TERMINAL EVALUATION OF THE UNDP / GEF PROJECT:

# "REALIZING THE POTENTIAL OF NATIVE MICROBES IN THE AGRICULTURAL AND MEDICAL SECTORS, IN ACCORDANCE WITH THE NAGOYA PROTOCOL"

Project Evaluator: Carlos Ludena

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# Opening Page

**Title of UNDP-supported GEF-financed project**: Realizing the potential of native microbes in the agricultural and medical sectors, in accordance with the Nagoya Protocol

**UNDP PIMS ID:** 5979

**GEF ID**: 10142

**TE timeframe and date of final TE report**: 05/25/2023 – 07/31/2023

**Region and countries included in the project**: RBLAC - Panama

**GEF Focal Area/Strategic Program**: Biodiversity

**Executing Agency/Implementing partner:** UNDP

**Project partners**: Ministry of Environment (MiAMBIENTE) as IA, and INDICASAT as EA

**TE Team members**: Carlos Ludeña (carlosludena@gmail.com)

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# Table of Contents


Opening Page 2

Acknowledgements 3

List of Acronyms and Abbreviations 6

Executive Summary 7

Project Summary Table 7

Brief Project Description 8

Evaluation Rating Table 8

Summary of conclusions, lessons and recommendations 9

1. Introduction 11

1.1. Scope of the Evaluation 12

1.2. Methodology 12

1.3. Structure of the evaluation report 13

2. Project Description 13

3. Findings 16

3.1. Project Design and Formulation 16

Analysis of Logical Framework Approach /Results Framework (Project logic /strategy; Indicators). 16

Assumptions and Risks. 16

Lessons from other relevant projects incorporated into project design. 17

Planned stakeholder participation. 17

Replication approach. 18

UNDP comparative advantage. 18

Linkages between project and other interventions within the sector. 18

Management arrangements. 18

3.2. Project Implementation 19

Adaptive management. 19

Partnership arrangements. 19

Feedback from M&E activities used for adaptive management. 19

Project Finance. 20

Monitoring and evaluation: design at entry and implementation {*}. 22

UNDP and Implementing Partner implementation / execution coordination, and operational issues. 22

3.3. Project Results 23

Overall results {attainment of objectives). 23
Relevance. 23
Effectiveness & Efficiency. 25
Country ownership. 31
Mainstreaming. 31
Impact. 32
Sustainability. 32
3.4. Conclusions, Recommendations & Lessons Learned 33
Summary of the main findings 33
Conclusions 34
Recommendations for the design, implementation, monitoring, and evaluation of the project. 35
Recommendations as actions to follow up or reinforce initial benefits from the project. 35
Proposals for future directions underlining main objectives. 36
ANNEXES 38
Annex 1. Terms of Reference for the evaluation 39
Annex 2. Individuals consulted 51
Annex 3. List of documents reviewed and consulted 55
Annex 4. Evaluation Criteria Matrix 56
Annex 5. Evaluation Consultant Agreement Form 65
Annex 6. Terminal Evaluation Audit Trail 66
Annex 7. Summary of the Rating Scales 67
Annex 8. Theory of change 68
Annex 9. Implementation arrangements 69
Annex 10. Logical Framework of the Project and fulfillment of deliverables 70
Annex 11. TE Report Clearance Form 73

**Table A1: Evaluation Ratings Table** ..... 8
**Table A2: Evaluation Ratings Scales** ..... 9
**Table A3: Recommendations Table** ..... 11
**Tabla-1: Co-Financing allocations** ..... 20
**Table-2: Budget execution per year (2021 and 2022)** ..... 21
**Table-3: Budget and expenditure by project component (as of 15 June 2023)** ..... 21
**Tabla-4: Logical Framework of the Project and fulfillment of deliverables** ..... 27

## List of Acronyms and Abbreviations

| | |
|---|---|
| ABS | Access and Benefit-Sharing |
| CBD | Convention on Biological Diversity |
| CC | Climate Change |
| CO | Country Office |
| CPAP | Country Program Action Plan |
| EA | Executing Agency |
| FPIC | Free Prior Informed Consent (CLIP in Spanish) |
| GCF | Green Climate Fund |
| GEB | Global Environmental Benefits |
| GEF | Global Environment Facility |
| GHG | Greenhouse Gases |
| ha | Hectares |
| IA | Implementing Agency |
| IDIAP | Institute of Agricultural Innovation of Panama |
| INDICASAT | Institute for Scientific Research and High Technology Services |
| IPR | Interim Progress Report |
| M&E | Monitoring and Evaluation |
| MiAMBIENTE | Ministry of Environment |
| MIDA | Ministry of Agricultural Development (MIDA in Spanish) |
| MRV | Measurement, Reporting and Verification |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NDA | National Designated Authority |
| NGO | Non-Governmental Organization |
| NIM | National Implementation Modality |
| NP | Nagoya Protocol |
| PA | Protected Areas |
| PEGs | Progress, Effectiveness, and Gaps |
| POPP | UNDP's Programme and Operations Policies and Procedures |
| ProDoc | Project Document |
| R&D | Research and Development |
| SCAP | Specialty Coffee Association of Panama |
| SDG | Sustainable Development Goal |
| SENACYT | National Secretariat of Science, Technology and Innovation |
| SEP | Stakeholder Engagement Plan |
| SESP | Social and Environmental Screening Procedure |
| TE | Terminal Evaluation |
| ToC | Theory of Change |
| ToR | Terms of Reference |
| UNACHI | Autonomous University of Chiriqui |
| UNDAF | United Nations Development Assistance Framework |
| UNDP | United Nations Development Programme |

# Executive Summary

## Project Summary Table

| Project Details | | Project Milestones | |
|---|---|---|---|
| Project Title | Realizing the potential of native microbes in the agricultural and medical sectors, in accordance with the Nagoya Protocol | GEF Approval Date (CEO Endorsement Date): | 07/21/2020 |
| UNDP Project ID (PIMS #): | 5979 | Date of 1st disbursement received from GEF | 01/31/2021 |
| GEF Project ID: | 10142 | ProDoc Signature Date: | 10/19/2020 |
| UNDP Atlas Business Unit, Award ID, Project ID: | 00101154 | Date Project Manager hired: | 02/15/2021 |
| Country/Countries: | Panamá | Inception Workshop Date: | 10/22/2020 |
| Region: | Central America | Terminal Evaluation Completion date: | 07/31/2023 |
| Focal Area: | Biodiversity | Planned Operational Closure Date: | 10/19/2023 |
| GEF Operational Programme or Strategic Priorities/Objectives: | BD-3-9 Further development of biodiversity policy and institutional frameworks through the Implementation of the Nagoya Protocol on Access and benefit sharing | Actual Operational Closure Date: | 10/30/2023 |
| Trust Fund: | GEFTF | | |
| Implementing Partner (Executing Entity): | UNDP | | |
| NGOs/CBOs involvement: | NGOs engaged as consulting firms; CBOs involved through consultations | | |
| Private sector involvement: | through consultations | | |
| Geospatial coordinates of project sites: | 8°51'37.83"N; 82°46'26.15"O, 8°49'15.26"N; 82°28'56.12"O and 9°22'47.26";82°34'26.34"O. | | |

| Financial Information | |
|---|---|
| **(1) GEF Funding** | |
| Total GEF funding: | USD 863,242 |
| Total Budget administered by UNDP | USD 863,242 |
| **(2) Co- Financing** | |
| UNDP | USD 185,515 |
| Ministry of Environment | USD 1,140,000 |
| National Secretariat of Science, Technology and Innovation (SENACYT) | USD 1,140,000 |
| Panama's Scientific Research and High Technology Services Institute (INDICASAT) | USD 11,799,544 |
| Think Tank UNACHI | USD 20,000 |
| Advanced Biocontroller S.A. | USD 250,000 |
| **Total Co-Financing** | USD 14,535,059 |
| **Grand-Total Project Financing (1+2)** | USD 15,398,301 |

