters IV, V, and VI of the Law and SINAC is a decentralized and participatory system of biodiversity management with the responsibility to implement the legal framework on forest, wildlife and protected areas. One of the main duties of CONAGEBIO is to formulate national policies regarding the use of biodiversity elements and to coordinate them with the different agencies. CONAGEBIO is conformed for eleven representatives of relevant institutions. The Technical Office is in charge of supporting CONAGEBIO and it has a very important operative role, in approving or rejecting application for access, coordinate with different stakeholders (Conservation Areas, the private sector, indigenous and local communities), organizing and updating the register for ex situ collections, etc.

[10]Costa Rica, Decree 31514 (Dec 15, 2003), *General Norms for access to genetic and biochemical elements and resources of Biodiversity.* Available at http://www.wipo.int/edocs/lexdocs/laws/es/cr/cr019es.pdf[

[11]Costa Rica, Decree 33697 (Feb 6, 2007) *Regulation on access to the elements and genetic and biochemical resources ex situ.* Available at:http://www.pgr.go.cr/scij/scripts/TextoCompleto.dll?Texto&nNorma=59811&nVersion=66978&nTamanoLetra=10&strWebNormativa=http://www.pgr.go.cr/scij/&strODBC=DSN=SCIJ_NRM;UID=sa;PWD=scij;DATABASE=SCIJ_NRM;&strServidor=\\pgr04&strUnidad=D:&strJavaScript=NO.

[12]The definition of Biodiversity itself includes intangibles elements, such as: knowledge, innovation and customary practices, individual or collective, with actual or potential value associated with biochemical and genetic resources, protected or no by property rights or sui generis intellectual records.

Besides the Institutional arrangement established by law, the civil organization and NGO have had an important role in research and bioprospecting. The prior informed consent is the first requirement establishes for genetic and biochemical access and also it has an important role throughout the legal document. One of the main important aspects of the law and the Decree No 31514 is that they recognize the existence and validity of forms of knowledge, expressly recognizes the knowledge, practices and innovations of indigenous peoples and local communities related to the use of components of biodiversity and associated knowledge "under the common denomination of sui generis community intellectual rights", include a participatory process to determine the nature and scope of the sui generis community intellectual right and state the right to cultural objection. Decree No. 31514 establishes three types of permits for access: basic research, bioprospecting, and commercial profit, leading to a separation between procedures for researching from those for profit. For basic research the Law gives special treatment for Public Universities specifying that it will have a period to establish internal rules and regulations applicable exclusively to academic activity and research for non-profit making purposes. The procedure rules according the type of access are listed on Section II of the Biodiversity Law. Nevertheless, the differences pointed out in the general access procedures respect to commercial and non-commercial purposes are not clear. A very important aspect is that the General rules sets that all research or bioprospecting programs related to genetic material or biochemicals will require access permission and this must have prior informed consent (PIC), mutually agreed terms (MAT) and the protection of associated knowledge. The access requirements and procedures are outlined in Art 63 and 64, where PIC is the first requirement, followed by the terms of technology transfer and equitable distribution of benefits. With regard to procedures the Technical Office will manage all process under its responsibilities, the sanctions and penalties are ruled by the General Law of Public Administration. For monitoring, even though the Costa Rica Biodiversity Law does not have a specific section, all the measures for monitoring are contained in the law indirectly. The mechanism includes tracking of permits and legal compliance. The Technical Office is the body in charge of monitoring the permits granted and the fulfilment of the conditions imposed in its resolutions. The National Seed Office and the Register of Intellectual and Industrial Property are obliged to prior consultation to Technical Office before granting a IPR involving components of the Costa Rican biodiversity. Nonetheless the Technical office lacks the expertise, human and technical resources for appropriate tracking of the genetic resources..The law established the sui generis community intellectual rights as the knowledge, practices and innovations of indigenous peoples and local communities related to the use of components of biodiversity and associated knowledge, it does not require prior declaration. It also sets out the participatory process to determine the nature, scope and registration of these sui generis intellectual rights.

26. The baseline of the project is work carried out by the Nagoya Protocol Ratification, CONAGEBIO by mean of its Technical Office. It would perform the meetings with Members of Congress and their advisers to inform and raise awareness about the objectives, content, scope, implications and importance of the ratification of this is international legal instrument for the country. Nonetheless, there are financial limitations to carry out meetings and workshops.

27. The Technical Office has only one professional in law. This officer will support the review of the National ABS Framework, the drafting of an amendment proposal and the choosing of the checkpoints, as stated in Article 17 of the Nagoya Protocol, using part of his working time. However, a specific consultant would be necessary to carry out these tasks under the supervision of the legal adviser of CONAGEBIO.

28. The Technical Office also has limited capacity in the field of Information Technologies, especially for the building of databases related to access and utilization of genetic and biochemical resources and for the registration of ex situ collections. There is currently a basic system in its server and website, which do not allow for on line applications to be

submitted. In addition, the registration of *ex situ the* collections resources is now implemented by the use of printed documents or files in word format.

II. STRATEGY.

2.1 Project rationale and Policy conformity

29. **Project rationale**. In addition to its global existence value, genetic resources have major option and use value as the source of nature-based products with the potential to contribute significantly to the agricultural sector´s development. INBio has established a solid basis of experience and understanding for the exploration, research and use of this biodiversity, based on the principles of equity enshrined in the Convention on Biological Diversity. The incremental support to be provided under the present project will create the additional levels of capacities and awareness that are required to scale up and consolidate this situation, allowing Costa Rica to enjoy full control and ownership of these processes, which will in turn come to generate benefits for the country (in terms of investment and employment) that will motivate increased levels of investment in the protection of biodiversity. The project also will increase the capacities for the negotiation of future ABS agreements by enhancing the knowledge and skills of other stakeholders. The strengthening of the ABS legal framework will facilitate the negotiation of ABS agreements developed in accordance to a amended legal framework alienated with the new mandates included in the Nagoya Protocol. The incorporation in the national legal framework of the new instruments and mechanisms envisioned in the NP will create an better regulatory environment for the development of new ABS projects and initiatives, which in turn may result in economic and non economic benefits and in the creation of incentives for conservation of biodiversity.

30. **Policy conformity.** The project is fully in alignment with Article 5 of the Nagoya Protocol, which stipulates (in accordance with Article 15, paragraphs 3 and 7 of the CBD) that “benefits arising from the utilization of genetic resources as well as subsequent applications and commercialization shall be shared in a fair and equitable way with the Party providing such resources that is the country of origin of such resources. Such sharing shall be upon mutually agreed terms”, with Article 6 which stipulates that “in the exercise of sovereign rights over natural resources, and subject to domestic access and benefit-sharing legislation or regulatory requirements, access to genetic resources for their utilization shall be subject to the prior informed consent of the Party providing such resources that is the country of origin of such resources or a Party that has acquired the genetic resources in accordance with the Convention, unless otherwise determined by that Party” and Article 9, which stipulates that “The Parties shall encourage users and providers to direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and the sustainable use of its components”. It is also in full alignment with the BL of Costa Rica and regulations and the national strategies of the country in the field of biodiversity conservation, sustainable agriculture practices, science, technology and innovation.

2.2 Country ownership: country eligibility and country drivenness

31. The proposed project is fully in line with the country’s national strategies and plans (see paragraph 11). In particular with the actions of the country’s National Biodiversity Strategy related to 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. The sustainable use of genetic resources is also fully in line with the approach and vision on ABS taken by Costa Rica many years ago and reflected in the 2000 NBS. It needs to be reaffirmed that Costa Rica has a strong policy which facilitates access to genetic resources, sharing of the resulting benefits and the use application of science and technology to discover and bring into the market new products and innovations. This proposal is consistent with the National Biodiversity Strategy and related initiatives which propose, within the context of national competitiveness, to develop new alternatives that contribute to promoting research into biodiversity thereby contributing to the creation of highly efficient and effective businesses in relation to the conservation and sustainable use of biological resources.

32. The project is also in line with different strategies towards the valorization of biodiversity and its sustainable use as well as for the reduction of the use of chemicals. It also may help in the achievement of the Costa Rican goal of becoming Carbon Neutral by 2021.

33. The project is fully compatible with the policies for reduction of use of agrochemical and the goals of a more sustainable agriculture, including organic agriculture, required by several policies, laws and administrative regulations. It also responds to the mandate and guidance provided by laws, policies and administrative structures in relation to the promotion and supporting of innovation, science and technology especially for SMEs as explained in the Context Section of this document.

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.

2.3 Design principles and strategic considerations

34. The project has an overall focus on nature-based product discovery from the country's biodiversity, Its overarching rationale in this regard is that by attaching tangible value to biodiverse habitats, such as through the discovery and development of new medicines or agrochemicals from their inhabiting flora, fauna and microorganisms, it provides one of the strongest rationales for their preservation and conservation; at the same time, it is generating global benefits in terms of the availability new crop protection agents. In agriculture, natural products play important roles in the protection of crops against fungi, insects and other pests (Clardy and Walsh, 2004, Copping and Duke 2007). The fact that many modern pesticides pose serious risks to non-target animals and humans has led to considerable commercial interest in low-toxicity forms of crop protection. Recent low-toxicity products with sales up to one billion dollars include strobilurin fungicides abamectin and spinosad. Crop protection has a direct impact on peoples' lives. It plays a vital role in pest and disease control; in soil erosion; in food safety by protecting against molds, insects, spoilage and diseases; in the maximization of farm land (while the population continues to increase, land mass does not); in protecting water quality; and in combating global malnutrition and starvation by increasing crop yields, among many other benefits.

35. 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 is 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 share of benefits according to mutually agreed terms and recognition of source origin. In addition, the project will facilitate local and international private sector engagement targeting investments in the conservation and sustainable use of genetic resources

36 The project will generate major socioeconomic benefits through the generation of direct employment in Costa Rica-based businesses involved in bioprospecting and bioassays, and through economic multiplier effects in related service industries. A central aspect of the project, in accordance with the aims of the Nagoya Protocol, is that a large proportion of the benefits generated from genetic resource exploration will remain in country.

37. UNDP´s comparative advantage. UNDP will provide US$ 100,000 co-financing to 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.

38. Coordination with other related initiatives.

There not current GEF or UNDP projects related to this Project.

39. Project Identification Form (PIF) Conformity:

There are no significant deviations. The Project design complies with the original PIF. One of the private sector participants (Biotécnica) has agreed to continue the technical and scientific support for the development of the Project and the achievement of the objectives. However, the company was not able to provide a letter with an concrete co-financing compromise. For this reason the grant and kind contribution of Biotécnica (for a total of $81.500) has been removed from the Project. This situation does not impact the development of the Project.

2.4 Project objective, outcomes and outputs/activities.

40. The **objective** of the project is 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. These protection products are based on plant and fungi compounds and licensing conditions for further agreements with interested parties in its commercialization will be established. The mentioned agreements can be identified as second generation due to the contractual relationship, participation and contributions of the companies involved and the knowledge generated through research. These studies have been conducted entirely in Costa Rica by Costa Rican professionals. These two potential products, whose active ingredients are chemically characterized, have been evaluated in vitro, greenhouse and field, but at the level of preliminary tests. The potential for combating known pests in certain crops will also strengthen the importance of natural products as sources of lead compounds and as the basis for the development of other options for pest control, and with less negative impact on both human health and environment than the available products in the market. The execution of this NPIF-funded project can position Costa Rica as a case study in the implementation of a legal and regulatory framework for access to biodiversity as a mechanism for conservation in the medium-long term. Scientific understanding through bioprospecting creates financial incentives for biodiversity conservation. Furthermore, Component 4 of this project also proposes to increase the national capacity for the ratification and implementation of the Nagoya Protocol, aiming for the compliance of the international commitments acquired by Costa Rica.

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 isolate 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. 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 Pacífica 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.

A third agreement will be negotiated *between INBio and* Formuquisa, Monreri y Biotécnica.This component will set the basis for the development of the agreement between the partners of the Project (with whom there is only a general understanding or contract, Formuquisa, Monreri y Biotécnica) outlining the details, rights and obligations on key issues such as IPR, Benefit-sharing, royalties and milestones payments, etc.

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 Amendment 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.

It will aim to engage legislators so that they understand the scope and importance of the ratification of the Protocol of Nagoya, and what the ratification means, especially the inclusion of some topics not even regulated such as: using simplified measures of access for non-commercial research; expeditious access for emergencies under imminent threats or harm to human health, animal or plant, as determined nationally or internationally; building of an Access and Benefit-sharing Clearing-House; designation of national checkpoints; issuance of the internationally recognized certificate of compliance and the development, update and use of sectoral and cross-sectoral model contractual clauses for mutually agreed terms.

Output 4.2.1. Draft law amendment 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 related to 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 is 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.

2.5 Key indicators, risks and assumptions

41. The project indicators are described in the results framework which is included in Section IV of this document. A summary of the project indicators is showing in the following table.

Table 2 Project Indicators.

	Indicator	**Target by the end of the project**
Project objective:	Monetary and non-monetary benefits received by stakeholders by project end Amendment law to align the Law of Biodiversity with the Nagoya Protocol	At least 1 monetary benefit (research funding, royalties or milestone payments) At least 2 non-monetary benefits (collaboration to education and training and sharing of research results) 1 amendment law presented approved/validated by the CONAGEBIO
Outcome 1 Proof of concept for nature-based crop protection agents applied in two crops of economic importance to Costa Rica.	Number of formulations based on standardized lead extracts evaluated in crop protection assays for coffee and bananas at green house and field level	At least 6 formulations evaluated in 2 selected crop models at green house level and at least 1 formulation validated (deliver positive results) in 1 crop model at field level.
Outcome 2: Optimizing, scaling up and licensing crop protection agents	Yield of active chemical compounds produced	0.75 kg of DMDP per month from 70 kg of dried plant material

	Number of crop protection products ready to be licensed to companies	300 mg of fungal metabolite per week from 2 liters of ferm broth At least 1 crop protection product ready to be licensed to companies
Outcome 3: Sharing benefits derived from genetic resources	Monetary and non-monetary benefits received by stakeholders by project end	At least 1 monetary benefit (research funding, royalties or milestone payments) At least 2 non-monetary benefits (collaboration to education and training and sharing of research results)
Outcome 4: Increasing national capacity to ratify and implement the Nagoya Protocol	International treaty on ABS ratified by Parliament	Nagoya Protocol ratified
	Amendment law to align the Law of Biodiversity with the Nagoya Protocol	1 amendment law approved/validated by the CONAGEBIO
	Mechanisms institutionalized to facilitate access, benefit sharing and compliance under the Nagoya Protocol	1.Manual on ABS procedures; 2. On line procedures for ABS applications; 3. Data base of permits granted, applications, ex situ collections; etc

42. During project preparation, risks were identified, elaborated and classified according to UNDP/GEF Risk Standard Categories and assessed according to criteria of 'impact' and 'likelihood'. The UNDP Environmental and Social Screening Procedure has been applied during project preparation and did not identify any significant environmental or social risks associated with the proposed project. In general, the project will contribute positively towards the conservation of biodiversity and maintenance of ecological stability, as well as towards an improved legal framework for ABS through the increased potential to benefit from bio-prospecting activities.

43. The following risks have been identified.

Table 3. Risks facing the project and the risk mitigation strategy.

Risk	Level	Mitigation Measures
The period of the project may be too short to result for a product developed 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 or some of the participants in the research and development activities within the project are also unable to reach an agreement.	Low	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. INBio´s experience in the process of conducting negotiations with different partners including industrial ones could be instrumental in reaching an agreement with several partners. Budget allows for intensive consultations and meetings preparations which could prepare the negotiations to reach successful outcomes to ensure full participation and sharing of the monetary and non-monetary benefits to be derived from the project.
Nagoya Protocol is not ratified by the Legislative Assembly or the proposed amendment law is not approved by CONAGEBIO.	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 and raise awareness for the members to understand the implications of the Nagoya Protocol ratification and its benefit for the country. The same applies to the correspondent amendment law to be approved by CONAGEBIO.

2.6 Financial modality

44. The project will be jointly funded (in in-kind and grant) by INBio and private sector companies as indicated before. The grant from the Nagoya Protocol Implementation Fund will complement these investments in order to ensure the development of institutional capacities and of a framework of policies, agreements and administrative instruments and public awareness that will enable genetic resource-based businesses in Costa Rica to be financially fully self-sustaining in the long term.

45. The project will be executed under NIM in accordance to the standards and regulations for UNDP cooperation in Costa Rica.

2.7 Cost-effectiveness

46. The core aspect of the project's cost-effectiveness strategy is its focus on promoting public/private sector partnerships, in the context of which the discovery process of nature-based products is considered as a viable business and therefore subject to private sector investment once NPIF funds have been used to jump start the country's to date limited biodiversity-based industry. Alternative strategies considered but discarded on grounds of cost-effectiveness were as follows:

1) *Emphasis on a "command and control" approach to biodiversity conservation.* In the absence of the kinds of evidence of the full range of benefits than can potentially be generated from genetic resources, which the chosen

approach will provide, continued efforts will be required to maintain political support for the ongoing funding of biodiversity conservation; furthermore, conservation initiatives will lack public support at national and local level and will therefore require disproportionately high levels of funding in order to be effective.