## Brief Project Description

The **overall objective** of the project was to:

- Support the realization of the potential of native microorganisms to contribute to the agricultural sector, while generating global environmental benefits (GEB), in accordance with the provisions of the Nagoya Protocol (NP).

The project built on the achievements of UNDP-GEF Project 4780, expanding the previous approach to include microbes that have the potential to be used as biological crop protection agents. The project also sought to have a positive impact on people's lives, their livelihoods, and the way they interact with biodiversity. This was achieved through the following three interrelated components:

- Component 1: Developing a product for the crop protection industry.
- Component 2: Facilitating access, benefit sharing, and biodiversity conservation based on the development of a product for the crop protection industry.
- Component 3: Gender-sensitive monitoring and evaluation (M&E)

The project was designed to contribute to the Implementing the Nagoya Protocol on Access and Benefit Sharing entry point under Objective 3 of the GEF Focal Area on Biodiversity. Considering the achievements of the UNDP-GEF project 4780; the project focused principally on the capacity building contemplated under GEFTF support to Programme 8, including institutional capacity-building to carry out research and development to add value to genetic resources, and capacities among stakeholders to negotiate between providers and users of genetic resources.

Additionally, the project contributed to Aichi Target 16, that the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation. By contributing to the sustainable availability of biological crop protection agents, it also contributed to Target 7, that areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

## Evaluation Rating Table

The Evaluation Ratings Table consolidates individual ratings undertaken in several areas within the main TE report, as detailed in the TE report's 'Section 3. Findings'. The rating scales used in a TE report are described in Table A2.

***Table A1: Evaluation Ratings Table***

| 1. Monitoring & Evaluation (M&E) | Rating |
|---|---|
| M&E design at entry | S |
| M&E Plan Implementation | S |
| Overall Quality of M&E | S |
| **2. Implementing Agency (IA) Implementation & Executing Agency (EA) Execution** | **Rating** |
| Quality of UNDP Implementation/Oversight | S |
| Quality of Implementing Partner Execution | S |
| Overall quality of Implementation/Execution | S |
| **3. Assessment of Outcomes** | **Rating** |
| Relevance | HS |
| Effectiveness | S |

| | |
|---|---|
| Efficiency | S |
| Overall Project Outcome Rating | S |
| 4. Sustainability | Rating |
| Financial sustainability | ML |
| Socio-political sustainability | L |
| Institutional framework and governance sustainability | ML |
| Environmental sustainability | N/A |
| Overall Likelihood of Sustainability | ML |

***Table A2: Evaluation Ratings Scales***

| Ratings for Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight, Execution, Relevance | Sustainability ratings: |
|---|---|
| 6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings<br>5 = Satisfactory (S): meets expectations and/or no or minor shortcomings<br>4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings<br>3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings<br>2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings<br>1 = Highly Unsatisfactory (HU): severe shortcomings<br><br>Unable to Assess (U/A): available information does not allow an assessment | 4 = Likely (L): negligible risks to sustainability<br>3 = Moderately Likely (ML): moderate risks to sustainability<br>2 = Moderately Unlikely (MU): significant risks to sustainability<br>1 = Unlikely (U): severe risks to sustainability<br><br>Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability |

## Summary of conclusions, lessons and recommendations

Some of the project **key aspects for success** include:

i. Ministry's active role during implementation. The Ministry of Environment (MiAMBIENTE) and the Ministry of Agricultural Development (MIDA) through the Institute for Agricultural Innovation (IDIAP) played an active role in the project implementation, ensuring the ownership of the process by the Government sectoral Ministries. The active participation of the Ministries also strengthened the institutional image of the institutions, especially MiAMBIENTE, which has been recognized by many as an entity focused on control and compliance with permits, rather than on the implementation of projects that promote local development. In addition, IDIAP has technical personnel on the ground, which is recognized by local producers and has allowed IDIAP to play an active role during the work in the territory.

ii. Coordination and synergies between institutions and stakeholders. Several stakeholders interviewed during the information gathering process with key actors highlighted the inter-institutional and multi-stakeholder coordination. It has been mentioned that in the past it has been very difficult to implement projects involving more than one ministry, however, this project has shown the potential for outstanding coordination between the ministries involved,

as well as with other key stakeholders for implementation such as INDICASAT, University of Panama, Autonomous University of Chiriqui (UNACHI) and the Chiriqui Coffee Producers Associations.

iii. Gender and vulnerable groups mainstreaming. During the design of ProDoc, a Gender Action Plan was designed, and basic indicators were defined to monitor the implementation of the gender variable. Although it has been mentioned that the gender indicators and the actions proposed within the framework of the action plan were general in nature and focused especially on the effective participation of men and women, many stakeholders emphasized that the project was able to work on gender issues from a comprehensive, rather than isolated, point of view. In addition, through training for stakeholders involved in the implementation of activities (especially MiAMBIENTE and INDICASAT), these institutions were strengthened in their actions in this area. In the case of MiAMBIENTE, it is recognized that this institution has managed to mainstream the gender approach in its activities and tasks to a greater extent. Finally, the high participation of women at both the scientific and local levels (coffee producers, heads of farms) is noteworthy.

iv. Applied research approach (local trials). A key success factor was the collection of samples in different farms selected in buffer zones of Protected Areas (PA). Afterwards initial trials were carried out for the structural determination of extracts and compounds, which were then subjected to a succession of in vitro, in vivo, and field trials for the development of a crop protection product for use against coffee pathogens.

v. Capacity Building. Development of various training processes on relevant topics for the development of the project allowed a more active participation of the stakeholders involved in the development of the activities. In this context, it is important to highlight the training on the inclusion of the gender variable, technical training related to the Nagoya Protocol, biodiversity protection, intellectual property, patents and negotiations.

Some of the **weak points** of the project include:

i. Impacts of the COVID 19 pandemic. The COVID 19 pandemic delayed the start of the activities, especially the visits to the farms and the collection of samples. In addition, the work of the University of Panama for the survey of the vegetation cover around the coffee-growing areas was affected, given that the severe restrictions of mobilization did not allow the trips to the territory in the initially programmed schedules. Although it was finally possible to collect most of the planned samples, some species could not be identified because the survey was not carried out during the flowering period of the plant. Another impact of the pandemic was the delay of laboratory work by INDICASAT, this aspect is also closely related to the collection of samples.

ii. Segmentation of communications and capacity building. While recognizing the great effort in the development of products and means of dissemination, several stakeholders recognized that the information was not always correctly targeted to the different audiences. Especially for local stakeholders, a finer segmentation was lacking, considering that there are great differences between the producers of the different communities (extension producers, small producers as well as coffee farm owners and field workers).

***Table A3: Recommendations Table***

| Rec # | TE Recommendation | Entity Responsible | Time frame |
|---|---|---|---|
| A | Category 1: Recommendations for the design, implementation, monitoring and evaluation of the project | | |
| A.1 | Inclusion of training in project management and financial administration for actors involved in the execution of funds and project management | UNDP | Short/ medium term |
| A.2 | Strengthen Stakeholder Engagement Plan. | MiAMBIENTE | Short/ medium term |
| B | Category 2: Recommendations as actions to follow up or reinforce initial benefits from the project | | |
| B.1 | Creation of an ABS Business Facility for genetic/biological resources | MiAMBIENTE, INDICASAT, MIDA | Medium/ long term |
| B.2 | Strengthen gender analysis with updated research | MiAMBIENTE, Ministry of Women | Medium term |
| B.3 | Continue and expand communication products and media at local level | UNDP, MiAMBIENTE, Think Tank | Short/ medium term |
| B.4 | Continue capacity building and knowledge and information management with an active involvement of local producers. | MiAMBIENTE, INDICASAT, MIDA, IDIAP | Short/ medium term |
| B.5 | Establishment of a local research center. | UNDP, INDICASAT, International Cooperation, MiAMBIENTE, UNACHI | Medium/ long term |
| B.6 | Participatory negotiation of benefit-sharing agreements. | MiAMBIENTE, INDICASAT | Short term |
| B.7 | Establishment of a national biodiversity database | MiAMBIENTE | Long term |
| C | Category 3: Proposals for future directions underlining main objectives | | |
| C.1 | Strengthening of a national interdisciplinary network/commission on genetic resources | MiAMBIENTE, INDICASAT, University of Panamá, UNACHI, MIDA, IDIAP | Short/ medium term |
| C.2 | Scaling up national capacities around the Nagoya Protocol | MiAMBIENTE, INDICASAT, University of Panamá, UNACHI, | Medium term |

# 1. Introduction

1. This TE was developed according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects. The evaluation was conducted based on sound principles of integrity, honesty, confidentiality, systematic inquiry, and cultural sensitivity. The evaluation provides evidence-based information that is triangulated, credible,

reliable, useful, and relevant. The evaluation adopted a participatory and consultative approach ensuring close engagement with government counterparts, in particular, the GEF National Designated Authority (NDA), in this case the Ministry of Environment (MiAMBIENTE), the project team, the UNDP Panamá Country Office (CO), and key stakeholders such as INDICASAT, UNACHI, University of Panamá and local Coffee Asociations and producers of Chiriquí.

- Synthesize lessons that can help to improve the selection, design, and implementation of future GEF (Global Environment Facility) financed United Nations Development Programme (UNDP) activities.
- Provide feedback on issues that are recurrent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues.
- Contribute to the overall assessment of results in achieving GEF strategic objectives aimed at dealing with climate change.
- Measure the degree of convergence of projects with other United Nations (UN) and UNDP priorities, including harmonization with other United Nations Development Assistance Framework (UNDAF) and UNDP Country Program Action Plan (CPAP) outcomes and outputs.

2. The report evaluates the achievement of the project's results in comparison to what was expected to be achieved and draws lessons that can improve the sustainability of the benefits of this project. At the same time, the report promotes accountability and transparency and assesses the extent of the project's achievements. The recommendations of the evaluation will be useful in sustaining the various outcomes and interventions carried out under this project.

## 1.1. Scope of the Evaluation

3. The scope of the evaluation covered the design and implementation of all project components according to the project's Logic Framework / Results Framework until June 15, 2023. It is worth noting that by the time of the evaluation, the project had yet to complete a few commitments under the planned activities, and until June 2023, it had disbursed 90 percent of project funds.

## 1.2. Methodology

4. The methodology involved a series of stages with information review and data collection through both primary and secondary methods:
    i. Preparation – Inception Phase: initial desk review, production of the Inception Report with its evaluation criteria matrix and introductory meetings with project staff.
    ii. Data Collection: Data Collection, and stakeholders' interviews.
    iii. Draft Evaluation Report: Data Analysis-Triangulation and Report-writing.
    iv. Final Evaluation Report: Final review and 'audit trail' on the received comments.
5. **Preparation**. All relevant sources of information were reviewed, including the project document, GEF and UNDP annual project reports (e.g., GEF Interim Progress Reports (IPRs)), project budget revisions, progress reports, GEF NDA tracking tools, project files, national strategic and legal documents, and any other materials useful for this evidence-based assessment. See Annex 3 "Documents Consulted".
6. Inception meetings, via teleconference, were carried out with the participation of the major stakeholders, including UNDP Country Office, project team, and Steering Committee members. During the inception phase, the evaluation consultant conducted introductory interviews with project staff and exchanged messages (e-mail and instant messaging application, especially WhatsApp) with key project partners.

7. The Inception Report indicated how each evaluation question would be addressed according to the evaluation criteria matrix (see Annex 4 “Evaluation Criteria Matrix”), described the evaluation methods, the sources of data and the data collection procedures. It also included the schedule of tasks, activities and deliverables.
8. **Data Collection**. The data and information collection consisted in further review of project documents (PIF, ProDoc, annual reports to UNDP and GEF, committee meeting minutes), and stakeholders’ interviews (in the office as well as in territory with local actors). The list of individuals interviewed, and the photographic memory are included in Annex 2.
9. **Draft Evaluation Report**. The draft evaluation report consisted in data analysis and triangulation of information collected during the desk review process and the stakeholder’s interviews.
10. **Final Evaluation Report**. Final report incorporates comments received to the draft evaluation report review and 'audit trail' on the received comments. Annex 6 includes the audit trail of the comments received to the draft evaluation report.

### 1.3. Structure of the evaluation report

11. The report is structured in four sections: 1) Introduction; 2) Project Description; 3) Findings; and 4) Conclusions, Recommendations and Lessons Learned. Section 2 presents background information on the project, including the problems it seeks to address, and its immediate and development objectives. Section 3 is composed of three subsections: 3.1 Project Design, 3.2 Project Implementation and 3.3 Project Outcomes. The last section of the report presents proposals for corrective actions, best practices, actions to reinforce the initial benefits of the project and proposals for future directions. The report also has a set of annexes that present complementary information.