2) *Exclusive public sector involvement.* The public sector has vital roles to play in terms of regulation and oversight, in order to ensure that bioprospecting and ABS agreements serve the country's best interests. It does not, however, have the mission or the levels of installed technical facilities and marketing capacities that are required to realize the full potential benefits from access to genetic resources, in a cost-effective manner.

2.8 Sustainability

47**. Environmental sustainability** will be ensured by the fact that the research and development process will have negligible impacts on the biodiversity itself and will be carried out in strict accordance with the stipulations of the permits issued by the Technical Office of the CONAGEBIO. Furthermore, it is assumed, as a central tenet of the project, that the benefits to be generated from the project will have positive, albeit indirect, implications for the status of biodiversity by acting as motivations for increased governmental and private investment in its conservation. In addition a reduction in the use of chemicals and the creation of more environmentally-friendly products will benefit biodiversity conservation, especially agrobiodiversity. The project will contribute significantly towards the conservation and sustainable management of Costa Rica's biodiversity, which as mentioned above, constitutes around 4.7 % of the world's species in terms of both terrestrial and marine organisms. Through the development of nature-based crop-protection products Costa Rica can be positioned as an example for practical implementation of the Nagoya Protocol which will also help to prove 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.

48**. Financial sustainability;** the project will build capacities for the establishment of lucrative businesses based on the sustainable utilization of Costa Rica's genetic resources. The products to be developed have potential market opportunities. At this stage in the research and development process is not feasible to determine potential economic returns, but there is a high potential for the development of products which will generate revenues for all the participants and for the conservation of biodiversity, specially taking into account the economic importance of banana and coffee sectors in the agriculture production in Costa Rica. The biodiscovery activities proposed within the framework of the project will be carried out in full compliance with the existing agreement and legislation regarding the equitable distribution of the resulting benefits, which will contribute to the generation of positive socioeconomic impacts for the country. It is expected that the project will generate major socioeconomic benefits through the generation of direct employment in Costa Rica-based businesses involved in bioprospecting and bioassays, and through economic multiplier effects in related service industries. The precise financial and economic returns will be determined after some of the activities of the project are completed. The project will remove barriers allowing the national industry to develop products, and creating a conducive environment for investment from other international or local companies with an interest in bio-prospecting or natural products development.

49**. Institutional sustainability**: the project will be closely integrated with research organizations and the private sector, who have been fully involved in the development of the initiative and whose roles are well defined and clearly set out The project will also support the development of capacities in the Government for the updating of ABS legal frame-

work as necessary, in order to ensure their continued relevance. All the companies involved in this project have the expertise and institutional capacities for its execution. The project will also increase the technical and legal understanding of ABS issues and other legal instruments such as licensing and IPR and will strengthen the legal and institutional capacity to generate new alliances and contracts for the research and development in the field of natural products.

50**. Social sustainability**. 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. The project also contributes towards the reduction of use of chemicals and their impact on the environment (including soil, water and other species) and health of the workers (reducing the risks of intoxications) as well as to the achievement of the 2021 goal of carbon neutrality by reducing the production and transportation of chemicals

2.9 Replicability

51. The ABS agreements to be reached, the scaling up and potential commercialization of the natural products and other activities included in the project could act as an example and model for the future development of contracts and partnerships for the commercialization of new natural products and biodiversity related innovations. Additional research promising results obtained by INBio over the last years (or by other public and private institutions) can benefit from this experience as well by creating appropriate conditions for the replicability of successful cases for development and commercialization of natural products and the generation of monetary benefits.

52. The Project has the potential to generate new capacities in the private sector to develop products from the biodiversity in full compliance with the CBD ABS provisions. The lessons learnt can be used as models for other similar initiatives not only in Costa Rica. Also the improvement of the legal framework may provide relevant information and experiences for other countries especially considering the reputation of Costa Rica in this field. The outcomes of the project will be scaled up through the dissemination of project results, lessons learned and experiences including demonstration of best practices in the development of ABS agreements

53. Finally, 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.

III. STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENTAL COST

3.1 Incremental Cost Analysis, Baseline Scenario and GEF Alternative to Generate Global Benefits

Global and National objectives

54. The project will contribute significantly towards the conservation and sustainable management of Costa Rica's biodiversity, which as mentioned above, constituted around 4.7% 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 to illustrate 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. It also increases the skills of other partners to negotiate agreements and create future products and innovations arising from the use of the genetic and biochemical resources of the Costa Rican biodiversity.

55. The global and national environmental benefits to be delivered for the project will contribute towards reduced rates of biodiversity loss in CR through the following mechanisms:

- Increasing awareness of the existence, use and option values of biological resources among key audiences;
- Enabling greater economic benefits to the government and other stakeholders from genetic resources through the biotechnology industry, thereby providing incentives for biodiversity conservation;
- Contributing to national development strategies and economic growth;
- Contributing towards the maintenance of global ecosystem services;
- Contributing to the generation and potential replication of ABS best practices (agreements).
- 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.

Baseline Scenario.

Baseline scenario can be structured into two main categories: scientific and technical and legal- institutional.

56**. Scientific and technical.** As **it was mentioned above** in particular, the scientific baseline of this project builds on two particular collaborative initiatives:

-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-dihydroxypyrrolidine) 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 patentable[13], 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 isolate 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, 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 isolate 468B (i.e., a polyketide substance). The team identified the main metabolite responsible for the observed capacity to activate natural defences in experimental crop models.

However, to advance the formulation, scaling up and possible commercialization requires appropriate funding which has not been possible to secure until now.

57. INBio´s 24 years of experience constitutes a key contribution to the baseline of this project. INBio has implemented over 200 projects related to the extraction, the isolation, fermentation, and characterization of compounds of interest in the pharmaceutical, agrochemical and biotechnology industries. In the case of agro-industry, two particular cases have been worked through a series of collaborations that constitute the basis for the activities proposed by this GEF project((see Annex 7).

58**. Legal and institutional**. On the regulatory field, the country has an ABS Legal Framework in place. However, it requires some amendments and improvements in order to fully comply with the NP. The biodiversity legal framework of Costa Rica is one of the most complete. The elaboration of the law was carried out following the provisions of CBD, Bonn Guidelines and broad participation of civil society. However, several modifications are required in order to be in line with the new requirements of the NP. Annex.8 presents a table which summarizes the content of relevant articles of the Nagoya Protocol, a brief explanation of their implications, the information and actions needed for their implementation and the current status of the legislation of Costa Rica. In addition, the handling and management of the

[13] 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)

permitting system, the informatics facilities of the CONAGEBIO requires a lot of improvement in order to facilitate the access applications, the dissemination of information, etc.

Incremental Cost Analysis and Alternative Scenario:

59. As it was mentioned before, the **objective** of the project is 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. These protection products are based on plant and fungi compounds and licensing conditions for further agreements with interested parties in its commercialization will be established. The mentioned agreements can be identified as second generation due to the contractual relationship, participation and contributions of the companies involved and the knowledge generated through research. These studies have been conducted entirely in Costa Rica by Costa Rican professionals. These two potential products whose active ingredients are chemically characterized, have been evaluated in vitro, greenhouse and field, but at the level of preliminary tests. The potential for combating known pests in certain crops will also strengthen the importance of natural products as sources of lead compounds and as the basis for the development of other options for pest control, and with less negative impact on both human health and environment than the available products in the market. The execution of this NPIF-funded project can position Costa Rica as a case study in the implementation of a legal and regulatory framework for access to biodiversity as a mechanism for conservation in the medium-long term. Scientific understanding through bioprospecting creates financial incentives for biodiversity conservation. Furthermore**,** Component 4 of this project also proposes to increase the national capacity for the ratification and implementation of the Nagoya Protocol, aiming for the compliance of the international commitments acquired by Costa Rica**.**

60. While the baseline activities are substantial, the aforementioned barriers inhibit the actual realization of the global objective of ensuring ABS and contribution from use of biological resources for biodiversity conservation and for meeting Aichi targets. This Project aims to remove the barriers mentioned above. To accomplish this, Costa Rica´s government is requesting support from the GEF and UNDP to conserve its globally significant biodiversity.

61.The alternative GEF scenario will address the direct threats to biodiversity. Alternative GEF scenario will strengthen the capacities (by providing the funding needed) of the stakeholders to optimizing, scaling up, commercialize (including the development of a business plan) natural products derived from genetic resources. In addition, the GEF alternative will also strengthen the legal and institutional capacities to negotiate fair and equitable benefit sharing agreements promoting the generation of new models of ABS agreements. Finally, the GEF intervention will improved the legal framework on ABS to align it with the new requirements of the Nagoya Protocol and will improve the administrative and technological capacities to handle the permitting system and the registration of information (e.g ex situ collections, permits requested and granted, etc).

62. The Incremental cost analysis and the alternative scenario created by the Project intervention can be **summarized as follows**: With the Project intervention the following actions will be undertaken: a) the GEF will provide necessary funding for the continuation of the research and development on the positive research results achieved (explained above), especially for the processes of formulation, validation, scaling up and potential commercialization of the natural products (which so far have demonstrated promising results at lab). This contribution will also allow the drafting of a business/market plan for the registry, sale and licensing of the potential products resulting for the project execution. Project intervention will overcome the barriers derived from the lack of the financial resources needed to carry out

these activities particularly those described under the components I and II of the Project Document; if the products are sold and licensed economic or monetary benefits will accrue to the partners of the Project and these will be shared and use to promote the conservation of biodiversity facilitating the raising of awareness of the value of genetic resources for the national industry and more broadly for the development of the country; b) GEF intervention will make possible to put in the market products which are more environmental friendly to be utilized in the field of crop protection in two highly relevant productive sectors of the economy (Banana and Coffee); c) GEF Project will support the increase in the capacities and understanding of different stakeholders from the private sector on access and benefit sharing concepts and elements, the Biodiversity Law, the negotiation of ABS contracts, etc promoting the potential replication of successful experiences and best practices in the utilization of genetic resources; d) despite the fact the Country has a current legal framework properly implemented, there are not enough human and financial resources to carry out awareness raising activities among the members of the Parliament and to prepare the legal drafts needed to achieve the full implementation of the Nagoya Protocol, then jeopardizing the quick entry into force of the Protocol and depriving the country of the benefits of becoming a Party (including the improvement of the the legal framework in order to integrate the innovations and new instruments found in the Nagoya Protocol; e) finally, the improvement of the administrative system (on line permitting system, data bases for the registration of ex situ collections and applications and permits, ABS Manual for user and providers) will only take place in the coming years using the funding provided by the Project due to the lack of financial resources foreseen for these issues in the regular budget of the CONAGEBIO and the budgetary restrictions of the Commission.

3.2 PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD**:** To elevate to the level of State policy the protection of the environment to strengthen economic growth, tourism development and wellbeing in general.
Country Programme Outcome Indicators:
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy.
Applicable GEF Strategic Objective and Program: Objective 4: Build Capacity on Access to Genetic Resources and Benefit Sharing
Applicable GEF Expected Outcomes: Outcome 4.1: Legal and regulatory frameworks, and administrative procedures established that enable access to genetic resources and benefit sharing in accordance with the CBD provisions.
Applicable GEF Outcome Indicators: *Indicator 4.1: National ABS frameworks operational score as recorded by the GEF tracking tool (to be developed)*

	Indicator	Baseline	Targets End of Project	Source of verification	Assumptions
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	Monetary and non-monetary benefits received by stakeholders by project end Amendment law to align the Law of Biodiversity with the Nagoya Protocol	Monetary benefits: 0 Non-monetary benefits: 0 There is a legal and institutional framework but some of the mechanisms are weak and not all of the provisions of the NP are incorporated in the ABS legal framework	At least 1 monetary benefit (research funding, royalties or milestone payments) At least 2 non-monetary benefits (collaboration to education and training and sharing of research results) 1 amendment law presented approved/validated by the CONAGEBIO.	Progress reports from the research and development, including permits, PIC & MAT's and research collaboration agreements CONAGEBIO´s web site Project Progress Reports	INBio and the other partners have enough capacity and experience in negotiation of ABS contracts Enough political willingness to support the law amendments in to order to fully implement the NP
Outcome 1: Proof of concept for nature-based crop protection agents applied in two crops of economic importance to Costa Rica.	Number of formulations based on standardized lead extracts evaluated in crop protection assays for coffee and bananas at green house and field level	Previous activity results in green house with different concentrations of the extracts but not with standardized formulated products	At least 6 formulations evaluated in 2 selected crop models at green house level and at least 1 formulation validated (deliver positive results) in 1 crop model at field level.	Formulation and trial results records provided by partners	Proposed results are ensure by Formuquisa's expertise in formulation according to the active compounds and crop model. Activity previously determined with extracts must increase by application of formulated products
1.1 Positive results derived from testing the two crop protection agents on coffee and bananas.					

	Indicator	Baseline	Targets End of Project	Source of verification	Assumptions
Outputs: 1.1.1 Standardized extracts with known concentrations of active component for formulation test 1.1.2 Formulations for each of the extracts derived and formulation for combination of both extracts 1.1.3 Biological assays and their evaluation in terms of crop protection and comparative analysis with traditional agrochemical management.					
Outcome 2: Optimizing, scaling up and licensing crop protection agents	Yield of active chemical compounds produced Number of crop protection products ready to be licensed to companies	0.5 kg of DMDP per month from 200 kg of dried plant material 175 mg of fungal metabolite per week from 2 liters of ferm broth 0	0.75 kg of DMDP per month from 70 kg of dried plant material 300 mg of fungal metabolite per week from 2 liters of ferm broth At least 1 crop protection product ready to be licensed to companies	Lab records Project Progress Reports	Procedures for extraction and isolation of compounds from known natural sources can be optimized through evaluation of several parameters and conditions at lab scale
2.1 Increased yield of active chemical compounds 2.2. Crop-protection products ready to be licensed to companies in charge of manufacturing the products Outputs: 2.1.1 Extraction and fermentation protocols to increase yield of active chemical compounds 2.2.1 Market analysis of large scale production and plans for licensing products 2.2.2 Definition and implementation of appropriate intellectual property rights for the products					
Outcome 3: Sharing benefits derived from genetic resources	Monetary and non-monetary benefits received by stakeholders by project end	Monetary benefits: 0 Non-monetary benefits: 0	At least 1 monetary benefit (research funding, royalties or milestone payments) At least 2 non-monetary benefits (	Learnt lessons document Progress reports from the research and development, including	

	Indicator	Baseline	Targets End of Project	Source of verification	Assumptions
			collaboration to education and training and sharing of research results)	permits, PIC & MAT's and research collaboration agreements	
3.1 Monetary and non monetary benefits shared with relevant parties Output: 3.1 ABS agreements negotiated between the users and providers of the project´s genetic resources					
Outcome 4: Increasing national capacity to ratify and implement the Nagoya Protocol	International treaty on ABS ratified by Parliament	Nagoya Protocol text was presented to the Parliament	Nagoya Protocol ratified	Legislative Assembly web site/ La Gaceta (official newspaper).	Enough political willingness to support the law amendments in to order to fully implement the NP
	Amendment law to align the Law of Biodiversity with the Nagoya Protocol	There is a legal and institutional framework but some of the mechanisms are weak and not all of the provisions of the NP are incorporated in the ABS legal framework	1 amendment law approved/validated by the CONAGEBIO		
	Mechanisms institutionalized to facilitate access, benefit sharing and compliance under the Nagoya	One weak mechanism exists	1.Manual on ABS procedures; 2. On line procedures for ABS applications; 3. Data base of permits granted, applications, ex situ collections;	CONAGEBIO IT platform, Manuals, CONAGEBIO website	Continued support of the CONAGEBIO and other stakeholders.

	Indicator	Baseline	Targets End of Project	Source of verification	Assumptions
	Protocol·		etc		
4.1 Nagoya Protocol ratified by the Parliament (legislative body) 4.2 A revised ABS framework incorporates lessons from the previous components and the NP provisions and facilitates implementation of the Nagoya Protocol 4.3. Improved institutional capacity for the effective implementation of the NP Outputs: 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 amendment proposal to modify the current national ABS framework to make it consistent with the Nagoya Protocol 4.3.1 Mechanisms institutionalized to facilitate access, benefit-sharing and compliance under the Nagoya Protocol.					