## 2. Project Description

12. **Project start and duration.** The Project was approved on July 21st 2020, by the GEF CEO, and the agreement between UNDP and the Government was signed on October 19, 2020. The first disbursement was received on January 31st, 2021. The first project manager was hired in February 15th, 2021, and the inception workshop was held on October 22nd, 2020. The project implementation time is 36 months (3 years) until October 2023.
13. **Development context**: Panama is rich in biodiversity, and its importance is recognized by the country's location between two of the world's 35 "hotspots" of diversity, favored by the country's continuous history of connection as a biological bridge between the territories of North and South America. The compilation of the country's biological richness lists 14,507 plant and vertebrate species, comprising 3.5 percent (9,520) of all flowering plant species in the world and 7.3 percent of all fern species. The nation has three marine, five freshwater, and nine terrestrial ecoregions, thirteen bioclimatic life zones, and 33 vegetation and other cover classes. However, as in the rest of the world, our biodiversity is in danger of being degraded or disappearing due to constant uncontrolled anthropic activities, which are destroying ecosystems and disappearing species, some of which are still unknown, and whose properties, environmental services or benefits will not be known or exploited.
14. Panama has been a party to the Convention on Biological Diversity (CBD) since 1995 and in October 2014 ratified the Nagoya Protocol. The country has an established ABS legal framework. The Political Constitution of the Republic of Panama establishes that "the State shall regulate, oversee and apply in a timely manner the necessary measures to ensure that the use and exploitation of terrestrial,

fluvial and marine fauna, as well as forests, lands and waters, are carried out rationally, so as to avoid their depredation and ensure their preservation, renewal and permanence."

15. The National Biodiversity Strategy and Action Plan (NBSAP) 2018-2050 promotes the implementation of biotrade and bioprospecting in Panama, including the strengthening of human resources, regulatory frameworks and institutional capacities to implement the Nagoya Protocol and support initiatives for biodiscovery that have commercialization potential.
16. The project was designed to contribute to the Implementing the Nagoya Protocol on Access and Benefit Sharing entry point under Objective 3 of the GEF Focal Area on Biodiversity and its design was based on the achievements of the UNDP-GEF project 4780. The purpose of the Project is to support the realization of the potential of native microorganisms to contribute to the agricultural sector, while generating global environmental benefits (GEB), in accordance with the provisions of the Nagoya Protocol (NP).
17. **Problems that the project sought to address**: According to the ProDoc, the project sought to address the following gaps and barriers: i) Limited physical and technical capabilities to confirm the potential of promising microbes in the agricultural sector and ii) Inadequate conditions and capacities to negotiate ABS agreements, in accordance with the NP, and to consider the active use, management and conservation of microbes in agricultural systems.
18. **Immediate and development objectives of the project**. The immediate objective of the project is to support the realization of the potential of native microorganisms to contribute to the agricultural sector while generating global environmental benefits (GEBs), in accordance with the provisions of the NP, and within a context of sharp regional economic disparities and limited institutional capacities.
19. The project also delivered to the GEBs related to the conservation of biodiversity and genetic resources. The GEBs attended were as follows:
    - Fair and equitable sharing of the benefits arising from the utilization of genetic resources (to local communities, resource managers, and PA officials)
    - Improved conservation of native microfungal biodiversity (20,533 hectares [ha] of PAs)
    - Improved conservation of ecosystems and host plants from which microfungal biodiversity is collected.
    - Reduction in the impacts of agricultural chemicals on native biodiversity, due to increases in the use of biological crop protection practices (1,000 ha of coffee landscapes under improved practices)
    - Increased awareness of the existence, use, and option values of biological resources among key audiences (1,070 direct beneficiaries)
    - Contribution to the generation and potential replication of ABS best practices (agreements)
    - Contribution to national development strategies and economic growth
20. The project is aligned to the Nagoya Protocol on ABS entry point under Objective 3 of the GEF Focal Area on Biodiversity and contributes to implementation of Aichi Target 16 and 7.
21. **Baseline Indicators established**. As part of the project formulation for the GEF, a Logical Framework and a Project Results Framework were established to monitor the project. It should be noted that SMART indicators were established for each expected output.
22. Additionally, gender aspects were considered and, where possible, results were expected (and have been) reported disaggregated by gender.

23. A Baseline has been established, as well as expected mid-term and final results, which have been monitored. It should be noticed that the project was not obligated to undergo a mid-term review, nevertheless indicators have been established for internal tracking.
24. **Description of the project's Theory of Change.** The project's theory of change responded to the identified barriers and gaps and were delineated with the project's main objectives. The project's outputs, outcomes and impacts are aligned with national development goals, and there were no substantive changes suggested to the Theory of Change and project components and/or outcomes during implementation (see Annex 8):
    - **Component 1**. Support research of active compounds for the medical sector
        - Outcome 1.1 Promising active compounds identified from endophytic fungi as biological crop protection agents in the agricultural sector.
        - Outcome 1.2 Strengthened research and development of novel biological crop protection agents.
    - **Component 2.** Facilitating access, benefit-sharing and biodiversity conservation based on the development of a product for the crop protection industry.
        - Outcome 2.1 Increased capacity to negotiate an ABS agreement by the end of the project.
        - Outcome 2.2 Increased technical capacity for conservation-based biological crop protection in 1,000 hectares of coffee farms in La Amistad National Park (World Heritage Site and Biosphere Reserve) and the Baru National Park and their buffer zones, with potential to contribute to the conservation status of two globally important microbes (endophytic fungi) and their host ecosystems.
        - Outcome 2.3 Increased knowledge and awareness regarding microbe biodiversity, conservation-based biological crop protection, and genetic resources
    - **Component 3**. Monitoring and Evaluation (M&E) with a gender focus
        - Outcome 3.1 M&E assesses project impact and guides adaptive management
25. **Expected results.** Project results according to ProDoc include:
    i. Fair and equitable sharing of the benefits arising from the utilization of genetic resources
    ii. 1,000 ha of coffee landscapes under improved practices (conservation- based biological crop protection)
    iii. Conservation of native microfungal biodiversity (20,533 hectares of PAs)
    iv. 1,070 direct beneficiaries (535 men and 535 women) of the project
    v. Replication of ABS best practices
    vi. Contribution to national development strategies and economic growth
26. **Total resources.** The total amount of resources approved by the GEF was USD 863,242. Additionally, the project was co-financed by USD 14,535,059.
27. **Main stakeholders.** The main stakeholders involved in the project was the Ministry of Environment (MiAMBIENTE) through its department of Biodiversity. Additionally, INDICASAT was the responsible party for the scientific research. UNDP is the GEF implementing agency for the project.
28. **Key partners involved in the project.** Key stakeholders at the national and subnational levels are the Panamanian Autonomous Cooperative Institute (IPACOOP), MIDA through IDIAP, SENACYT, University of Panama, UNACHI, NGOs (ANCON and OMIUP). At the local level, the most relevant stakeholders are the coffee farmers represented by the Specialty Coffee Association of Panama (SCAP), who are part of the project board to ensure the realization of the project results from the perspective of the project beneficiaries.