IV. TOTAL BUDGET AND WORKPLAN. SUMMARY OF GEF BUDGET BY ATLAS CODE.

Award ID:	*00080416*	Project ID(s):	*00090102*
Award Title:	Promoting the application of the Nagoya Protocol through the development of nature-based products, benefit-sharing and biodiversity conservation in Costa Rica		
Business Unit:	*CRI10*		
Project Title:	Promoting the application of the Nagoya Protocol through the development of nature-based products, benefit-sharing and biodiversity conservation in Costa Rica		
PIMS N°:	*4962*		
Implementing Partner (Executing Agency)	National Biodiversity Institute of Costa Rica (INBio)		

GEF Component (Outcome) /Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	TOTAL Amount (USD)	Budget Note
Outcome 1: **Proof of concept for nature-based crop protection agents applied in two crops of economic importance to Costa Rica.**	**INBIO**	**NPIF 62190**	**GEF TF 10003**	71400	Contractual Services- Individ	22,200	22,200	11,100	55,500	1
				71400	Contractual Services-Individ	26,500	26,500	26,500	79,500	2
				71600	Travel	2,500	5,000	2,500	10,000	3
				72100	Contractual Services-Companies	20,446	35,000	16,000	71,446	4
				72200	Equipment and Furniture	115,000	0	0	115,000	5
				72500	Supplies	15,000	13,000	7,569	35,569	6
				73400	Rental & Maintenance-Other Equipment	3,000	2,500	1,500	7,000	7
Sub-total Outcome 1						**204,646**	**104,200**	**65,169**	**374,015**	
Outcome 2: **Optimizing, scaling up**	**INBIO**	**NPIF 62190**	**GEF TF 10003**	71400	Contractual Services- Individ	22,200	22,200	11,100	55,500	8
				71400	Contractual Services- Individ	10,600	10,600	10,600	31,800	9

and licensing crop protection agents				71600	Travel	2,500	5,000	2,500	10,000	10
				72100	Contractual Services-Companies	120,000	40,000	20,000	180,000	11
				72500	Supplies	10,000	5,000	5,500	20,500	12
				73400	Rental & Maintenance-Other Equipment	3,500	3,500	700	7,700	13
Sub-total Outcome 2						**168,800**	**86,300**	**50,400**	**305,500**	
Outcome 3: **Sharing benefits derived from genetic resources**	**INBIO**	**NPIF 62190**	**GEF TF 10003**	71400	Contractual Services- Individ	20,909	0	0	20,909	14
				71400	Contractual Services- Individ	10,600	10,600	10,600	31,800	15
				72100	Contractual Services-Companies	15,000	15,000	7,091	37,091	16
				72500	Supplies	1,000	1,000	3,000	5,000	17
				75700	Training, workshop & conference	10,000	8,200		18,200	18
Sub-total Outcome 3						**57,509**	**34,800**	**20,691**	**113,000**	
Outcome 4: **Increasing national capacity to ratify and implement the Nagoya Protocol**	**CONAGEBIO**	**NPIF 62190**	**GEF TF 10003**	71300	Local Consultant	33,760	0	0	33,760	19
				72100	Contractual Services-Companies	38,000	0	0	38,000	20
				72500	Supplies	4,120	3,120	1,000	8,240	21
				72800	Information Technology Equipmt	6,000	0	0	6,000	22
				75700	Training, workshop & conference	6,000	4,000	2,000	12,000	23
Sub-total Outcome 4						**87,880**	**7,120**	**3,000**	**98,000**	
Project Management	**INBIO**	**NPIF 62190**	**GEF TF 10003**	71200	International Consultants	0	7,500	7,500	15,000	24
				71300	Local Consultant	0	4,100	4,100	8,200	25
				71400	Contractual Services-Individ	5,544	5,544	5,544	16,632	26
				71400	Contractual Services-Individ	10,000	10,000	10,000	30,000	27

				72500	Supplies	3,168	0	0	3,168	28
				72800	Information Technology Equipment	3,551	0	0	3,551	29
				74100	Professional Services	0	5,000	5,000	10,000	30
				75700	Training, workshop & conference	2,500	0	0	2,500	31
Sub-total Project Management						**24,763**	**32,144**	**32,144**	**89,051**	
					TOTAL	**543,598**	**264,564**	**171,404**	**979,566**	

ATLAS BUDGET SUMMARY						
Budget Line & Description	**ERP / ATLAS Budget Code**	**Altlas Budget Description**	**Amount Year 1 (USD)**	**Amount Year 2 (USD)**	**Amount Year 3 (USD)**	**TOTAL (USD)**
71200-International Consultants	71200	International Consultants	-	7,500.00	7,500.00	**15,000.00**
71300-Local Consultants	71300	Local Consultants	33,760.00	4,100.00	4,100.00	**41,960.00**
71400-Contractual Services - Individ	71400	Contractual Services - Individ	128,553.00	107,644.00	85,444.00	**321,641.00**
71600-Travel	71600	Travel	5,000.00	10,000.00	5,000.00	**20,000.00**
72100-Contractual Services-Companies	72100	Contractual Services-Companies	193,446.00	90,000.00	43,091.00	**326,537.00**
72200-Equipment and Furniture		Equipment and Furniture	115,000.00			**115,000.00**

72800-Information Technology Equipmt	72800	Information Technology Equipmt	9,551.00			**9,551.00**
72500-Supplies	72500	Supplies	33,288.00	22,120.00	17,069.00	**72,477.00**
73400-Rental & Maintenance-Other equipment	73100	Rental & Maintenance-Other equipment	6,500.00	6,000.00	2,200.00	**14,700.00**
74100-Professional Services	74100	Professional Services	0.00	5,000.00	5,000.00	**10,000.00**
75700-Training, workshop & conference	75700	Training, workshop & conference	18,500.00	12,200.00	2,000.00	**32,700.00**
	TOTAL		**543,598.00**	**264,564.00**	**171,404.00**	**979,566.00**

Budget Line & Description	TOTAL (USD)	Percentage
71200-International Consultants	15,000.00	1.53
71300-Local Consultants	41,960.00	4.28
71400-Contractual Services - Individ	321,641.00	32.84
71600-Travel	20,000.00	2.04
72100-Contractual Services-Companies	326,537.00	33.33
72200-Equipment and Furniture	115,000.00	11.74
72800-Information Technology Equipment	9,551.00	0.98
72500-Supplies	72,477.00	7.40
73400-Rental & Maintenance-Other		1.50

Equipment	14,700.00	
74100-Professional Services	10,000.00	1.02
75700-Training, workshop & conference	32,700.00	3.34
TOTAL (USD)	**979,566.00**	**100**

	Atlas Budgetary Account Code	ERP/ATLAS Budget Description/ Input	Budget Notes
	Outcome 1		
1	Contractual Services - Individ	71400	Operative Personnel (laboratories personnel) chemical extraction, fermentation and chemical compounds analysis. Two technical teams each consisting of a professional and his assistant for 25 percent of the time for 30 months. Professionals in chemistry and biotechnology will watch the production phase as well as chemical compounds, the fermentation of the microorganism and also optimization of the production process to ensure the needs of the formulator and biological evaluation. Meanwhile laboratory assistants will be responsible to be aware of equipment, glassware, sample processing and any other task assigned to them. **Total budget: $ 55,500**, $ 22,200 year 1, $ 22,200 Year 2, $ 11,100 Year 3. Professionals to $650 per month and $275 per month the assistants.
2	Contractual Services - Individ	71400	Project Coordinator in charge of establishing the project conditions, exchange of information as well as the technology transfer between stakeholders. Partial time (50%). **Total cost: $79,500;** 78 weeks at $1,019.23 per week
3	Travel	71600	Travel expenses for training activities and experts. **Total Cost: $10 000**; year 1: $2,500, year 2:$5,000: year 3: $2,500
4	Contractual Services-	72100	Design, execution, and monitoring of the formulations and

	Companies		biological assays (Formuquisa y Monreri for example). T**otal cost:$71,446**; year 1:$20,466; year 2: $35,000; year 3: $16,000
5	Equipment and Furniture	72200	Strengthening of the infrastructure and acquisition of laboratory equipment for the chemical extraction and chemical compound analysis (HPLC, Freeze dryer, Vacuum pumps, speedvacs). **Total cost: $ 115,000**; year 1: $115,000.
6	Supplies	72500	Office and laboratories supplies for activities related to the Project. **Total cost: $35,569** $15,000 year 1, $13,000 year 2; $ 7,569 year 3.
7	Rental & Maintenance-Other equipment	73400	Equipment Maintenance for the chemical extraction process and biotechnology equipment. Total costs: $7,000. $3,000 year 1, $2,500 year 2, $1,500 year 3.
	Outcome 2		
8	**Contractual Services - Individ**	71400	Operative Personnel (laboratories personnel) chemical extraction, fermentation and chemical compounds analysis. Two technical teams each consisting of a professional and his assistant for 25 percent of the time for 30 months. Professionals in chemistry and biotechnology will watch the production phase as well as chemical compounds, the fermentation of the microorganism and also optimization of the production process to ensure the needs of the formulator and biological evaluation. Meanwhile laboratory assistants will be responsible to be aware of equipment, glassware, sample processing and any other task assigned to them. Total budget: $55,500, $22,200 year 1, $22,200 Year 2, $11,100 Year 3. Professionals to $650 per month and $275 per month the assistants.
9	Contractual Services - Individ	71400	Project Coordinator in charge of following up on technical project activities. Partial time (20%). Total cost: $31 800; 31 weeks at $1025.81 per week
10	Travel	71600	Project coordination travel expenses relative to the component. Travel expenses for field visits (biological assays). Travel expenses for biological assay expert. Total cost: $10 000; $2 500 year 1; $5 000 year 2; $ 2500 year 3.
11	Contractual Services-Companies	72100	Execution and monitoring of the formulations and biological assays. Total cost:$180 000; year 1:$120 000; year 2: $40 000; year 3: $20 000
12	Supplies	72500	Office and laboratories supplies for activities related to the Project. Total cost:$20 500 $ 10 000 year 1, $5 000 year 2; $ 5 500 year 3.
13	Rental & Maint of Other Equip	73400	Equipment Maintenance for the chemical extraction process and biotechnology equipment. Total costs: $7 700. $3 500 year 1, $3 500 year 2, $700 year 3.

	Outcome 3		
14	Contractual Services - Individ	71400	Legal and Technical consultants on Intellectual Property. Total cost: $ 20 909 for year 1
15	Professional Services	71400	Project Coordinator. Coordinate component activities (20%). Total cost: $31,800; 29 weeks at $1096.55 per week
16	Contractual Services-Companies	72100	Legal counseling for ABS agreements between the stakeholders of the project Total costs: $37,091 Year1: $15 000, Year2:$15 000, Year3: $7 091
17	Supplies	72500	Office supplies for Outcome 3 activities. Total cost: $5000 ; $500 year1; $1 500 year 2; $3000 year 3.
18	Training, workshop & conference	75700	PI workshop, meetings with stakeholders Creation and management plan of a new multiple-use regional PA (training and events, personnel, team and supplies costs, implementation of priority issues, travel expenses, other operative costs). Total cost: $18,200. Year 1: $10 000; Year 2:$8 200
	Outcome 4		
19	Local Consultants	71300	Legal Consultancy and Technical (Nagoya protocol, review of legislation, checkpoints, with translation of documents and procedure manuals) Total cost: $33,760; 12 weeks at $ 2813 per week.
20	Contractual Services-Companies	72100	Consulting specialist private firm in information technology. Total cost: $38,000; 26 weeks at $1,461.54 per week.
21	Supplies	72500	Office supplies for project activities (stationery and didactic materials) Total cost: $8,240; Year 1: $4,120, Year 2: $3,120, Year 3: $1,000.
22	Information Technology Equipment	72800	(computer, digital camera, printer, multimedia projection equipment, telephone conference) Total costs: $6,000; $6,000 year 1.
23	Training, Workshop & Conference	75700	Food and rent hotels (coffee and lunch 8 workshops for about 30 people and 2 workshops for 50 people). Total cost: $12 000 ;$ 1 125 per workshop of 30 people and 1 500 per workshop of 50 people.
	Project Management		
24	International Consultants	71200	Total cost: $15,000. Mid-term Review. Total Cost: $7 500; 3 weeks at $2,500 per week. Terminal Evaluation. Total cost: $7,500; 3 weeks at $2 500 per week
25	Local Consultants	71300	Total cost: $8,200. Mid-term Review. Total Cost: $4 100; 4 weeks at $1 025 per week. Terminal Evaluation. Total cost: $4 100, 4 weeks at $1 025 per week
26	Contractual Services-Individual	71400	Project coordinator: Project planning, day-to-day management of project activities, reporting, maintain relationships between the interested parties of the Project. Financing from the

			Management Budget: 10%. Total cost: $16,632; 15.6 weeks at $1,066.15 per week.
27	Contractual Services-Individual	71400	Technical Project assistant. Support the coordination of project activities. Financing Project Management 100%. Total Cost: $30,000; 78 weeks at $384.62 per week.
28	Supplies	72500	Office supplies. Total cost $3,168 Year 1: $2,000; Year 2, $600; Year 3, $568
29	Information Technology Equipment	72800	Two computers and printer. Total cost: $3,551 Year 1
30	Professional Services	74100	External audits (2). Total cost: $10,000; 4 weeks at $2,500 a week
31	Training, workshop & conference	75700	Project initiation workshop. Total cost: $2,500

V. MANAGEMENT ARRANGEMENTS

63. The project will be executed following UNDP guidelines for Civil Society Organizations (CSOs) and is an integral part of the UNDP Country Programme Action Plan (CPAP) (2013-2017) signed between the Government of Costa Rica (GoCR) and the UNDP in January 31, 2013. The signing of the UNDP CPAP (January 31, 2013) constitutes a legal endorsement by the GoCR.

64. To ensure UNDP's accountability for programming activities and use of resources while fostering national ownership, the appropriate management arrangements and oversight of UNDP programming activities will be established. The management structure will respond to the project's needs in terms of direction, management, control, and communication. The project's structure will be flexible in order to adjust to potential changes during project execution. The UNDP Project Management structure consists of roles and responsibilities that bring together the various interests and skills involved in, and required by, the project.

65. The UNDP will act as the Implementing Entity for this project. As a part of the Steering Committee (SC), UNDP brings to the table a wealth of experience working with the GoCR in the area of biodiversity conservation, PA management, and sustainable development, and is well-positioned to assist in both capacity-building and institutional strengthening. The UNDP Country Office (UNDP-CO) and UNDP/GEF Regional Coordination Unit (RCU) in Panama will be responsible for transparent practices, appropriate conduct, and professional auditing. Staff and consultants will be contracted according to the established rules and regulations of the United Nations and all financial transactions and agreements will similarly follow the same rules and regulations.

66. The project will be executed by the National Biodiversity Institute of Costa Rica (INBio), as the Implementing Partner. INBio is a private research and biodiversity management center, established in 1989 to support all efforts made to gather knowledge on the country's biological diversity and promote its sustainable use. INBio is included in UNDP's Country Programme Action Plan (CPAP) which has been approved by the government of Costa Rica, and as such may provide project execution services .INBio is a non-governmental, non-profit, public interest organization of civil society that works in close collaboration with different government institutions, universities, the private sector and other public and private organizations, both within and outside Costa Rica. INBio will be responsible for the coordination and management of the project and will monitor compliance with Work Plans as the basis for project execution. INBio will coordinate work with other institutions collaborating on this project and will be the sole project manager.

67. Before the start of the project implementation, UNDP and INBio will sign Standard Project Cooperation Agreement, based on UNDP's approved format. This agreement frames UNDP project execution with a non-governmental organization such as INBio as executing party. The UNDP office has conducted an initial assessment of the ability of INBio to carry out the project and project documents and no exceptional measures meet the requirements of UNDP project management are required. However UNDP CO will conduct a HACHT full analysis if the project is approved by GEF before any transfer of funds is made to INBio.

The financial procedure for the implementation by NGOs, such as INBio is through a Direct Cash Transfer. This involves UNDP advancing cash on a quarterly basis to INBio for commitments and expenses to be made in support of activities agreed in Annual Work Plans (AWPs)/Project document. INBio is required to report the expenditure incurred to UNDP. The recording of expenditures, from requisition through to disbursement, occurs in the books of INBio as the executing party.

The amount INBio may receive as a partner during project implementation will be determined by their management capacity, according to the appraisal made by the Project Appraisal Committee (PAC) at the start of the project. For this purpose UNDP Costa Rica will conduct a micro assessment of INBio, this assesses the risks related to cash transfers to INBio. This assessments required as it is expected that with this project INBio will receive cash transfers above an annual amount of (US$ 100,000 combined from all Agencies; as initially defined in the CPAP or AWPs).

INBio will receive funds through advances, conditioned to the presentation of relevant financial reports. The Project Cooperation Agreement will clearly state the amount of the first advance to be received by INBIO. The second payment, and subsequent amounts, will be transferred to INBio on a quarterly basis, upon presentation of a financial report and other relevant documents accounting for the activities undertaken during that period. These reports will demonstrate the use and sound management of resources in accordance to UNDP standards but using INBios internal administrative procedures and arrangements. All projects implemented by NGOs will be audited periodically.