# 3. Findings

## 3.1. Project Design and Formulation

### Analysis of Logical Framework Approach /Results Framework (Project logic /strategy; Indicators).

29. During the initial formulation of the project, the inclusion of a health component (pharmaceutical) was foreseen. However, given the budget and time available, the scope of the project was adjusted, and its objectives were focused on agricultural use.
30. In general terms, within the ProDoc, project's objectives and components were clear, practicable and feasible within its time frame. But some consideration should be made regarding the results framework.
31. Component 1 includes the evaluation of at least 4 promising compounds for further development of a potential crop protection product for use against coffee pathogens, which will be the subject of an ABS agreement for which capacities and conditions will be developed as proposed under Component 2. However, a constraint identified was the time required for the fulfillment of Output 1, given that it depended on several factors including: (1) the availability of suitable farms for both fungal collection and field testing, (2) climatic factors for sample collection, and (3) the performance of field tests (application, study, adjustment) to identify the most efficient compound. Since several activities of component 2 (negotiation and signing of the ABS agreement) depend on the success of component 1, any delay in its implementation becomes a bottleneck for project implementation.
32. However, it is important to note in this context that the Project initiated its analysis of the fungi, based on previous experiences and the extensive knowledge of INDICASAT researchers. Despite this, the researchers themselves acknowledged that research processes rarely adhere to pre-established timelines.

### Assumptions and Risks.

33. **Assumptions**. The ProDoc preliminary identified three main assumptions: (i) capacity among researchers to identify an active compound in endophytic fungi that holds promise for the development of a crop protection product that can be used against coffee pathogens, using in vitro and in vivo assays that would be subject to an ABS agreement, (ii) shared benefits (monetary and/or non-monetary) between the users and providers of the genetic resources, (iii) coffee plantation owners would be willing to embrace conservation-based crop protection.
34. Additionally, the project strategy was based on the active participation of Panamanian public, private, research and civil society partners to build the institutional capacity required to undertake research and development (R&D) actions that add value to genetic resources, and to negotiate between suppliers and users of genetic resources to generate GEB and social and economic benefits at the local level.
35. **Risks**. The ProDoc has initially identified three risk categories: (i) technical, (ii) political and (iii) social and environmental risks. A total of 11 initial risks were identified, of which 8 were the result of UNDP's Social and Environmental Screening Procedure (SESP). The overall risk level at project design was evaluated as medium.
36. Within the framework of the first annual tracking report, an additional risk related to the COVID-19 pandemic was included. Among the main risks faced during the project implementation are those related to the global pandemic due to the SARS Cov-2 virus infection. Due to the confinements resulting from the pandemic, access to INDICASAT laboratories was restricted for some months in

2021, delaying the progress of the different activities related to the project. In addition, the logistics of transporting materials in world trade has seen a significant increase in the inputs required for the project. The costs of some inputs have doubled or tripled. In addition, suppliers have taken longer than usual to deliver, indicating that this is due to problems related to the COVID19 pandemic. Also, the project focused several of its activities around environmental education and increasing knowledge and awareness of microbial biodiversity, conservation-based biological crop protection and genetic resources. Due to transportation and mobility restrictions and protest blockades, some information and awareness events and community outreach presentations explaining the uses of microbial biodiversity and genetic resources were delayed.

37. In the context of the annual monitoring reports, the project conducted a risk assessment that also included the updating of risk and impact levels.
38. In general, ongoing monitoring of conditions and risks was implemented and timely actions were taken to ensure timely implementation of planned activities.

### Lessons from other relevant projects incorporated into project design.

39. The ProDoc identified four (4) projects on the basis of which lessons were incorporated into the project design and implementation. These projects were:

    - UNDP-GEF Project (GEF Project ID 4780) Promoting the application of the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing in Panama. The project built on project findings regarding microbes with potential for use as biological crop protection agents.
    - UNDP-GEF Project (GEF Project ID 5731) Strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol, in particular the project considered results obtained regarding the development of a national ABS legal and policy framework and ABS agreements negotiation.
    - World Bank-GEF Project (GEF ID 5546) Sustainable Production Systems and Conservation of Biodiversity (World Bank), including lessons learned regarding activities to mainstream biodiversity and sustainable production landscapes in production areas in the buffer zones of selected PAs, including La Amistad National Park (World Heritage Site and Biosphere Reserve) and the Volcán Barú National Park.
    - UNDP-GEF Project (GEF Project ID 10172) Towards the transboundary Integrated Water Resource Management (IWRM) of the Sixaola River Basin shared by Costa Rica and Panama whose area of work includes the La Amistad International Park/World Heritage Site and Biosphere Reserve, considering lessons learned regarding best agriculture production practices.

### Planned stakeholder participation.

40. Project planning included the participation of different stakeholders who provided knowledge and experience for articulating the project's objectives with the activities required for successful implementation. As such, activities with the interested parties have been carried out to-date with the objective of creating the necessary conditions to present the project, giving attention to the different needs and priorities of these stakeholders and ensuring gender equality. During the project preparation phase, the stakeholder involvement strategy was coordinated by MiAMBIENTE and UNDP.
41. As a result of the initial stakeholder consultations, the ProDoc included a Stakeholder Engagement Plan (SEP), which served as a guide for involving the different stakeholders, as well as those who have some type of interest, in the activities of the project during its entire life cycle. The Plan also included

initial mechanisms for the participation of interested parties at the local level focused on facilitating the knowledge, awareness-raising, and dissemination of information about biodiversity use and conservation, particularly native microbes. This included the participation of different local groups (producers, academia, municipalities, etc.) to promote project activities. A registry disaggregated by gender was foreseen to be maintained for each activity as a means to follow up and improve participation.

42. However, the SEP only included general guidelines on stakeholder participation, and more importantly on their roles and responsibilities.

### Replication approach.

43. In the project design no specific replication strategy has been developed. Nevertheless, the project documents indicated that opportunities for replication in other countries will be presented through the systematization of good practices and dissemination through global on-going South-South and global platforms such as the Global ABS Community, a virtual platform oriented to provide support for the implementation of the Nagoya Protocol on ABS, and the Panorama Portal "Solutions for a Healthy Planet.
44. Also, the project design identified that the project model has major potential for scaling up to other coffee landscapes and other ecosystems in the country where it is likely that similarly high levels of potentially useful genetic resources exist; and to other sectors (such as bananas and fruit crops) where there is a need for sustainable and environmentally friendly options for pest and disease management. In order to facilitate upscaling and replication, the project design included specific activities related to systematization and dissemination of lessons derived from the scientific research and the increase in capacities for ABS negotiations for the crop-protection product with other scientific groups in Panama and elsewhere, and with other decision makers who participate in the negotiation of ABS contracts.

### UNDP comparative advantage.

45. The ProDoc indicates that UNDP is accountable to the GEF for the implementation of the project. This included oversight of project execution to ensure that the project was being carried out in accordance with agreed standards and provisions. UNDP was responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP was responsible for the Project Assurance role of the Project Board/Steering Committee.
46. However, the Project was executed under the National Implementation Modality (NIM modality, and the Ministry of Environment of Panama was assigned as the Implementing Agency.

### Linkages between project and other interventions within the sector.

47. The ProDoc does not identify other projects or interventions. However, it is important to note that INDICASAT's contribution is based on funds from a bilateral cooperation with the Embassy of India. During 2020, USD 10 million were approved for the setting up of a Center for Biodiversity & Drug Discovery.

### Management arrangements.

48. The project design indicated the mechanisms for governance composed of the Steering Committee (SC). The roles and responsibilities of the steering committee were described in the project document.
49. The project governance architecture was designed based on best practices for GEF IW projects but lacked a more complete definition of roles, operation mechanisms, and management arrangements.

Furthermore, although the project at design did analyze the capacity of the executing partners and major stakeholders with active roles in the project delivery, during implementation in some cases lacking capacity (especially in project management and administration) were identified and were later on addressed through trainings and technical assistance.
See Annex 9 of the implementation structure.

## 3.2. Project Implementation

### Adaptive management.

50. The Project did not present any significant changes in its components during implementation.
51. However, the COVID-19 pandemic delayed execution, and the activities could not be carried out according to the initially proposed timetables. In this context, adjustments were made to the schedules (especially related to visits to the territory for sample collection). The start of activities was delayed by about 6 months, in addition training and dissemination campaigns were conducted virtually during the first 18 months.

### Partnership arrangements.

52. Key stakeholders at the national and subnational levels are MiAMBIENTE, Instituto Panameño Autónomo Cooperativo (IPACOOP), MIDA, INDICASAT AIP, SENACYT, IDIAP, University of Panama, UNACHI, NGOs (ANCON and OMIUP). At the local level, the most relevant stakeholders were the coffee farmers represented by the Specialty Coffee Association of Panama (SCAP), who were part of the project board to ensure the realization of the project results from the perspective of the project beneficiaries. In addition, ten farms signed their free, prior and informed consents (CLIP) and actively collaborated with the project, in addition to others who have actively participated in field tours and ABS training activities and who also participated in conservation-based biological crop protection.
53. The participation of ThinkTank-UNACHI provided valuable support in the ABS agreement negotiation workshops, the extension workshops on the use of biocontrols and the organization of the symposium on Biodiversity, Sustainability, Economic and Social Development in the Western Region of Panama.

### Feedback from M&E activities used for adaptive management.

54. Monitoring and evaluation (M&E) at the project level was carried out in accordance with UNDP requirements as described in UNDP's Programme and Operations Policies and Procedures (POPP) and Evaluation Policy. The UNDP Country Office worked with relevant project stakeholders to ensure that UNDP M&E requirements were met in a timely manner and in accordance with both UNDP and GEF policies.
55. It is important to mention that during the second year (2022) of the project, more frequent (quarterly) follow-up meetings were held by the project steering committee, in order to guarantee the acceleration of project activities due to COVID-19 delays during the first year.
56. In addition, two visits were made to the INDICASAT laboratory during 2022 (one visit in March 2022 with the Deputy Resident Representative and another in November 2022 with the Chief Executive Officer of GEF). The purpose of these visits was to share the advances in research on the development of formulations of native microorganisms for the protection of coffee crops, which are expected to be an alternative for the management of coffee diseases, which implies a reduction in the use of pesticides, the use of agricultural products that are harmless to the environment and people's health,

and greater conservation of natural resources. It is important to highlight that several representatives of MiAMBIENTE and UNDP were part of these visits.

## Project Finance.

57. The total project budget was US$ 15,398,301 of which US$863,242 (6 percent) was in the form of GEF grants. The project co-financing was in the form of cash and/or in-kind contributions from the Institute for Scientific Research and High Technology Services (INDICASAT) (US$11,799,544), Ministry of Environment (MiAMBIENTE) (US$1,140,000), National Secretariat of Science and Technology (SENACYT) (US$1,140,000), Think Tank UNACHI (US$20,000), UNDP (US$185,515) and the private sector enterprise Advanced Biocontrollers SA (US$250,000) (see Table 1).
58. Co-finance resources were administered directly by their contributors and their expenses were not reported in detail for the Project Management. However, it is known that the value of the private company Advanced Biocontrollers SA (US$250,000) has not been disbursed, considering that there is still no final product to be commercialized.

***Tabla-3-1: Co-Financing allocations***

| Source | Type | Amount (USD) | Planned Co-financing Activities/Outputs |
|---|---|---|---|
| INDICASAT | Grant and in-kind | 11,799,544 | Research activities under Component 1 including salaries, research facilities and equipment (Outputs 1.1.1, 1.2.1, 1.2.2, 1.2.3, and 1.2.4) |
| MiAMBIENTE | Grant and in-kind | 1,140,000 | Activities under Component 2 including training, environmental education, and management of protected areas and buffer zones (Outputs 2.2.3, 2.2.4, 2.3.2, and 2.3.3) |
| SENACYT | In-kind | 1,140,000 | Research activities under Components 1 and 2 |
| Think Tank UNACHI | Grant | 20,000 | Activities under Component 3, training for the negotiation of ABS agreements (Output 2.1.1) |
| Advanced Biocontrollers SA | Grant | 250,000 | Activities under Component 2, negotiation of an ABS agreement, develop technical data sheets for the handling and application of the product on biological crop protection in the field, and scale product from the laboratory to the field level (Output 2.2.1) |
| UNDP | Grant | 185,515 | Salaries of the Project Coordinator and the Project Assistant |

59. During the first year, the execution of the funds was slow and only 61 percent of the funds allocated by the GEF were executed. However, during the second year of execution, corresponding to 2022, there was an over-execution of the funds of almost a quarter of the total annual budget allocated (124 percent execution). This over-execution of funds during the second year is due to different circumstances: 1) the COVID- 19 Pandemic delayed the implementation of activities during the first year and required an adjustment of the schedule during the second year, which caused the implementation of several activities at the same time; 2) both the Pandemic and the beginning of the Ukrainian War caused delays in the procurement processes for several laboratory supplies, in addition, this shortage increased product prices in many cases, tripling the cost of some of the project's inputs; and 3) during the second year, an administrative and financial assistant was hired to support INDICASAT in coordinating the project activities assigned.

60. It is noteworthy that the largest amounts in all years have been allocated to component 1 (2021 equivalent to 74 percent of the total annual budget, 2022 equivalent to 66 percent of the total annual budget and 2023 equivalent to 46 percent of the total annual budget). Only in 2023 is there an almost equivalent budget allocation between components 1 and 2. This is because the negotiations for the distribution of benefits were programmed for the last year of execution.
61. Table 3-2 shows the execution by component for the years 2021,2022 and 2023.