68. The General Director of INBio will serve as the Project Director. He/she will be assigned to provide general project oversight to the project. In addition, a National Institutional Coordinator will be responsible for coordinating the interaction between the Project Management Unit (PMU) and INBio, and other national institution

5.1. UNDP Support Services

69. The UNDP CO will provide support to the Project Coordinator in the administration and management of the project, as well as provide technical assistance, as required by the needs of the project. The project will support an Administrative/Finance Assistant position to provide direct day-to-day project implementation hired by INBio. The UNDP Costa Rica Environment, Energy and Risk Management Officer, Finance Officer, Procurement Officer, and M&E Officer will provide technical, financial, administrative, and management support to the project as is required. Additional support roles will be undertaken by the UNDP Regional Bureau (RBLAC) and the Regional UNDP/GEF Offices.

70. The project will be managed by INBio based on UNDP´s principles of ethics and transparency. Taking these principles into account, INBio should prepare, during the first two (2) months of the project implementation, a manual of procedures in cooperation with the UNDP CO that will apply to the execution of this project.

5.2. Collaborative arrangements with related projects

71. Steps will be taken by the project's Steering Committee to promote the interaction between the implementation team and Project Coordinators who are managing related projects and ensure the coordination and synchronization of

efforts as well as promote feedback where possible.

72. The direct execution of project activities is expected to be carried out through the PMU, which will be physically located within INBio's headquarters in the city of Heredia, Costa Rica. Oversight of the PMU will be a function of the Project Director.

73. The INBio will be part of the project's SC and will participate technically and operationally in the development of the components of the Project.

5.3. Audit arrangements

74. The project will be audited in accordance with the UNDP Financial Regulations and Rules and applicable audit policies.

5.4. Agreement on intellectual property rights and use of logo on the project's deliverables

75. In order to accord proper acknowledgement to GEF and UNDP for providing funding, the GEF and UNDP logos should appear on all relevant project publications and project hardware, among other items. Any citation on publications regarding projects funded by UNDP and GEF should also accord proper acknowledgment to both UNDP and GEF.

76. In accordance with standard UNDP procedures, all resources and equipment gained through project support remain the property of UNDP until project closure, at which time these resources will be transferred to INBIO. The Project Director will supervise the correct use and maintenance of these resources and equipment.

5.5. Roles and responsibilities of the parties involved in project management

77. INBIO will establish a PMU responsible for directing, supervising, and coordinating project implementation. The established PMU will be hosted by INBio and supported by its technical and administrative staff and its network of Bioprospecting experts.

78. **The Steering Committee(SC)** is the group responsible for making management decisions for the project by consensus when guidance is required by the Project Coordinator. Responsibilities of the SC include making recommendations for UNDP/INBio approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, the SC decisions should be made in accordance with standards that ensure development results, best value for the money, fairness, integrity, transparency, and effective international competition.

79. The SC is consulted by the Project Coordinator to make decisions when the Project Coordinator's tolerances (normally in terms of time and budget) have been exceeded (flexibility). Based on the approved Annual Work Plan (AWP), the SC may review and approve project quarterly plans when required and authorize any major departure from these agreed-upon quarterly plans. The SC is the authority that signs off on the completion of each quarterly plan and authorizes the start of the next quarterly plan. It ensures that required resources are committed and arbitrates any conflicts within the project or negotiates a solution to any problems between the project and external entities.

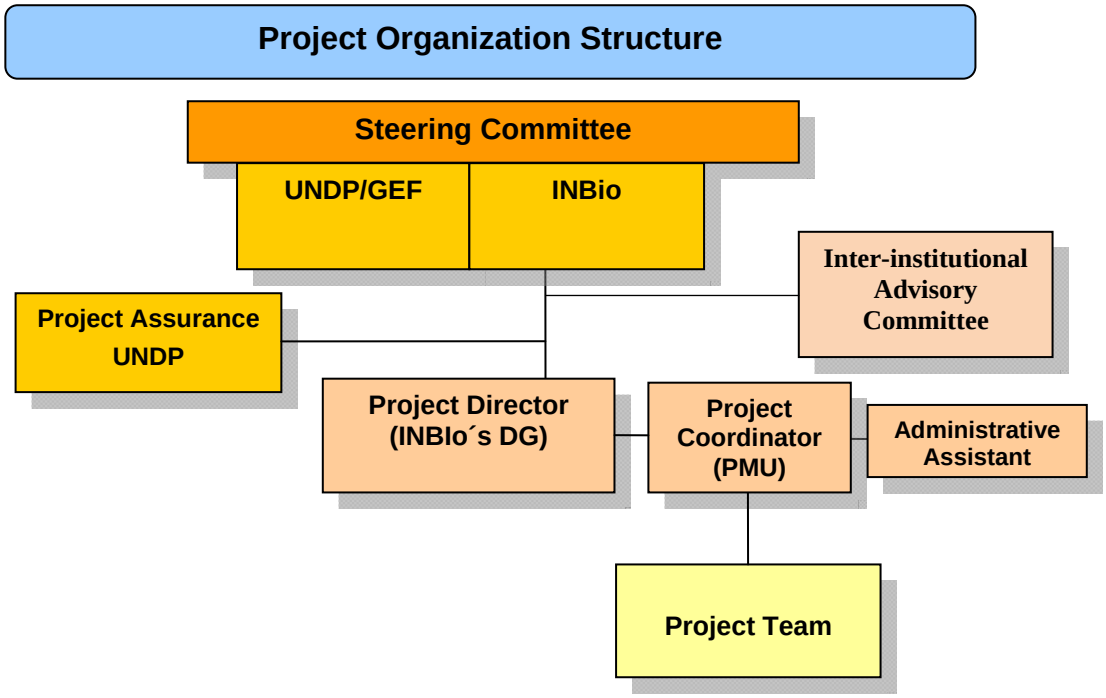
80. The SC will be composed of the General Director of INBio, and the UNDP's Resident Representative (or his/her delegates). The SC will meet once every six months; however, additional meetings may be scheduled based on the project's needs. The Project Director and the UNDP CO will be responsible for convening and planning the SC meetings.

81. An **Inter-institutional Advisory Committee** (IAC) will be established and will help with the coordination of other institutions and organizations related and provide technical feedback to the project. A preliminary list of potential members of the IAC includes the Project Coordinator, INBIO's National Institutional Coordinator, the UNDP's Environment, Energy and Risk Management, MICITT, SINAC, CONAGEBIO, MAG and the Private Agricultural Board. Other institutions may be invited to participate when necessary. In addition, Project Coordinators from related initiatives will be invited to participate in selected sessions to ensure proper project coordination, feedback and participation. The IAC will meet at least three times each year during the project implementation period.

82. **The Project Coordinator** will be contracted by INBio through UNDP following the principles of transparency and equal opportunities for everybody, and will be financially supported by project funds. The Project Coordinator has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints/tolerances laid down by the SC. The Project Coordinator's prime responsibility is to ensure that the project delivers the outputs specified in this Project Document, to the required standards of quality and within the specified constraints of time and cost. Terms of Reference for the Project Coordinator are included in **Annex 1** of this Project Document.

83. **Project Assurance**: Project assurance is the responsibility of each SC member; however, the role can be delegated. The project assurance role supports the SC by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management and that milestones are achieved. Project assurance is independent of the Project Coordinator; therefore, the SC cannot delegate any of its assurance responsibilities to the Project Coordinator. The UNDP Environment, Energy, and Risk Management Officer will hold the project assurance role.

84. The coordination and engagement of the private companies involved in the project will be secure through the signature of an agreement, including not only the benefit sharing and Intellectual property provisions but also coordination mechanisms such as conference calls, face to face meetings (on a regular basis provided in the contract) and other similar schemes to secure the flow of information and coordination of the different activities. In relation to CONAGEBIO a MoU or a similar instrument could be negotiated to outline the rights and responsibilities of both CONAGEBIO and INBio for the implementation of the four component of the projec.



VI. MONITORING FRAMEWORK AND EVALUATION

85. Project M&E will be conducted in accordance with the established UNDP and GEF procedures and will be provided by the project team and the UNDP-CO with support from the UNDP/GEF RCU in Panama City. The Project Results Framework in Section 3 provides performance and impact indicators for project implementation along with their corresponding means of verification. The M&E plan includes an inception report, project implementation reviews, quarterly and annual review reports, and mid-term and final evaluations. The following sections outline the principle components of the M&E plan and indicative cost estimates related to M&E activities. The project's M&E plan will be presented and finalized in the Project Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Project Inception Phase

86. A **Project Inception Workshop** (IW) will be held within the first three (3) months of project start-up with the full project team, relevant GoCR counterparts, co-financing partners, the UNDP-CO, and representation from the UNDP-GEF RCU, as well as UNDP-GEF headquarters (HQ) as appropriate.

87. A fundamental objective of this IW will be to help the project team to understand and take ownership of the project's goal and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project results framework and the GEF-5 Tracking Tool for ABS. This will include reviewing the results framework (indicators, means of verification, and risks and assumptions), imparting additional detail as needed, and on the basis of this exercise, finalizing the AWP with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

88. Additionally, the purpose and objective of the IW will be to: a) introduce project staff to the UNDP-GEF team that will support the project during its implementation, namely the CO and responsible RCU staff; b) detail the roles, support services, and complementary responsibilities of UNDP-CO and RCU staff in relation to the project team; c) provide a detailed overview of UNDP-GEF reporting and M&E requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project-related budgetary planning, budget reviews including arrangements for annual audit, and mandatory budget re-phasings.

89. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines and conflict resolution mechanisms. The Terms of Reference (ToR) for project staff and decision-making structures will be discussed again, as needed, in order to clarify each party's responsibilities during the project's implementation phase. The IW will also be used to plan and schedule the Tripartite Committee (TPC) Reviews.

Monitoring Responsibilities and Events

90. A detailed schedule of project review meetings will be developed by the project management in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: a) tentative timeframes for TPC Reviews, Steering Committee (or relevant advisory and/or coordination mechanisms); and b) project-related M&E activities.

91. **Day-to-day monitoring** of implementation progress will be the responsibility of the Project Coordinator based on the project's AWP and its indicators. The Project Coordinator will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. The Project Coordinator will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the IW with support from UNDP-CO and assisted by the UNDP-GEF RCU. Specific targets for the first-year implementation progress indicators together with their means of verification will be developed at this workshop. These will be used to assess whether implementation is proceeding at the intended pace

and in the right direction and will form part of the AWP. Targets and indicators for subsequent years will be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

92. Measurement of impact indicators related to global benefits will occur according to the schedules defined through specific studies that are to form part of the project's activities including changes in total area (in hectares [ha]) of internationally important wetlands under protection, changes on the number of key species for biological groups within seven (7) PAs in wetlands of international importance, and change in the management effectiveness of seven (7) existing PAs as measured through the METT scorecard.

93. **Periodic monitoring** of implementation progress will be undertaken by the UNDP CO through quarterly meetings with the project implementation team, or more frequently as deemed necessary. This will allow parties to take stock of and to troubleshoot any problems pertaining to the project in a timely fashion to ensure the timely implementation of project activities. The UNDP CO and UNDP-GEF RCU, as appropriate, will conduct yearly visits to the project's field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report/AWP to assess first-hand project progress. Any other member of the Steering Committee can also take part in these trips, as decided by the Steering Committee. A Field Visit Report will be prepared by the UNDP CO and circulated no less than one month after the visit to the project team, all Steering Committee members, and UNDP-GEF.

94. **Annual monitoring** will occur through the TPC Reviews. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to TPC review at least once every year. The first such meeting will be held within the first twelve (12) months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP CO and the UNDP-GEF regional office at least two weeks prior to the TPC for review and comments.

95. The APR will be used as one of the basic documents for discussions in the TPC. The Project Coordinator will present the APR to the TPC, highlighting policy issues and recommendations for the decision of the TPC participants. The Project Coordinator will also inform the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary. The TPC has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the IW, based on delivery rates and qualitative assessments of achievements of outputs.

96. The **Terminal TPC Review** is held in the last month of project operations. The Project Coordinator is responsible for preparing the Terminal Report and submitting it to UNDP-CO and to UNDP-GEF RCU. It shall be prepared in draft at least two months in advance of the TPC meeting in order to allow review, and will serve as the basis for discussions in the TPC meeting. The terminal TPC review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learned can be captured to feed into other projects being implemented.

Project Monitoring Reporting

97. The Project Coordinator, in conjunction with the UNDP-GEF extended team, will be responsible for the preparation and submission of the following reports that form part of the monitoring process and that are mandatory.

98. A **Project Inception Report** (IR) will be prepared immediately following the IW. It will include a detailed First Year/AWP divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. This work plan will include the dates of specific field visits, support missions from the UNDP CO or the RCU or consultants, as well as timeframes for meetings of the project's decision-making structures. The IR will also include the detailed project budget for the first full year of implementation, prepared on the basis of the AWP, and including any M&E requirements to effectively measure project performance during the targeted 12-month timeframe. The IR will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions, and feedback mechanisms of project-related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. When finalized, the IR will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to the IR's circulation, the UNDP CO and UNDP-GEF's RCU will review the document.

99. The **Annual Project Report** (APR) is a UNDP requirement and part of UNDP CO central oversight, monitoring, and project management. It is a self-assessment report by the project management to the CO and provides input to the country office reporting process and the Results-Oriented Annual Report (ROAR), as well as forming a key input to the TPC Review. An APR will be prepared on an annual basis prior to the TPC Review, to reflect progress achieved in meeting the project's AWP and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The format of the APR is flexible but should include the following sections: a) project risks, issues, and adaptive management; b) project progress against pre-defined indicators and targets, c) outcome performance; and d) lessons learned and best practices.

100. The **Project Implementation Review** (PIR) is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for one year, a PIR must be completed by the CO together with the project management. The PIR can be prepared any time during the year and ideally prior to the TPC review. The PIR should then be discussed in the TPC meeting so that the result would be a PIR that has been agreed upon by the project, the Implementing Partner, UNDP CO, and the RCU in Panama. The individual PIRs are collected, reviewed, and analyzed by the RCU prior to sending them to the focal area clusters at the UNDP-GEF headquarters. In light of the similarities of both APR and PIR, UNDP-GEF has prepared a harmonized format for reference.

101. **Quarterly Progress Reports** outlining main updates in project progress will be provided quarterly to the local UNDP CO and the UNDP-GEF RCU by the project team. Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform and the risk log should be regularly updated in ATLAS based on the initial risk analysis included in Annex 8.1.

102. **Specific Thematic Reports** focusing on specific issues or areas of activity will be prepared by the project team when requested by UNDP, UNDP-GEF, or the Implementing Partner. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learned exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

103. A **Project Terminal Report** will be prepared by the project team during the last three (3) months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the project; lessons learned; objectives met or not achieved; structures and systems implemented, etc.; and will be the definitive statement of the project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's activities.

104. **Technical Reports** are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List detailing the technical reports that are expected to be prepared on key areas of activity during the course of the project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive and specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national, and international levels. Technical Reports have a broader function and the frequency and nature is project-specific.

105. **Project Publications** will form a key method of crystallizing and disseminating the results and achievements of the project. These publications may be scientific or informational texts on the activities and achievements of the project in the form of journal articles or multimedia publications. These publications can be based on Technical Reports, depending upon the relevance and scientific worth of these reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and (in consultation with UNDP, INBIO, and other relevant stakeholder groups) will also plan and produce these publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

Independent Evaluation

106. The project will be subjected to at least two independent external evaluations as follows:

107. An independent **Mid-Term Evaluation** will be undertaken at exactly the mid-point of the project lifetime. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency, and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation,

and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, ToRs, and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The ToRs for this Mid-Term Evaluation will be prepared by the UNDP-CO based on guidance from the UNDP-GEF RCU. The management response of the evaluation will be uploaded to the UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC). The GEF-5 Tracking Tool for Biodiversity Focal Area (BD-1) for the project will also be completed during the mid-term evaluation cycle.

108. An independent **Final Evaluation** will take place three months prior to the terminal Steering Committee meeting, and will focus on the same issues as the Mid-Term Evaluation. The Final Evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC). The ToRs for this evaluation will be prepared by the UNDP-CO based on guidance from the UNDP-GEF RCU. The GEF-5 Tracking Tool for ABS Focal Areawill also be completed during the final evaluation.

Learning and Knowledge Sharing

109. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition, the project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP-GEF RCU has established an electronic platform for sharing lessons between the project managers. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an ongoing process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every twelve (12) months. UNDP-GEF shall provide a format and assist the project team in categorizing, documenting, and reporting on lessons learned. Specifically, the project will ensure coordination in terms of avoiding overlap, sharing best practices, and generating knowledge products of best practices in the area of ABS and biodiversity conservation and sustainable use with the current projects of Costa Rica's portfolio.