**Table-3-2: Budget assigned and executed in 2021, 2022 and 2023 per component (USD and percentage)**

| Outcomes | 2021 (USD) | | | 2022 (USD) | | | 2023 (USD) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Budget | Executed | % Executed | Budget | Executed | % Executed | Budget | Executed | % Executed |
| Outcome 1 | 167,200 | 99,167 | 59% | 249,111 | 276,265 | 111% | 182,168 | 115,525 | 63% |
| Outcome 2 | 17,650 | 15,616 | 88% | 74,209 | 45,765 | 62% | 95,376 | 33,589 | 35% |
| Outcome 3 | 13,670 | 1,253 | 9% | 24,087 | 12,329 | 51% | 56,828 | 52,514 | 92% |
| Project Management | 26,159 | 23,100 | 88% | 29,159 | 31,575 | 108% | 23,801 | 19,169 | 81% |
| **Total** | **224,679** | **139,135** | **62%** | **376,566** | **365,934** | **97%** | **358,172** | **220,797** | **62%** |

62. It is important to note that the amounts allocated in the years 2022 and 2023 are higher than those budgeted in the Prodoc, due to the updating of the (annual) budget, including the amounts left over from the previous year's management. However, the total amount allocated by the GEF remains unchanged.
63. At the time of the final project appraisal (June 15, 2023), about 84 percent (USD 725,867.13) of the total allocated budget (USD 863,242) had been executed (see Table 3-3). The available budget was USD 137,374.87.

***Table-3-3: Summary of budget and expenditure by project component (as of 15 June 2023), with values budgeted according to ProDoc***

| Year | 2021 | 2022 | 2023 | Total |
|---|---|---|---|---|
| Budgeted (ProDoc) | 224,679.00 | 294,704.00 | 343,859.00 | 863,242.00 |
| Executed | 139,135.53 | 365,934.24 | 220,797.36 | 725,867.13 |
| Percent Executed | 62% | 124% | 64% | 84% |

* The value reported as spent also reflects the payment commitments acquired up to June 15, 2023.

64. Table 3-3 shows the level of budget execution compared to what was foreseen in the Prodoc. In this case, the level of execution during 2022 should be noted, where it was possible to execute (almost) all of the total budget foreseen up to this date.

### Monitoring and evaluation: design at entry and implementation {*}.

65. The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework were monitored annually and evaluated periodically during project implementation. The Monitoring Plan included in the ProDoc detailed the roles, responsibilities, and frequency of monitoring project results.
66. Project-level monitoring and evaluation was undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office was responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.
67. Additional mandatory GEF-specific M&E requirements were undertaken in accordance with the GEF Monitoring Policy and the GEF Evaluation Policy and other relevant GEF policies. In this context, the project document included a costed M&E plan, which guided the GEF-specific M&E activities undertaken by this project.
68. The Monitoring and Evaluation (M&E) Plan included in the project document, contained performance and impact indicators for project implementation along with its baseline, project objectives and corresponding sources of verification. An M&E gender component was included in the design and allowed the relevance and importance of gender to be addressed, beyond having indicators for men and women.
69. The Project Manager, the UNDP Country Office and the Executing agency provided input to the annual project report. These reports included monitoring indicators from the project results framework, which were monitored once a year for inclusion in the report. During the second year, there were also quarterly project progress meetings of the Steering Committee.
70. In that sense, the design and implementation of the monitoring and evaluation of the project is rated **SATISFACTORY**.

### UNDP and Implementing Partner implementation / execution coordination, and operational issues.

71. The Project was implemented under UNDP's National Implementation Modality (NIM) and according to the standards and regulations of UNDP. At project inspection the Ministry of Environment MiAMBIENTE, through its office for Biodiversity was assigned to perform, with the support of UNDP Panamá, the roles and responsibilities as a GEF IA. There was one Executing Agency, INDICASAT responsible for the scientific research component (component 1).
72. The project has a management structure and governance structure described in the Project Document (see Annex 9).
73. The Project Board (composed of Ministry of Foreign Affairs, UNDP, MiAMBIENTE and the Specialty Coffee Association of Panama) worked closely throughout the entire implementation of the project. Stakeholders shared the opinion, that MiAMBIENTE showed a high level of project empowerment and coordination.
74. In addition, the participation of local representatives in the Steering Committee strengthened local coordination and facilitated the implementation of activities in the field. However, during the interviews with the actors it was identified that the participation of the local Association of coffee producers has not been entirely clear, given that the invitations to the committee and the events were on several occasions sent in the personal name of the producer and not to the Association.
75. From the operational point of view, a bottleneck was identified in the second year of execution, related to the administrative management of the funds delivered to INDICASAT. Due to the workload

(delays in starting activities) and the lack of administrative personnel (the same scientists were doing the administrative work), the need was expressed to hire an additional person to support INDICASAT's administrative and financial management.

76. In this sense, UNDP's and MiAMBIENTE's implementation of the project is rated **SATISFACTORY.**

## 3.3. Project Results

### Overall results {attainment of objectives).

77. At TE, the project successfully achieved 7 out of 9 indicators (#1, #2, #3, #4, #5, #7, #8) - see Table 4. One indicator (#9) was completed (total amount of people capacitated) although the number of women participating has not been met. One indicator (#6) showed limited achievement as compared with the end-of-project target and it is unlikely to be completed by project closure. The majority of the indicators, 7 of 9, were achieved with no shortcomings, one with minor shortcomings (#9) and one with moderate shortcomings (#6).
78. In that sense, the achievement of the project objectives is rated as **SATISFACTORY**.

### Relevance.

79. Relevance, in the context of evaluations, is the extent to which the objectives and design of an intervention respond to the needs, policies and priorities of beneficiaries, at the global, country and partner/institutional levels, and continue to do so if circumstances change.
80. Panama has a national regulation on access to genetic resources (Executive Decree 25 of April 29, 2009), which created the Unit for Access to Genetic Resources (UNARGEN), within the Department of Biodiversity and Wildlife, under the Directorate of Protected Areas and Wildlife. In accordance with current national regulations in Panama, the National Environmental Authority (ANAM), currently Panama's Ministry of the Environment, is the competent national authority for access to genetic resources and benefit sharing. These functions are carried out by the Genetic Resources Access Unit (UNARGEN), which is attached to the Directorate of Protected Areas and Wildlife of the Ministry of Environment. This decree has been updated on May 26, 2019 (Decree 19), which regulates the access and control of the use of biological and genetic resources in the Republic of Panama and establishes other measures.
81. The project is consistent with the REDD Strategy of Panama. Under the REDD strategy, bioprospecting has been proposed as one of the activities to reduce CO2 emissions and ensure the sustainable use of forests. In addition, the project is in line with the 2017 Strategic Plan of the National System of Protected Areas, which promotes the development and implementation of a strategy for scientific research and communication regarding the ecological and cultural values of PAs. The project also contributed to the 10-year Strategic Action Plan (PAEM 2014-2024) to strengthen the conservation and use of Mesoamerican plant genetic resources for the adaptation of agriculture to climate change. Finally, the project responds to the National Plan of Action for climate change in Key Biodiversity Areas of Panama. This plan prioritizes conservation and adaptation measures to climate change, including scientific research to promote sustainable development in La Amistad National Park (World Heritage Site and Biosphere Reserve).
82. Also, the project is in accordance with the 2020 Environmental Plan for Panama set forth in the National Environmental Strategy (2021- 2031), which foresees that the valuation and knowledge of natural resources and biological richness in particular have contributed to the development of innovative economic activities and the improvement of traditional activities of production and

extraction, and that natural terrestrial and aquatic ecosystems are being used in a sustainable manner and their biodiversity has allowed the development of novel products and environmental services, and with the National Strategic Plan for Science, Technology and Innovation (PENCYT) 2019-2024.