M&E WORKPLAN AND BUDGET

110. The indicative M&E work plan and budget is as follows: **(TOMAR NOTA DE PREGUNTA DEL INBIO INCLUIDA EN EL CEO Y APLICABLE ACA)**

Type of M&E activity	Responsible Parties	Budget US$*	Time frame
Inception Workshop	Project Coordinator UNDP CO UNDP GEF	2,500.00	Within first two months of project start-up

Inception Report	Project Team UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	Oversight by Project Coordinator Project Team	No separate M&E cost: to be absorbed within salary and travel costs of project staff	Annually prior to ARR/PIR and to the definition of annual work plans
ARR and PIR	Project Coordinator and Team UNDP-CO UNDP-GEF	None	Annually
Tripartite Committee Reviews and Reports	GoP counterparts UNDP CO UNDP GEF RCU	None	Annually, upon receipt of APR
Steering Committee Meetings	Project Coordinator UNCP-CO GoP representatives		Two times per year
Quarterly progress reports	Project Coordinator and Team	None	Quarterly
Technical reports	Project Coordinator and Team	None	To be determined by Project Team and UNDP-CO
Mid-term Evaluation $11,600.00	Project Coordinator and Team UNDP- CO UNDP-GEF RCU External Consultants (i.e., evaluation team)	International consultant 7,500 National consultant 4,100	At the mid-point of project implementation
Final Evaluation $11,600.00	Project Coordinator and Team UNDP- CO UNDP-GEF RCU External Consultants (i.e. evaluation team)	International consultant 7,500 National consultant 4,100	At least three months before the end of project implementation
Terminal Report	Project Team UNDP-CO	None	At least three months before the end of the project
Lessons learned	Project Coordinator and Team UNDP-GEF RCU (suggested formats for documenting best practices, etc)		Yearly
Audit	UNDP-CO	10,000	Yearly

	Project Coordinator and Team			
Visits to field sites	UNDP-CO UNDP-GEF RCU (as appropriate) GoP representatives	No separate M&E cost: paid from IA fees and operational budget		Yearly
TOTAL INDICATIVE COST (*Excluding project team staff time and UNDP staff and travel expenses)		GEF	35,700.00	
		CoF	7,755.00	
		Total	43,455.00	

VII. LEGAL CONTEXT

111. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement (SBAA) between the GoCR and the UNDP, signed by the parties on August 7, 1973 and approved by Law No. 5878. The host country implementing agency shall, for the purpose of the SBAA, refer to the government co-operating agency described in that Agreement.

112. The UNDP Resident Representative in Costa Rica is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes: a) revision of, or addition to, any of the annexes to the Project Document; b) revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation; c) mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and d) inclusion of additional annexes and attachments only as set out here in this Project Document.

113. This document, together with the CPAP, which was signed by the GoCR and UNDP and is incorporated by reference, constitutes a Project Document as referred to in the SBAA. All CPAP provisions apply to this document.

114. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner.

115. The Implementing Partner shall: a) put into place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried out; b) assume all risks and liabilities related to the Implementing Partner's security and the full implementation of the security plan.

116. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required herein shall be deemed a breach of this agreement.

117. The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism, and that the recipients of any amounts provided by UNDP herein do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

VIII. ANNEXES

8.1 Terms of Reference.

The following are the indicative ToRs for the project management staff. The PIU will be staffed by a full-time PC and a Project Administrator/Finance Assistant, all of whom will be nationally-recruited positions. ToRs for these positions will be further discussed with UNDP so that roles and responsibilities and UNDP GEF reporting procedures are clearly defined and understood.

Project Coordinator (PC)

The PC will be responsible for the day-to-day management of project activities and the delivery of its outputs. The PC will support and coordinate the activities of all partners, staff, and consultants as they relate to the implementation of the project. The PC will report to the UNDP Project Officer and INBio´s Director (or its representative) and will be responsible for the following tasks:

Tasks:

- Prepare detailed work plan and budget under the guidance of the SC and UNDP;
- Make recommendations for modifications to the project budget and, where relevant, submit proposals for budget revisions to the SC, and UNDP;
- Facilitate project planning and decision-making sessions;
- Facilitate relevant agreements with stakeholders and the day to day liaison with them
- Organize the contracting of consultants and experts for the project, including preparing ToRs for all technical assistance required, preparation of an action plan for each consultant and expert, supervising their work, and reporting to the UNDP Project Officer;
- Provide technical guidance and oversight for all project activities;
- Oversee the progress of the project components conducted by local and international experts, consultants, and cooperating partners;
- Coordinate and oversee the preparation of all outputs of the project;
- Foster, establish, and maintain links with other related national and international programs and national projects, including information dissemination through media such as web page actualization, etc.;
- Organize SC and other meetings as well as annual and final review meetings as required by UNDP, and act as the secretary of the SC;
- Coordinate and report the work of all stakeholders under the guidance of UNDP;
- Prepare PIRs/APRs in the language required by the GEF and the UNDP´s CO and attend annual review meetings;

– Ensure that all relevant information is made available in a timely fashion to UNDP regarding activities carried out nationally;
– Prepare and submit quarterly progress and financial reports to UNDP as required, following all UNDP quality management system and internal administrative process;
– Coordinate and participate in M&E exercises to appraise project success and make recommendations for modifications to the project;
– Prepare and submit technical concepts and requirements about the project requested by UNDP, or other external entities;
– Perform other duties related to the project in order to achieve its strategic objectives;
– Ensure the project utilizes best practices and experiences from similar projects;
– Ensure the project utilizes the available financial resources in an efficient and transparent manner;
– Ensure that all project activities are carried out on schedule and within budget to achieve the project outputs;
– Solve all scientific and administrative issues that might arise during the project.

Outputs:
– Detailed work plans indicating dates for deliverables and budget;
– Documents required by the control management system of UNDP;
– ToRs and action plan of the staff and monitoring reports;
– Quarterly reports and financial reports on the consultant's activities, all stakeholders' work, and progress of the project to be presented to UNDP (in the format specified by UNDP);
– A final report that summarizes the work carried out by consultants and stakeholders during the period of the project, as well as the status of the project outputs at the end of the project;
– Minutes of meetings and/or consultation processes;
– Yearly PIRs/APRs;
– Adaptive management of project.

All documents are to be submitted to the UNDP Project Officer and in MS Word and in hard copy.

Qualifications (indicative):
– A graduate academic degree on natural sciences;
– Minimum 5 years of experience in project management ;
– Experience on abs legislation, natural product development, research and development, knowledge on the institutional framework on abs and related issues.
– Experience facilitating consultative processes, preferably in the field of natural resource management;
– Proven ability to promote cooperation between and negotiate with a range of stakeholders, and to organize and coordinate multi-disciplinary teams;
– Strong leadership and team-building skills;
– Self-motivated and ability to work under the pressure;
– Demonstrable ability to organize, facilitate, and mediate technical teams to achieve stated project objectives;
– Familiarity with logical frameworks and strategic planning;
– Strong computer skills;
– Flexible and willing to travel as required;
– Excellent communication and writing skills in Spanish and English;

- Previous experience working with a GEF-supported project is considered an asset.

Project Administrator/ Assistant

The Project Administrator/Finance Assistant is responsible for the financial and administrative management of the project activities and assists in the preparation of quarterly and annual work plans and progress reports for review and monitoring by UNDP.

The Project Administrator/Finance Assistant will have the following responsibilities:

- Responsible for providing general financial and administrative support to the project;
- Take own initiative and perform daily work in compliance with annual work schedules;
- Assist project management in performing budget cycle: planning, preparation, revisions, and budget execution;
- Provide assistance to partner agencies involved in project activities, performing and monitoring financial aspects to ensure compliance with budgeted costs in line with UNDP policies and procedures;
- Monitor project expenditures, ensuring that no expenditure is incurred before it has been authorized;
- Assist project team in drafting quarterly and yearly project progress reports concerning financial issues;
- Ensure that UNDP procurement rules are followed during procurement activities that are carried out by the project and maintain responsibility for the inventory of the project assets;
- Perform preparatory work for mandatory and general budget revisions, annual physical inventory and auditing, and assist external evaluators in fulfilling their mission;
- Prepare all outputs in accordance with the UNDP administrative and financial office guidance;
- Ensure the project utilizes the available financial resources in an efficient and transparent manner;
- Ensure that all project financial activities are carried out on schedule and within budget to achieve the project outputs;
- Perform all other financial related duties, upon request

Qualifications and skills:

- At least an Associate's Degree in finance, business management, or related fields;
- Experience in administrative work or related to project implementation;
- A demonstrated ability in the financial management of development projects and in liaising and cooperating with government officials, NGOs, etc.;
- Self-motivated and ability to work under the pressure;
- Team-oriented, possesses a positive attitude, and works well with others;
- Flexible and willing to travel as required;
- Excellent interpersonal skills;
- Excellent verbal and writing communication skills in Spanish and English;
- Good knowledge of Word, Outlook, Excel, and Internet browsers is required;
- Previous experience working with a GEF-supported project is considered an asset.

8.2 Annex 2 Risk Analysis.

PROJECT RISKS ASSESSMENT AND MITIGATION MEASURES.

Identified Risks	Category	Impact	Likelihood	Risk Assessment	Elaboration of Risks	Mitigation Measures
The period of the project may be too short to result in a product developed.	Operational	Low	Moderately Likely	Low	The development of the different research and development activities and the generation of results may take more time than expected. There is no guarantee that products can be successfully developed, leading towards commercialization.	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 or some of the participants in the research and development activities within the project are also unable to reach an agreement.	Operational	High	Unlike	Low	Divergences in the terms of the contracts may appear, especially regarding financial aspects.	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. INBio´s experience in the process of conducting negotiations with different partners including industrial ones could be instrumental in reaching an agreement with several partners. Budget allows for intensive consultations and meetings

Identified Risks	Category	Impact	Likelihood	Risk Assessment	Elaboration of Risks	Mitigation Measures
						preparations which could prepare the negotiations to reach successful outcomes to ensure full participation and sharing of the monetary and non-monetary benefits to be derived from the project.
Nagoya Protocol is not ratified by the Legislative Assembly or the amendment of the BL is not approved by CONAGEBIO	Political	Medium	Unlikely	Low	Some members of the Parliament may not attach high priority to the ratification of the Protocol.	The project will conduct advocacy campaigns to create awareness and political will to take up the proposed ABS amendments and the necessity of the ratification of the NP The project will conduct forums or seminars targeting legislators (Members of Parliament) to advocate for their support. The same applies to the correspondent amendment law to be approved by CONAGEBIO.

8.3. Stakeholder Involvement Plan.

During the PIF phase of the project, all the stakeholders participated in planning and project design in working sessions and meetings. Additionally, multiple bilateral meetings with the companies involved in the Project and the CONAGEBIO were held during the PIF preparation with the purpose to receive feedback on the project objective, activities, products and budgetary issues.

Objectives of the Stakeholder Participation Plan: The formulation of the stakeholder participation plan has the following objectives: a) to clearly identify the basic roles and responsibilities of the main participants in this project; and b) to ensure full knowledge of those involved concerning the progress and obstacles in project development and to take advantage of the experience and skills of the participants to enhance project activities. The ultimate purpose of the stakeholder participation plan will be the long-term sustainability of the project achievements, based on transparency and the effective participation of the key stakeholders.

The stakeholders participation will be secure by using the following mechanisms: a) regular conference calls will be scheduled and organized (on a monthly basis for instance, etc) to communicate and disseminate project progress or identify difficulties in achieving the research and development outcomes and milestones; b) a face to face meetings will be also organized (e.g. bi-annually) with the different stakeholders (specially the technical or scientific personnel participating in the project implementation) with the aim of discussing research progress, preliminary reports and steps taken and future corrective actions needed for the full achievement of the project objectives; c) exchange of reports and written information will be established with the purpose to inform all the stakeholders adequately about project implementation; d) the contractual arrangement to be negotiated with the private companies involved in this project will also set coordination mechanisms These mechanisms will promote and ensure that all the relevant shareholders receive and share information and provide technical advice on the project implementation**;** e) all the relevant stakeholders will participate in the Project Workshop Inception and Project Evaluation, including the Mid-Term and Final Evaluations; f) the Component No. 4 of the Project will be developed in close cooperation and communication with the Technical Office of the CONAGEBIO, including through the signature of an appropriate collaborative agreement or Memorandum of Understanding. Meetings and conference calls will be arranged to determine the best path to achieve the outputs of this particular Component.

A description of their roles is presented in the following table:

Chart 1. Stakeholders participation in the Project.

STAKEHOLDER	**ATE 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. INBio will host a Project Management Unit (PMU) for directing, supervising and coordinating the project implementation and development, according to the

STAKEHOLDER	ATE AND RELEVANT ROLES IN THE PROJECT
	Working Plan. It will participate in technical activities such as the extraction, isolation of compounds and analysis of extracts as well as the fermentation of microfungi and will collaborate in obtaining the access permits and in the ABS negotiation processes
CONAGEBIO:	The National Commission for Biodiversity Management (CONAGEBIO) is the Competent National Authority and the CBD ABS Focal Point. The 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. It defines policy, provides advice to the government and grants permits for the access to genetic and biochemical resources in strict accordance with Costa Rica's Biodiversity Law. It is composed of eleven representatives of the following ministries: Environment and Energy, 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 for Technical Support which takes care of the processing, granting and monitoring of ABS of permits. CONAGEBIO will provide guidance for the implementation and execution of the IV Component of this project
ECOS-LA PACÍFICA:	The botanical material supplier for production of DMDP. ECOS Group is committed to a triple bottom line approach (sustainable development, social and environmental responsibility) and business ethics.
BIOTÉCNICA:	A pioneering initiative in Costa Rica in using the tools of molecular biology and biotechnology to develop innovative solutions grounded in research of biological processes. Biotécnica is a private laboratory, which conducts research, development and innovation by applying biotechnological techniques, in order to add value, improve processes and develop products of interest to the national or regional productive sector, especially in the agricultural sector Biotécnica had been involved in the selection of extracts and fractions according to assays for the plant natural defenses activation and will share methodologies with INBio for the molecular analysis of plants treated with the formulated products.
FORMUQUISA: Formulaciones Químicas S.A	Formulaciones Químicas S.A. was established in the year 1982. Right from the start, the company aimed at providing services of formulation of plant protection products for other national as well as international companies with markets in Central America, South America and in the Caribbean.

STAKEHOLDER	ATE AND RELEVANT ROLES IN THE PROJECT
	In the case of Formuquisa its involvement will be through the support of a chemical laboratory with modern analytical equipment and an infrastructure of 17000 m^2 . Formulaciones Químicas S.A. has contributed to the development of formulations for clients such as Basf, Helm Ag, Cerexagri, Syngenta, Nippon Kayaku and Amvac, among others (Reporte RCT N° 6, june 2013). The company has been focusing in 3 main areas: agrochemicals, natural products for organic production and animal health. Their experience is a key component for the project, in which flowables, granulated products and liquid and powder formulations must be develop according to the bioactive molecules proposed as well as the crop model and the selected pathogen(s) in order to validate the efficacy of the product at field level.
MONRERI:	Is an agricultural research private company founded in 1993 in order to offer a research department in the area of plant pathology. Monreri cover the full range of laboratory services, "in vivo" testings and field trials. The company has experience with several crops, particularly bananas, for which they perform fungicide "*in vitro*" assays against Black Sigatoka, single leaf test, experimental plots, semi-commercial trials and post-harvest tests. MONRERI collaborated in the evaluation of the tea tree oil-based product Timorex Gold™ in the control of Black Sigatoka in banana (International Innovation, 2012). Due to the company's experience, the green house and field trials necessary for the validation of the proposed products will be conducted by MONRERI.

8.4 Project Cycle Management Services

Stage	Country Office[14]	UNDP/GEF
Identification, Sourcing/Screening of Ideas, and Due Diligence	Identify project ideas as part of country programme/CPAP and UNDAF/CCA.	Technical input to CCA/UNDAFs and CPAPs where appropriate. Input on policy alignment between projects and programmes. Provide information on substantive issues and specialized funding opportunities (SOFs). Policy advisory services including identifying, accessing, combining and sequencing financing. Verify potential eligibility of identified idea.

[14]As per UNDP POPP with additional SOF requirements where relevant.

Stage	Country Office[14]	UNDP/GEF
	Assist proponent to formulate project idea / prepare project idea paper (e.g. GEF PIF/PPG).	*Technical support:* Research and development. Provide up-front guidance. Sourcing of technical expertise. Verification of technical reports and project conceptualization. Guidance on SOF expectations and requirements. Training and capacity building for Country Offices.
	Appraisal: Review and appraise project idea. Undertake capacity assessments of implementing partner as per UNDP POPP. Environmental screening of project as and when included in UNDP POPP. Monitor project cycle milestones.	Provide detailed screening against technical, financial, social and risk criteria. Determine likely eligibility against identified SOF.
	Partners: Assist proponent to identify and negotiate with relevant partners, co-financiers, etc.	Assist in identifying technical partners. Validate partner technical abilities.
	Obtain clearances: Government, UNDP, Implementing Partner, LPAC, cofinanciers, etc.	Obtain SOF clearances.
Project Development	*Initiation Plan:* Management and financial oversight of Initiation Plan Discuss management arrangements	Technical support, backstopping and trouble-shooting. Support discussions on management arrangements Facilitate issuance of DOA
	Project Document: Support project development, assist proponent to identify and negotiate with relevant partners, cofinanciers, etc. Review, appraise, finalize Project Document. Negotiate and obtain clearances and signatures – Government, UNDP, Implementing Partner, LPAC, cofinanci-	*Technical support:* Sourcing of technical expertise. Verification of technical reports and project conceptualization. Guidance on SOF expectations and requirements. Negotiate and obtain clearances by SOF Respond to information requests, arrange revisions etc.

Stage	Country Office[14]	UNDP/GEF
	ers, etc. Respond to information requests, arrange revisions etc. Prepare operational and financial reports on development stage as needed.	Quality assurance and due diligence. Facilitate issuance of DOA
Key UNDP/GEF management performance indicators/targets for Project Development: Time between PIF approval to CEO endorsement for each project: Target for GEF trust fund project: FSP = 18 months or less, MSP 12 months or less. Target for LDCF and SCCF: FSP/MSP = 12 months or less. Time between CEO endorsement (or PAC for non GEF funded projects) to first disbursement for each project: Target = 4 months or less		
Project Oversight	*Management Oversight and support*	*Technical and SOF Oversight and support*
	Project Launch/Inception Workshop Preparation and coordination.	Technical support in preparing TOR and verifying expertise for technical positions. Verification of technical validity / match with SOF expectations of inception report. Participate in Inception Workshop
	Management arrangements: Facilitate consolidation of the Project Management Unit, where relevant. Facilitate and support Project Board meetings as outlined in project document and agreed with UNDP RTA. Provide project assurance role if specified in project document.	Technical input and support to TOR development. Troubleshooting support. Support in sourcing of potentially suitable candidates and subsequent review of CVs/recruitment process.
	Annual WorkPlan: Issuance of AWP. Monitor implementation of the annual work plan and timetable.	Advisory services as required Review AWP, and clear for ASL where relevant.

Stage	Country Office[14]	UNDP/GEF
	Financial management: Conduct budget revisions, verify expenditures, advance funds, issue combined delivery reports, ensure no over-expenditure of budget. Ensure necessary audits.	Allocation of ASLs, based on cleared AWPs Return of unspent funds to donor Monitor projects to ensure activities funded by donor comply with agreements/ProDocs Oversight and monitoring to ensure financial transparency and clear reporting to the donor
	Results Management: Alignment: link project output to CPAP Outcome in project tree in Atlas, link CPAP outcome in project tree to UNDP Strategic Plan Environment and sustainable Development Key Result Area as outlined in project document during UNDP work planning in ERBM. Gender: In ATLAS, rate each output on a scale of 0-3 for gender relevance. Monitoring and reporting: Monitor project results, track result framework indicators, and co-financing where relevant. Monitor risks in Atlas and prepare annual APR/PIR report where required by donor and/or UNDP/GEF. Annual site visits – at least one site visit per year, report to be circulated no later than 2 weeks after visit completion.	Advisory services as required. Quality assurance. Project visits – at least one technical support visit per year.

Stage	Country Office[14]	UNDP/GEF
	Evaluation: Integrate project evaluations into CO evaluation plan. Identify synergies with country outcome evaluations. Arrange mid-term, final, and other evaluations: prepare TOR, hire personnel, plan and facilitate mission / meetings / debriefing, circulate draft and final reports. Participate as necessary in other evaluations. Ensure tracking of committed and actual co financing as part of mid-term and final evaluations. Prepare management response to project evaluations and post in UNDP ERC.	Technical support and analysis. Quality assurance. Compilation of lessons and consolidation of learning. Dissemination of technical findings. Participate as necessary in other SOF evaluations.
	Project Closure: Final budget revision and financial closure (within 12 months after operational completion). Final reports as required by donor and/or UNDP/GEF.	Advisory services as required. Technical input. Quality assurance.

Key UNDP GEF management performance indicators/targets for Project Oversight:

Each project aligned with country outcomes and UNDP Strategic Plan Environment and Sustainable Development key results, and included in Country Office Integrated Work Plan in the ERBM:
Target = 100%
Quality rating of annual APR/PIRs: Once completed and submitted, the quality of each project APR/PIR is rated by an external reviewer
Target = Rating of Satisfactory or above
Quality rating of Terminal Evaluations: Once completed, the quality of each terminal evaluation is rated by an external reviewer
Target = Rating of Satisfactory or above
Quality of results achieved by project as noted in terminal evaluation: the independent evaluator assigns an overall rating to the project.
Target = Satisfactory or above

8.5 Environmental and Social Screening

The document for the Environmental and Social Screening and Multiple Global Environmental Benefits project was considered in the preparation of this ProDoc and it is attached. .

8.6. *UNDP GEF Branding Guidelines*

UNDP-GEF BRANDING GUIDANCE NOTE

The purpose of this guidance note is to promote a common branding of UNDP supported GEF/LDCF/SCCF[15] projects, and to provide guidance on implementing the GEF branding/visibility guidelines. This note applies to all communications materials including print, web, and video. Other non GEF/LDCF/SCCF donor financed projects managed by the UNDP-GEF unit should follow the UNDP branding guidelines and relevant guidance provided by the donor.

Please apply this guidance immediately and disregard previous versions of this guidance note. If you have any questions, please contact Nancy Bennet.

This note contains the following sections:

A. UNDP-GEF BRANDING
1. Projects
2. Portfolio of projects
3. UNDP-GEF

B. PUBLICATIONS:
1. UNDP-GEF Publications
   i. Logos
   ii. Foreword
   iii. Boilerplate text
   iv. Editing
   v. Designer
2. UNDP or External Party Publications that include UNDP Supported GEF/LCDF/SCCF Financed Projects
3. Project Communications

C. KEY RESOURCES:
1. GEF resources
2. UNDP resources

[15] LDCF = Least Developed Countries Fund; SCCF = Special Climate Change Fund

UNDP-GEF BRANDING:

*1. **Projects**:*

- Please use the following when referring to projects: UNDP supported GEF financed project. Please change GEF to LCDF or SCCF when appropriate.
- These are country owned projects or regional/global projects. They are not UNDP or UNOPS projects, UNDP-GEF projects or GEF funded/financed projects.
- Projects are supported by UNDP not UNDP-GEF.
- The grant component (from GEF/LDCF/SCCF) of the project is part of a bigger country owned project that is also partly financed by other partners.
- List the country by name and avoid categories like 'developing' where possible.
- When referring to the Small Grants Programme, please note the official branding of 'GEF SGP' or the 'GEF Small Grants Programme', it is not the UNDP SGP or UNDP Small Grants Programme or SGP. The GEF SGP is implemented by UNDP.

Good examples:

✓ Brazil Biodiversity Project supported by UNDP with GEF grant financing.
✓ The GEF is the largest financier of the Brazil Climate Change Mitigation project (add title) supported by UNDP.
✓ Regional Yellow Seas UNDP supported GEF financed project.
✓ Global ALM project supported by UNDP with GEF grant financing.

Please avoid examples:

× UNDP-GEF biodiversity project in Brazil.
× UNDP-GEF IW regional project.

2. Portfolio of Projects:

- UNDP supports a portfolio of focal area/thematic team projects that are financed by the GEF/LDCF/SCCF.

Good examples:

✓ UNDP supports 10 Biodiversity Projects in Brazil, 8 of which have GEF grant financing.
✓ The GEF is the largest financier of the biodiversity projects in Brazil supported by UNDP.

Please avoid examples:

× UNDP-GEF biodiversity portfolio or UNDP-GEF's portfolio of biodiversity projects.
× The GEF is the largest financier of UNDP's portfolio of Climate Change Mitigation projects in Brazil.

3. UNDP-GEF:

- GEF does not finance UNDP or UNDP-GEF.
- Our Unit is called UNDP-GEF (note hyphen) or UNDP-Global Environment Facility. Not UNDP/GEF (no slash), not UNDP GEF, not UNDP Environmental Finance Services Group or Unit.
- RTAs are UNDP Technical Advisers based in a region.

A. **PUBLICATIONS**:

1. ***UNDP-GEF Publications***: when 100% of the publication relates to UNDP supported GEF/LDCF/SCCF financed projects.

- **Logos*:*** The UNDP logo with tagline must appear on the top right hand corner of the publication. The GEF logo must appear on the top left hand corner of the publication. See section C below for details.

Empowered lives.
Resilient nations.

- **Foreword*:*** Each UNDP-GEF publication should include a foreword from the UNDP-GEF Executive Coordinator or the Principal Technical Adviser.

FOREWORD

The growing risks and impacts of climate change and the accompanying loss of ecosystem services requires the world to urgently invest in a new development paradigm. Development, climate change and ecosystem sustainability issues are increasingly inter-linked today, requiring a re-thinking of traditional development assistance in order to remain relevant to evolving human needs.

UNDP has fully embraced this new development paradigm – an overall transition to a "green" economy - which can help countries continue to achieve development targets, while also meeting the needs of their citizens in the face of growing challenges of climate change and environmental degradation.

The UNDP/GEF unit is responding to this rapidly evolving agenda by helping developing countries make green, low emission and climate resilient development not only possible, but also economically attractive. To achieve this, we work closely with UNDP country offices to help country partners develop their own capacity to put in place the right mix of regulatory and financial incentives, remove institutional and policy barriers, and create enabling environments that attract and drive private sector investment into green development. In doing this, UNDP/GEF assists partner countries to access, combine and sequence resources from a wide range of funds, and financial instruments and mechanisms.

2 2009 – 2010 ANNUAL PERFORMANCE REPORT OF UNDP SUPPORTED GEF FINANCED PROJECTS

The Global Environment Facility (GEF) family of funds is one of the premier sources of such support. During 2010, UNDP's GEF financed portfolio was comprised of 288 active programmes and projects with a combined total GEF grant of US$ 1.1 billion. With US$ 3.3 billion in committed co-financing, and an additional US$ 0.9 billion leveraged since implementation began, UNDP's GEF portfolio represents a combined total value of US$5.3 billion invested in the sustainable development priorities of 143 countries, including 37 SIDS and 42 LDCs. The following pages highlight progress reported by these programmes and projects this past year, as well as the results achieved by those that closed this past year as reported in terminal evaluations reviewed by the UNDP Evaluation Office.

The real credit for the progress towards transformational change outlined in this report belongs to our partners. At the same time, I would like to thank the UNDP/GEF team, and our regional and country colleagues, for their commitment to demonstrating impact and supporting the delivery of results. We hope this report will raise awareness among our stakeholders about our vision, how we work, and what has been achieved. We look forward to your feedback.

"Tackling the climate crisis can help the worldembarkonasustainabledevelopment path. Developing countries need support to move along a low-carbon development pathway, in the form of accessible climate finance and the capacity to apply it.

Helen Clark, UNDP Administrator, October 2010

Yannick Glemarec,
UNDP GEF Executive Coordinator

2009 – 2010 ANNUAL PERFORMANCE REPORT OF UNDP SUPPORTED GEF FINANCED PROJECTS 3

When relevant, other partners and donors (i.e. the GEF...) should be invited to contribute to the foreword (see example below) or a second foreword can be added to the publication.

FOREWORD

Close to 80 percent of the world's threatened species owe their poor status to widespread habitat loss. Therefore, the most immediate and effective response to the imminent biodiversity crisis is the strategic expansion in the coverage of protected areas worldwide. Moreover, protected areas provide a range of vital ecosystem services that people everywhere rely upon. For example, 33 out of 105 of the world's largest cities source their clean water from protected areas. The economies of many developing countries depend heavily on tourism revenue associated with protected areas, and governments increasingly consider protected areas to be true engines of local development. Therefore, the establishment of comprehensive, effectively managed and financially secure protected area networks is a critical strategy not only for conserving biodiversity, but for securing ecosystem goods and services, enabling climate change adaptation and mitigation, and helping countries achieve the Millennium Development Goals.

Recognizing the critical role of protected areas in conserving biodiversity and promoting sustainable development, the Parties to the Convention on Biological Diversity (CBD) in February 2004 committed to a comprehensive and specific set of actions called the Programme of Work on Protected Areas. Its goal is to establish comprehensive, ecologically representative and effectively managed networks of terrestrial protected areas by 2010 and of marine protected areas by 2012. The program includes measurable targets and actions with specific timelines and can be considered to be the defining framework or blueprint for protected areas in the coming decades. It is not an exaggeration to claim that the Programme of Work on Protected Areas is the Convention's most successful initiative; since the Convention on Biological Diversity came into force in 1993, the world's protected areas have increased by nearly 60 percent in both numbers and total area. As a result, the concept of protected areas is arguably the most widespread societal franchise worldwide. There are three times as many protected areas as there are McDonald's restaurants and Walmart stores – two icons of the global economy - combined.

6 PROTECTED AREAS FOR THE 21ST CENTURY: LESSONS FROM UNDP/GEF'S PORTFOLIO

- **Boilerplate text*:*** The logos of UNDP and GEF must be added on the inside cover of the publication. The following boilerplate text must be used under the logos.

GEF: "The GEF unites 182 countries in partnership with international institutions, non-governmental organizations (NGOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Since 1991, GEF has achieved a strong track record with developing countries and countries with economies in transition, providing $9.2 billion in grants and leveraging $40 billion in co-financing for over 2,700 projects in over 168 countries. www.thegef.org"

UNDP: "UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in 177 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations.www.undp.org"

UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. We are on the ground in 166 countries, working with them on their own solutions to global and national development challenges. As they develop local capacity, they draw on the people of UNDP and our wide range of partners.
www.undp.org

The Global Environment Facility (GEF) unites 182 member governments — in partnership with international institutions, civil society, and the private sector providing grants to developing countries and countries with economies in transition, linking local, national, and global environmental challenges in order to promote sustainable futures for all. Established in 1991, the GEF is today the largest public founder of projects to improve the global environment investing in over 2,700 projects.
www.thegef.org

April 2011

Annual Performance Report of UNDP supported GEF financed Projects

© United Nations Development Programme
304 East 45th Street, 9th Floor
New York, NY 10017 USA
www.undp.org

Authors: Nancy Bennet and Ciara Daniels

Layout: Sandra Rojas

Cover photo: Lao Woman Democratic Republic © UNDP Photo Library

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This publication was printed on recycled paper

- **Editing*:*** Publications should be edited by an external editor. Contact Nancy Bennet for details.
- **Designer/Corporate approach*:*** A designer (Sandra Rojas) is available to work on UNDP-GEF publications. Please contact Nancy Bennet for details.

2. ***UNDP or External Party Publications that include UNDP Supported GEF/LCDF/SCCF Financed Projects*:** When one or more of the case studies in the UNDP or External party publication is a UNDP supported GEF/LDCF/SCCF financed project.

- **Acknowledgement box*:*** The support provided by UNDP and the GEF/LDCF/SCCF grant financing of the project (s) should be recognised in an acknowledgement box in the communications material (i.e. typically included on the in-side cover). If this is not feasible, UNDP support and GEF financing must be acknowledged in the section related to the UNDP supported GEF financed project.

a. UNDP publication acknowledgement box

We would like to recognize the many partners who have contributed to the projects outlined in this publication, and thank the Global Environment Facility (www.thegef.org) along *with insert names of other financial donors* for their financial contribution to these projects.

b. External party publication acknowledgement box

We would like to recognize the many partners who have contributed to the projects outlined in this publication, and the United Nation Development Programme (www.undp.org) and the Global Environment Facility (www.thegef.org) along *with insert names of other financial donors* for their support and financial contribution to these projects.

3. Project Communications: All project communication materials -including project videos, brochures, reports etc... - must follow the GEF guidelines: Enhancing the Visibility of the GEF

- **Logos**: The UNDP and GEF logos should appear on all project communication materials. For project videos, the UNDP and GEF logos must appear at the beginning or the end of a project video. Where space permits, both the UNDP logo and boilerplate text and the GEF logo and boilerplate text should appear in the video as well. See examples:

- http://www.facebook.com/video/video.php?v=404296136159

B. KEY RESOURCES:

1. ***GEF Resources***: Please visit the GEF website at www.thegef.org

- Enhancing the Visibility of the GEF
- GEF logo

2. ***UNDP Resources****:*

- **UNDP LOGO AND TAGLINE:**https://intranet.undp.org/unit/pb/communicate/tagline/SitePages/Home.aspx

This intranet portal assists UNDP staff to integrate the organization's new tagline ***'Empowered lives. Resilient nations.'*** Each folder provides guidelines on use and application of the new logo and tagline in various materials. The new branding with the tagline became effective in June 2011 and replaces previous standards. Please implement use of the UNDP logo and UNDP tagline in accordance with this guidance.

- **QUALITY ASSURANCE PROCESS (IN THE POPP)**

https://intranet.undp.org/global/popp/rma/Pages/seven-steps-quality-assurance-procedure.aspx

This procedure applies to all global and regional products and publications branded with the UNDP logo. Given that UNDP will continue to spend a significant amount of resources publishing online and print products, it is critical that branded products are of high quality and high utility. The UNDP Quality Assurance Procedure is designed to ensure that global and regional products and publications are peer-reviewed, strategic and geared to respond to the needs of clients. A good practice example from the Democratic Governance Group is attached.

- **BDP WRITER/EDITOR ROSTER**

http://intra.undp.org/bdp/writer-editor-roster.htm

To assist in meeting the editorial and production standards in line with the quality assurance process, BDP established a roster of writer/editors in the English language who are on LTAs with BDP. This can significantly reduce the time spent recruiting suitable writers/editors and help to ensure a high caliber of editorial input. BDP Units at Headquarters that need to engage a writer and/or editor must use one of the consultants from this roster.

- **UNDP TEMPLATES FOR KNOWLEDGE AND ADVOCACY PRODUCTS**

http://intra.undp.org/corporate-templates/index.html

This online tool is designed to help UNDP staff create strategic, cost-effective, consistent and high-quality knowledge and advocacy products with clear corporate branding. Please note that the templates were created prior to the tagline being introduced. For the advocacy products please ensure professional designers you use insert the logo with the new tagline on the front covers of these products. For the knowledge products please use the existing MS Word files until new templates are available with the tagline incorporated. The Strategy Note, Comparative Experience, and Discussion Paper templates allow you to replace the existing logo in the header with the new logo+tagline images made available by the Office of Communications (see (1) above).

8.7 INBio´s Experience On The Natural Product Development And National Capacities And Examples Of Similar Products

The agreements made with pharmaceutical companies such as Merck & Co, Bristol Myers Squibb, Eli Lilly & Co, among others, and the scientific collaboration agreements with world-famous universities, like Cornell and Harvard, have allowed the Bioprospecting Unit to have an invaluable development of internal capabilities, which is one of the most important calling cards for negotiating new contracts both with the national and international private sector, and with universities. Application of biotechnology for prospecting the biological diversity has arisen gradually and, in the same way as chemical prospecting, the contracts with the industries are those that have been providing the infrastructure and the equipment that this process currently has. The first steps in the use of biotechnological tools for prospecting biodiversity were taken in 1995, with the development of activities to search for active compounds from microfungi and in the framework of the INBio-Merck project. In 1996 a relationship was set up with Analyticom and subsequently with the Italian company INDENA, which made it possible to enlarge the microbiology laboratory and to carry out tests of biological activity. Other contracts signed between 1996 and 1998 with Recombinant Biocatalysist, which was subsequently converted into the current Diverse Company (today Verenimum), made it possible to set up the molecular biology laboratory which, with the transfer and introduction of proprietary protocols of the latter company, is currently extracting genetic material from bacteria that grow in extreme conditions, particularly from environmental samples obtained from protected areas of the country. These and other agreements of collaboration, no less important than those mentioned above, enable INBio-Bioprospecting Unit to have nowadays four duly equipped laboratories: chemistry, microbiology, molecular biology and mycology, from which the various research projects are developed and services are provided to the industry at both national and international level.

An interesting example of this is presented below where a partnership between INBio and the Costa Rican company Lisan has aimed to develop and market phyto-pharmaceutical and natural products.

Table 1. Joint partnership between INBio and Lisan Laboratories[16]

INBio, a not-for-profit non-governmental organisation, executed a programme devoted to the promotion of the sustainable use of biodiversity through biological resource-related product commercialisation, particularly through small enterprises. This programme was carried out with funding from the Inter-American Development Bank and its Multilateral Investment Fund. Under this framework, INBio and Lisan Laboratories – a generic pharmaceutical producer – concluded a "collaborative research agreement" for the development of plant-derived pharmaceutical (phyto-pharmaceuticals) products. This has allowed the launching of a new line of products, "Lisan Natura", with which Lisan Laboratories have acquired an advantage over local competitors that produce generic natural products without adequate quality control. Several products have been developed and registered as part of this collaboration.

In this case, INBio contributed its expertise and experience in plant extraction and chemistry, to a great extent derived from collaborations with international pharmaceutical companies. On the other hand, Lisan contributed its experience in quality control, product formulation and marketing. An initial confidentiality agreement was signed, which permitted the beginning of negotiations that resulted in the presentation of a research plan to the Executing Agency and its Advisory Committee that in turn resulted in signature of the cited research agreement. The collaborative relationship covered four main phases: administrative, research, knowledge transfer and pre-commercial development.

Among the results to date, we can cite:

A comprehensive laboratory procedure manual, including standardised extraction protocols;
A business and research relationship between a research institution and a small enterprise;
Material suppliers that comply with the Good Agricultural Practices standards;
Six types of products, including a gel, tablets and creams with different therapeutical effects;
Lisan Laboratories received an innovation award in 2003.

The experience showed that is possible to generate alliances between the research and productive sectors that result in commercial products promoting biodiversity conservation and economic development. It has shown the feasibility of transforming knowledge into commercial products through alliances. Of course, investment in research and development in innovative products is needed for this to happen.

Among the main impacts and lessons learned:

It was demonstrated that research and development can be led by developing country institutions;
The development of phyto-pharmaceutical protocols;
The generation of new capacity-building and job creation opportunities through the introduction of non-traditional products;
The sustainable use of biodiversity;
The benefits generated along the whole production chain, from technicians to material-providing farmers;
The usage of national technologies and knowledge;

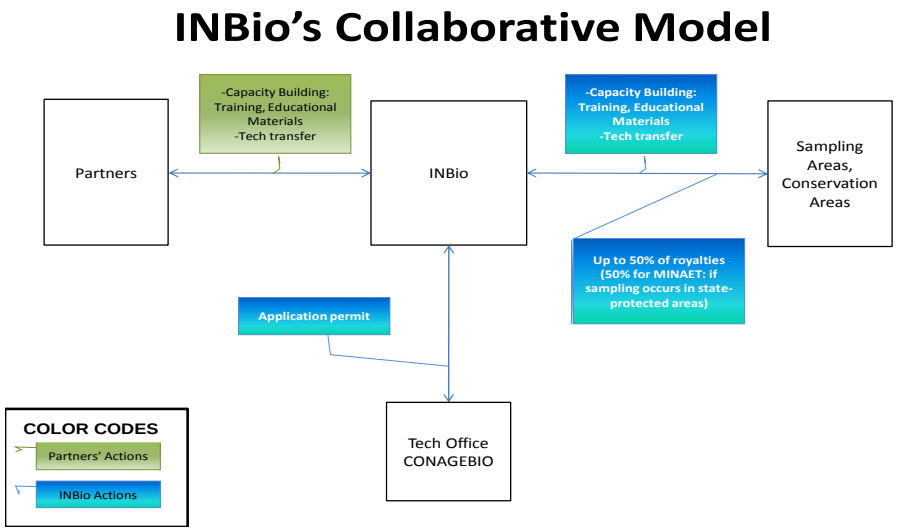
[16] UNDP. (2005). *Roadmap to commercialisation: Costa Rica, Sharing Innovative Experiences, Vol. 10: Examples of the Development of Pharmaceuticals products from medicinal plants*, New York.

Industry or academic	Natural resources	Application fields	Research activities in

The benefits derived from profits generated by product marketing will be used to promote similar initiatives;
Lisan Laboratories can offer high quality phyto-pharmaceutical products distributed widely in the country;
Under the agreement, INBio receives royalties derived from product marketing. These are divided 50/50 with the Ministry of the Environment to promote biodiversity conservation;
The project has prevented illegal extraction by acquiring materials only from legal suppliers. These suppliers must grow the resources in a sustainable way and comply with food agriculture practices;
Results and knowledge have been transferred to Lisan from INBio;
It is possible to acquire patents for certain procedures and therapeutical applications.

Strategic alliances are established by means of a scientific collaboration agreement. The contracts regulate in detail, among others, the following aspects of interest: the proposed agreement; definitions (including some substantive aspects, such as confidentiality); scope of work; funds available; managers (researchers and administrators); patenting and licensing of inventions; distribution of profits; material transfer (from the point of view of compliance with health and customs regulations, basically); termination; publications; reports; copyright; liability; settlement of disputes; clauses which extend beyond the termination of the agreement; etc. The Annex (Work Plan) sets out in detail the responsibilities of each one of the Parties and their joint responsibilities. Chart 3 describes the INBio Collaborative model.

Figure I INBio's collaborative model.



Vincularlo a párrafos 24 y 25. Para hacer síntesis, lo demás puede ir al anexo.

The following table below summarises the main collaborative agreements negotiated to date.

Table 2: **Most significant Research Collaborative Agreements with industry and academia from 1991-2013**

partner	**accessed or main goal**		**Costa Rica**
Cornell University	INBio's capacity building	Chemical prospecting	1990-1992
Merck & Co	Plants, insects, microorganisms	Human health; Veterinary medicine	1991-1999
British Technology Group ECOS	*Lonchocarpus felipei*, source of DMDP*	Agriculture	1992-2005
Cornell University, Bristol Myers and NIH International Cooperative Biodiversity Group (ICBG)	Insects	Human health	1993-1999
Givaudan Roure	Plants	Fragrances and essences	1995-1998
University of Massachusetts	Plants and insects	Agriculture	1995-1998
Diversa (Now VERENIUM)	DNA from non-cultivable bacteria	Industrial applications	1995-present
INDENA SPA	Plants*	Human health	1996-2005
Phytera Inc.	Plants	Human health	1998-2000
Strathclyde University	Plants	Human health	1997-2000
Eli Lilly	Plants	Human health; Agriculture	1999-2000
Akkadix Corporation	Bacteria	Agriculture	1999-2001
Follajes Ticos	Palms	Ornamental applications	2000-2004
La Gavilana S.A.	Microorganisms	Agriculture	2000-present
Laboratorios Lisan S.A.	Plants	Human health	2000-2004
Bouganvillea S.A.	Quassia amara	Agriculture	2000-2004
Agrobiot S.A.	Plants*	Ornamental applications	2000-2004
Guelph University	Plants*	Agriculture; Conservation	2000-2003
Chagaspace Project	Plants, fungi*, marine organisms	Human health	2001-2011
SACRO	Orchids	Conservation	2002-2008
Merck Sharp & Dohme	Training and education	IPR; Bioprospecting	2002-2006
Industrias El Caraíto S.A.	Nutraceutics	Human health	2001-2004
Harvard Medical School-International Cooperative Biodiversity Group R21	Endophytic fungi	Human health	2003-2005
Universidad de Panamá-OEA	Plants	Human health	2003-2004
Harvard Medical School-	Endophytic fungi	Human health	2005-2008

National Cooperative Drugs Discovery Group (NCDDG)			
Ehime Women College	Plants	Human health	2005-2008
Laboratorios Vaco S.A.	Microorganisms	Industrial applications	2005-present
Harvard Medical School - International Cooperative Biodiversity Group (ICBG)	Endophytic fungi-microorganisms, lichens and marine organisms	Human health	2005-present
Instituto Pfizer	Microorganisms	Human health	2005-2006
PNUD-BIOTRADE-UNCTAD-CAF	Implementation of the National Program of Biotrade	Biotrade	2005-2006
CONICIT	Spiders (DNA)	Molecular taxonomy	2004-2005
CONICIT	Plants	Human health	2005-2006
Korean Research Institute of Bioscience and Biotechnology (KRIBB)	Plants	Human health	2008
Harvard Medical School - Medicine for Malaria Venture (MMV)	Endophytic fungi	Human health	2007-2009
CONICIT	Microorganisms	Industrial applications	2008
CONICIT	Establishment of *Aedes aegypti* bioassay	Human health	2007-2009
Consejo Superior de Investigaciones Científicas de España (CSIC) Fundación CR USA	Microorganisms	Enzymes for industrial applications	2008
Consejo Superior de Investigaciones Científicas de España (CSIC) Fundación CR USA	Microorganisms	Human health	2008
BID-Fondo Chileno Universidad Adolfo Ibañez/Octantis	INBio's Capacity Building	Entrepreneurship	2008
International Cooperative Biodiversity Groups Michigan (lead), Harvard and INBio	Endophytic fungi-microorganisms, lichens and marine organisms, including for energy	Human health; Energy	2009-2014

	research		
EISAI	Fractions (from research on Endophytic fungi-microorganisms)	Human health	2008-present
Distribuidora Florex S.A (national company)	Enzymes, others	Industrial products for the cleaning sector	2010-2011
CONICIT	Endophytic fungi	Human Health	2010-2011
CR-USA-CSIC	Microorganisms	Human Health	2010-2012
CONICIT	Plants	Human Health	2012-2014
Pharmamar	Marine organisms	Human Health	2012-2017
Ciris	Microorganisms	Energy	2013-present

These agreements involve a significant amount of technical and scientific support from INBio. Fuente: INBIo´s Bioprospecting UNIT

As a result of these agreements, many benefits have been generated, including the following:

- Monetary benefits from direct payments
- Payment for samples supplied
- Research budgets covered
- Transfer of important technology which has enabled the development of the infrastructure at the Institute (biotechnology lab, etc.), which can be used for the investigation and generation of their own products
- Training of scientists and experts in state-of-the-art technology
- Negotiating experience and knowledge of the market and the probabilities of searching for intellectual uses for biodiversity resources
- Support of conservation through payments made to the Ministry of the Environment for strengthening of the National System of Conservation Areas
- Transfer of equipment to other institutions, such as to the University of Costa Rica
- Donation of equipment from partners
- Funding of publications and for the dissemination of scientific literature.
- Future royalties and milestone payments to be shared 50:50 with the Ministry of the Environment
- Establishment of national capabilities for assessing the value of biodiversity resources
- Royalties received from two products: a phytomedicine generated from the collaboration with Lisan (national company) and an industrial enzyme (Cottonase) for textile processing of cotton (an environmental friendly alternative for chemical scouring in cotton preparation) arising from the Diversa (now Verinium) collaboration. The enzyme cleans better than chemical scouring agents and also greatly reduces the need for extensive waste, waste treatment and energy consumption. A fluorescent protein has also been developed (with Diversa) royalties have accrued to INBio. 4 products with royalties.
- Access to drugs developed from collaboration on non-commercial and more favourable basis

Likewise the country has national capacities and examples of products and institutions actively working on the field of scaling up and commercialize new products derived from biodiversity. It also has qualified human resources for the

research and development in the areas of natural resources. The following data and information can be highlighted:[17] (Science, Tecnology and Innovation National Strategy/Estrategia Nacional de Ciencia, Tecnología e Innovación).

- Most of the researchers in this field are above 30-50 years old
- Most of them are working on agricultural biotechnology, health, food processing and environmental protection.
- 75% have some postgraduate degree (40% Msc and 35 a PhD)

At least 17 research centers use biotech techniques including the following:

- Centre of Molecular and Cellular Biology; Centre of Agronomy Research; Center for Natural Products Development; Centre for Grains and Seeds of the UCR; CATIE; Agrarian Science School of the UNA; Center for Biotechnology Research of the Technological Institute; National Agricultural Research Center (INTA); Center for Coffee Research (ICAFE) among others.

- In the private sector at least 50 companies undertake some biotechnology research and development, including Dos Pinos, Florida Products, Agrobiotecnología of Costa Rica, Chiquita Brand, CORBANA, Vitroplants, Innovaplant, Agrobiot, Linda Vista, Orquídeas del Bosque, Laboratorio Tico Plantas, etc.

The investment in this sector will promote opportunities for development considering the international recognition of the strategic value of biodiversity for the sustainable development and the fact that there is an agroindustry cluster already functioning in the country

Some examples of biotech research, development and scaling developed by CENIBIOT are:

- Development of a fermented beverage from the coffee pulp (pulpa del café)
- Scale production of a biopesticide for the control of the Broca del Café (*pothenemus hampei*)
- Preparation of a biofertilizer formulated from *Azotobacter spp*
- Use and preparation of a Costa Rican BT strain (cepa) for the production of a bioinsecticide against the *Spodoptera frugiperda* capable of industrial scaling
- Scaling up of the production of microorganisms for the use in the biological control of plant pathogens
- Scaling up of microorganisms used as bio-fertilizers and bio-controllers
- Scaling up of micro-fungi and extraction of enzymes for their use in the food industry (a INBio-VACO initiative)
- Industrial Production of *Trichoderma spp* for its use as biofungicide

Finally, around 90% of the SMEs use their own funding for research, development and to carry out innovation

However, the National Science, Technology and Innovation Strategy clearly points out that funding, economic resources and instruments and incentives are needed for the development of join private and public sector projects and

[17] Science, Technology and Innovation Strategy, pages 38 and following

initiatives in order to develop innovations and products that finally reach the market. Risk capital and financial instruments are mentioned as indispensable components for the promotion of projects in this field. This particular barrier can be overcome by the Project Alternative Scenario and GEF Intervention.

In the case of instruments supporting the development of innovative products they country has also developed several legal, institutional and policy measures, including those found under the Law for the Promotion of Science and Technology (No. 7149) and its regulations (Decree No. 31296-MICIT-MEIC) and the Law for the Strengthening of the SME (No. 8262) and the regulations thereof (including the decree No. 37121-MEIC-MICIT and the decree No. 37168-MICIT-MEIC which creates a program for the strengthening for the innovation and technological development of SME). Several funding opportunities and technical assistance is provided in accordance to these laws but it also presents difficulties in terms of the conditions needed for accessing the resources and the maximum amount of funding available per project and per year.

Regarding the potential of market for biological products[18], in the crop protection industry chemical discovery has been aided significantly through the use of genomics to identified suitable product candidates and combinatorial chemistry which has increased the number of products subject to biological screening. Crop protection sales have climbed steadily over the past 2 decades from US $ 25 billion in 1990 to almost US $ 40 billion in 2010 .One of the greatest demands in crop protection industry is to develop new insect control traits particularly to manage resistance. Here chemical discovery has been aided significantly by genomics to identify suitable candidates and combinatorial chemistry has increased the number of products subject to biological screening.

Some examples of products in the crop protection area develop using natural product approach are the following

Table 3. Examples of crop protection agents derived from biodiversity/natural products.

- **Plandak®-Banadak**: a new alternative for the natural control of the Black Sigatoka developed by Sustainable Agro Solutions S.A. This crop protection agent acts as a complement or alternative to chemical fungicides used in the control of the plague. It provides several environmental benefits including the lack of toxicity for humans and animals.

- **ActiGen®** by Nova S.A: Plant Activator of natural origin. It induces defense responses against different predators and also works as a growth stimulator.

- **Regalia®:** a biofungicide from giant knotweed (*Reynoutria sachalinensis*) launched by Marrone Bio Innovations in 2008, has proven efficacy in the control of powdery mildews, gray mold, bacterial leaf spots and bacterial blights. The main active ingredients are emodin and physcion. The product induces plant immune system to produce phytoalexins, PR proteins, phenolics and antioxidants and has a strenghthening effect. In 2012, Fungicide Resistance Action Commitees (FRAC) created a new code designate as P5 for Regalia's active ingredient, which fea-

[18] Markandya, A., & Nunes, P. Sharing benefits derived from genetic resources. In P. Ten Brink (Ed.), The Economics of Ecosystems and Biodiversity in National and International Policy Making. London and Washington: Earthscan, 2011 and Laird, Sara and Rachel, Wynberg, Bioscience at the Crossroads: implementing the Nagoya Protocol on Access and Benefit Sharing in a time of Scientific, Technological and Industry Change, CBD, 2012

tures a unique induced systemic resistance (ISR) mode of action. Efficacy has been demonstrated in trials with berries, citrus, cucurbits, grapes, ornamentals, leafy greens, peppers, strawberries and tomatoes.

- **Timorex Gold™**: is a natural fungicide based on an extract of the Tea Tree (*Melaeuca alternifolia*) developed by Biomor of the Swiss Stockton Agrimor. It exhibits high prophylactic and curative efficacy against Black Sigatoka in banana, since at concentrations of 0.1% the product inhibits the spore germination in 100 % and also inhibits the mycelial growth of the fungus. Timorex Gold™ is a non residual product, safe to beneficial insects, environment and humans (New AG International, Plant Protection Corner, 2010).

- **Ecoswing®:** developed by the Colombian company EcoFlora S.A, is a wide action natural preventive and curative fungicide based on alkaloids isolated from Rutaceae. Compared to synthetic products it presents important advantages: it does not leave toxic residues and does not present risk to the health of agricultural workers and consumers of the treated fruits. Also, being a natural product that combines a mixture of synergistic ingredients, it reduces the risk of pest resistance development.

- Atlántica Agrícola Natural has developed a series of natural products (bio-fortificants) such as Aradium: **Funres and Nemagold-Tagelis among others.**

- Agraquest biofungicides **Rhapsody** and three formulations of **Serenade**, all of which use the company's QST 713 strain of *Bacillus subtilis* to release various compounds that attack fungal and bacterial pathogens. Serenade Max and Serenade ASO are registered for use against certain blights, moulds, blots and rots on various fruits, vegetables and against sclerotinia, brown spot and frog eye in soybeans, while Serenade CPB is approved for use against sclerotinia in canola, soybeans and pulses. Rhapsody is approved for treatment of certain diseases on various hothouse ornamentals, hothouse vegetables and turf crops.

- **Votivo™**: developed by **AgroGree**n from which Bayer Crop **Science has** acquired several biological products is based on a *bacterial strain* of *Bacillus firmus* and applied to seeds for bioprotection against nematodes. The patented active ingredient ensures production of naturally occurring essential enzymes and phytohormones. Enzymes from the bacterial strain break down the proteins in the nematode eggshells, while phytohormones set free by the bacteria stimulate growth of the roots and shoots. Once the root has already formed lignified tips, the pests can no longer penetrate it.

In particular in the case of Costa Rica some successful experiences that can be presented are as follows:

A new biological insecticide against *Spodoptera frugierpeda* a plague which affects crops like maize, rice, cotton and other, is in process of development by the Center for Molecular and Cellular Biology of the University of Costa Rica which can reduce the use of conventional pesticides in agriculture. The strain is highly toxic for the insects and comes from the North region of the Country (Los Chiles). The development is a joint effort between the Center, CENIBIOT and a well known and experienced private company in the formulation field RIMAC SA (http://www.vinv.ucr.ac.cr/index.php?option=com_content&view=article&id=1331:cientificos-desarrollan-insecticidas-naturales-contra-plagas-agricolas&catid=1&Itemid=68)

Another case is the product named “Rocky” developed by the national company Bioprocesos which stimulates the

natural defenses against fungi and bacteria in different crops such as rice, maize, tomato, papa, etc, The product has low toxicity for humans and animals and low environmental impacts.

Laboratorios Dr. Obregón developed and registered a series of microorganism-based products such as the biofertilizers Bioprotection AZV-C (*Azotobacter*) and Bioprotection fosforin (*Pseudomonas fluorescens*), Bioprotection Leca for insect and nematode control (*Lecanicillium spp*) and Actinel (*Streptomyces griseoviridis*) for bacterial control and growth promoter.

8.8 Nagoya Protocol Main Provisions, Implications For National Implementation, Relevant Baseline Information Required And Current National ABS Framework.

Nagoya Protocol	National Level Actions Required	Baseline Information useful
Article 1: Objective	No specific legal actions to be taken. Any legal, administrative or policy measure must consider the general objective of the instrument. Fair and equitable benefit sharing must guide any legal, administrative and policy measures to be adopted by Parties in their national legislation	Objective is compatible with national legislation and practices
Article 2: Use of Terms	No specific actions. Legal instruments usually incorporate the new definitions: "derivatives" and "utilization", as it had happened in the past with the CBD relevant definitions included in ABS legislation (e.g. genetic resources, etc). Definition of utilisation of GRs is a new innovation. Seeks to capture and resolves 'derivatives issue". Some lack of clarity as to whether all the derivatives are included or not in the Protocol (e.g derivates accessed without simultaneously having access to the genetic resources). National legislation can provide some clarity on how to understand, from a practical point of view, the issues of utilization and derivatives and expand the glossary of	National legislation does not considered the term utilization The amendment of regulations to include the new definition and provide more clarity on the scope of the ABS regimen is a possible step to update the legal measures on ABS. Relevance and value of the derivatives in the national context.

	terms. Drafting of legislation should take into consideration the protocol´s objectives.	
Article 3: Scope	No specific legal actions to be taken. Some of the contentious issues arising out in the negotiations are not included expressly in the text of the Scope. National legislation may provide clearer clarity about the scope by defining a list of exceptions or a "positive" list of issues covered by the legislation.	Revision of the exceptions of the BL in order to provide more clarity and consistence with the Scope of the Protocol.
Article 4: Relationship with International Agreements and Instruments	No specific legal actions for Countries, except the recognition at the national level of any specialized ABS systems National level actions must create a synergistic implementation between the international obligations, specially those related to the specialized ABS systems Room of space should be available for new and emerging ABS sectoral regulations	Identify relevant legal instruments, processes and labours for the purpose of drafting the legislation, including WTO, WIPO, WHO, FAO, UNGA, among others Lack of clarity regarding the implementation of the International Treaty of the FAO which was ratified by the Country in 2006.
Article 5: Fair and Equitable Benefit-Sharing	Direct obligations to " adopt" measures (paragraphs 2, 3 and 4) Three types of situations are addressed here: Fair and equitable sharing arising out of utilization of genetic resources Fair and equitable arising out of utilization of GR in possession of indigenous and local communities lands Fair and equitable arising out of utilization of associated TK Countries should begin to implement this provision immediately in light of the Protocol objectives.	Identify national legal framework and the rights established for indigenous and local communities over their genetic resources National legislation is compatible with this provision.
Article 6: Access to Genetic Resources	Obligation to design legal, administrative or policy ("take") frameworks considering the general principles outline in article 6.3. Conditional obligation in the situation of	Analysis of the basic conditions in the legal regimen for processing and granting permits, including contractual and administrative law where relevant.

	article 6.2 (" in accordance to domestic law" and "as appropriate"). There are not specific legal measures to be put in place, but any measure must follow the characteristics of this article.	Information about rights of indigenous and local communities over the genetic resources which are in their possession, including any relevant international obligation. National legislation is compatible with this provision.
Article 7: Access to Traditional Knowledge Associated with Genetic Resources	Obligation to adopt or take measures qualified for the terms "in accordance to domestic legislation "and "as appropriate". In the process of the enactment of national measures articles 7 and 12 could be considered jointly Equity and public participation should guide any actions regarding implementation of this article.	Identify the domestic (including international) legislation in place regarding this issue National legislation is compatible with this provision. A pending task for the country is the determination of the content of the sui generis communitarian rights for the protection of Traditional knowledge (TK).
Article 8: Special Considerations	Mix of different levels of actions required (shall): "Create" conditions to promote, **including** through simplified .Access for research. "Pay due regard" to… "Consider" National measures should be put in place to implement these general obligations, including the simplified procedures for non-commercial research, taking into consideration the practical difficulties to draw the line between commercial and non commercial research. Some examples found in comparative legislation Implement measures to expedite procedures and secure benefit sharing in cases of national or international emergencies, fulfilling cooperation duties. These obligations should be considered in the broader process of the development of	Identity needs o the national basic research community, including taxonomic research. Revise patterns of utilization of GR for the non-commercial sector in the country and identify needs Identify relevance of Plant Genetic Resources for Food and Agriculture (PGRFAA) for the Country Revise legal framework regarding sanitary emergencies in place including international obligations National legislation does not differentiate in practice non commercial research. New measures should be considered to facilitate non commercial research, including procedures, definition of commercial versus non commercial and regulation of the change of intent (

	national ABS measures, including legislation.	potential situations and cases)
Article 9: Contribution to Conservation and Sustainable Use	Obligation to " encourage" users and providers Measures should be pursued with the aim of support conservation as an environmental objective. Linking conservation and ABS should be a goal for the entire ABS legislation and should be reflected and integrated in the entire ABS measure	Identify potential impact of BS arising from Utilization on conservation activities and ways to strengthen the impact. National legislation provides some mechanisms to encourage this contribution. However, new measures could be explored
Article 10: Global Multilateral Benefit-Sharing Mechanism	Parties may first consider this possibility as an option in the second meeting of the ICNP. Collective action to be taken first by the MOP. Had there been extraterritorial and temporal application of the NP been resolved then the function of this provision would have been clearer Reference to multilateral mechanisms, existent or future, in cases where PIC cannot be granted or obtained, et could be considered for their inclusion in any ABS legislation.	No particular actions needed at the national level so far.
Article 11: Transboundary Cooperation	Obligation to "endeavour" cooperate for the Parties with shared GR or associated TK. National legislation should consider concrete mechanisms to implement this general provision, including examples found in comparative legislation.	Identity possible cases and importance of transboundary or shared GR and associated TK National legislation is silent in this aspect
Article 12: Traditional Knowledge Associated with Genetic Resources	Language conditional " in accordance with domestic laws" "take into consideration" 12.1 12.2 Direct obligation to " establish"	Identify current legal framework due to the qualified language in the provision. Analyze the situation of customary law

	12.3 obligation to " endeavour to support" Concrete measures, should be put in place to create more equity and legal certainty in the negotiations, particularly by improving the indigenous peoples and local communities opportunities and to empower them properly.	and the role and value of community protocols National legislation does not address the issue of Biocultural Protocols or customary law. However, other relevant legal measures could be applicable in a broader context.
Article 13: National Focal Points and Competent National Authorities	Short term obligation to designate these authorities and establish the functions described in this article. Legal or administrative measures should allow authorities to develop this functions properly	National Competent Authority (NCA) exists. A revision and possible addition of new functions is required
Article 14: The Access and Benefit-Sharing Clearing-House and Information-Sharing	Obligation to submit/make available information to the ABS CHM	Appropriate Communication and information technologies need to be in place.
Article 15: Compliance with Domestic Legislation or Regulatory Requirements on Access and Benefit-Sharing	Measures to be determined at national level with the guidance of the MOP (article 15.1 and 15.1). Conditional obligation to : " as far as possible and as appropriate ¨cooperate (15.3) At the national level countries can to immediately begin to create appropriate measures to secure compliance with other countries legislation and provide measures for cooperation in cases of breaches in national law A set of options is available Countries have the opportunity to demonstrate good faith by describing the steps they will undertake to secure compliance and create a functional system to support other countries.	Relevant information on options and legal and administrative measures to support other countries national legislation The Secretariat of the CBD documents produced during the International Regimen negotiations and the results of the Technical and legal Expert Groups on compliance and the certificate may provide relevant input. No measures have been explored or develop for any of the 3 paragraphs.

Article 16: Compliance with Domestic Legislation or Regulatory Requirements on Access and Benefit-Sharing for Traditional Knowledge Associated with Genetic Resources	Same explanation of article 15.	Same.
Article 17: Monitoring the Utilization of Genetic Resources	Direct obligation to "take measures". Measures will include at least check points to be determined and sanctions to be determined. Other measures are qualified as " to encourage" Permit (or equivalent) will become the international certificate (mandatory content in article 17.4) It is possible for countries to immediately exercise this option and create appropriate measures to secure mandatory disclosure of information at appropriate check points and sanctions in cases of non- compliance by the users. This could required legally binding measures depending on the country legal system (fees, etc) Set of options/check points available Countries have the opportunity to demonstrate good faith by beginning a quick implementation of this provision. National legislation should also encourage systems to be adopted by users to support the monitoring of GR and associated TK	Identify possible check points in accordance to the description presented in this article and the best options available for an appropriate implementation in the light of the Protocol objectives. Check points are limited (in accordance to the national legislation only IP offices and just for national genetic resources or associated TK) and are not sufficient to fulfil the mandates of this article.
Article 18: Compliance with Mutually Agreed Terms	Obligation to " encourage" users and providers (article 18.1) Stronger obligations to ensure (article 18.2) and take measures (article 18.3)	Relevant understanding of existent mechanisms found in the legal system regarding access to justice and recognition of foreign sentences and awards

		National legislation is compatible. Administrative practices could be developed to provide more guidance on the implementation of this article.
Article 19: Model Contractual Clauses	National obligation to "encourage"	Compilation of existence codes and model clauses. Review of national initiatives on this matter WIPO has developed useful sources of information, including on line resources Model Material Transfer Agreement (MTA) is appended to an ABS regulation More analysis is required to determine if new model clauses are needed and how to include them in the national framework.
Article 20: Codes of Conduct, Guidelines and Best Practices and/or Standards	National obligation " to encourage" National recognition of best practices and an special treatment for the adherents to some Code of Conducts could be considered taking into account the need to promote compliance and certainty.	SCBD has developed useful sources of information, including on line resources Review of national initiatives No actions has been taken so far.
Article 21: Awareness-Raising	Direct obligation to take measures to increase awareness raising. Indicative list provided National legislation should provide guidance on effective awareness raising e.g. with the research community	Some activities have been develop to raise awareness but there is not a systematic approach or framework targeted to the different needs of stakeholders.
Article 22: Capacity	At the national level countries " should" facilitate participation…and . "should" identify its needs and priorities… This requires basically a policy measure to allow or facilitate participation in line with basic principles of sustainable	Some actions have been undertaken in the past. However capacity development is a key are in this field in the country.

	development,	
Article 23: Technology Transfer, Collaboration and Cooperation	Obligations for the "Parties" National legislation should address technology transfer (TT), including concrete incentives to promote tech transfer	Different analysis exists on the issue of TT in the field of the biodiversity/genetic resources, including SCBD documents and papers as well other organizations, UNCTAD, UNEP, etc. relevant studies on practical ways to achieved TT.