83. Finally, the project design is consistent with the National Biodiversity Strategy and Action Plan (NBSAP) 2018-2050, as the NBSAP promotes the implementation of the NP for biotrade and bioprospecting in Panama, including strengthening human resources, legal frameworks, and institutional capacities to implement the Nagoya Protocol, and support initiatives for bio-discoveries that have potential for commercialization.
84. The ecosystems of Panama also contain very high levels of microbial biodiversity: studies to date, indicate that this includes many taxa with the potential to be used in commercially viable applications in the agricultural sector, including endophytic micro fungi with the potential to act as biological crop protection agents for common diseases afflicting commercial crops such as coffee. Panama has participated in ABS projects, among which the following stand out: The UNEP-GEF-IUCN Regional Project "Strengthening the implementation of Access to Genetic Resources and Benefit Sharing regimes in Latin America and the Caribbean" (2011-2013), the UNDP-GEF-NPIF National Project 81860 "Promoting in Panama the implementation of the Nagoya Protocol on Access to Genetic Resources and Benefit Sharing"(2013-2015), through which progress has been made in the review of the national regulation (Executive Decree 25 of April 29, 2009) with a view to its modification and updating, to make it compatible with the Nagoya Protocol, and the ABS-CCAD/GIZ Central America Regional Program "Promoting the Economic Potential of Biodiversity in a Fair and Sustainable Manner to implement the Nagoya Protocol in Central America", with a view to harmonizing some elements of regulations and strengthening cooperation among the seven Central American countries and the Dominican Republic.
85. Based on the results of prior projects, two endophytic fungi isolates were already preselected for their evaluation as crop protectants (against pathogens in coffee) in plant growth chamber studies. These were collected in 2013 and 2015 in the buffer zone of La Amistad International Park (World Heritage Site and Biosphere Reserve), with funding from INDICASAT, SENACYT, and the Science and Innovation Fund of the British Embassy in Panama. Both isolates have 96 percent or less DNA sequence identity to the ones deposited in the NCBI nucleotide database and have relatively low frequencies in the localities where they were collected. One of these, isolate 422, has been described previously as a new species in a new monotypic genus and is active against both the CRL fungus (Hemileia vastatrix) and the fungus causing American leaf spot of coffee (Mycena citricolor), two devastating pathogens of coffee in Central America and other regions.
86. The selection of the work area has been highly coherent and relevant, considering that at the local level, the project was closely aligned with the Management Plans of Amistad National Park and Baru Volcano Park, also the local communities participated in the training sessions. In addition, as required by Executive Decree 19, prior to the implementation of the activities, the "Free Prior Informed Consent (“FPIC o CLIP") was obtained from the owners of the mushroom collection and sampling farms, which also demonstrated the interest of the local population in participating in this type of project.
87. In that sense, the relevance of the project is rated as **HIGHLY SATISFACTORY**.

## Effectiveness & Efficiency.

88. **Effectiveness**. Effectiveness is the extent to which an intervention achieved, or is expected to achieve, its objectives and outcomes. It is the extent to which the objectives, outcomes and outputs of the development intervention were achieved or are expected to be achieved considering their relative importance. It is also an aggregate indicator of the merit or value of an activity, i.e., the extent to which an intervention has achieved, or is expected to achieve, its main relevant objectives in a sustainable manner and with a positive impact on institutional development.
89. In general, the interviewed stakeholders evaluate the achievement of the results as very good. Particularly noteworthy is the high degree of coordination used to carry out the different activities, as well as the involvement of women producers, farm owners and researchers**.**
90. The major accomplishments of the project by component include:
    - Component 1:
        - A total of 548 extracts (274 methanol, 274 ethyl acetate) were obtained from the endophytic fungi. A total of eight (8) compounds have been isolated at this point of the project, surpassing the original goal of four (4) compounds initially proposed in the project.
        - It is important to highlight the isolation and preservation in INDICASAT's biobank of 3,515 strains of endophytic fungi from more than 25 plant species sampled, which included 58 individuals of Coffea arabica of different genetic varieties, 111 individuals of other plant species sampled and 15 soil samples from 10 coffee farms and areas within the PILA and the PNVB.
        - Five in vivo growth trials were conducted in growth chambers to determine the most promising fungal formulations for field trials to determine the growth capacity of candidate crop protectant fungi on coffee leaves.
    - Component 2:
        - Four workshops on negotiations of ABS agreements were conducted.
        - In collaboration with the Institute of Agricultural Innovation of Panama (IDIAP), a consultancy was developed to increase the knowledge of biological crop protectors and develop demonstration plots to provide training in their uses and benefits, focused on coffee producers, giving priority as a target group to the communities and stakeholders located within the protected areas and their buffer zones (Municipality of Boquete, Tierras Altas and Renacimiento), with particular interest to women and young people.
        - Four field trips with multiple institutions (INDICASAT, UNDP, MiAMBIENTE, IDIAP, University of Panama (UP), Autonomous University of Chiriqui (UNACHI), and the Specialty Coffee Association of Panama (SCAP)) were conducted.
        - Organization and participation in the symposium "Biodiversity, Sustainability, Economic and Social Development of the Western Region of Panama" focusing on the important topics of Biodiversity and Sustainability from the point of view of Economic and Social Development in the Western Region of the country.
        - Design and implementation of a communication plan to increase knowledge and awareness of microbial biodiversity and conservation-based biological crop protection in accordance with the management plans for La Amistad National Park (World Heritage Site and Biosphere Reserve) and Baru Volcano National Park, prioritizing communities and stakeholders within the PA and its buffer zones (Municipality of Boquete, Tierras Altas and Renacimiento) and using a gender and youth approach.

- Component 3:
    - Design and update of a M&E Plan (with gender considerations) and a Project Gender Mainstreaming Plan.
    - The Association of Specialty Coffee Producers designated during project implementation a representative to ensure the participation of men and women in the training and extension activities that were carried out.
    - Local partners have been identified to support future outreach events with a gender focus, including the UNACHI think tank team with a gender specialist and SCAP.
    - Gender considerations were incorporated in Terms of Reference and methodological processes in all new contracts during the project.
    - Gender considerations were examined within the ABS negotiations training with the support of a gender specialist.

91. As a point for improvement, several of the stakeholders interviewed mentioned the communication strategy. Although it is recognized that several dissemination mechanisms have been designed and implemented (brochures, publications, radio and television interviews, social networks) with a wide reach of people, it is recognized that the dissemination of the results achieved, and next steps have not had the expected impact at the local level. This is especially relevant, as it is expected that the component selected for pest control will be adopted by local producers.
92. The results achieved from the project are presented in the project's Logical Framework (Table 4).
93. Based on the degree of achievement of the objectives, the effectiveness of the project is rated as **SATISFACTORY**.

*Tabla-4: Logical Framework of the Project and fulfillment of deliverables*

| | | | | | | |
|---|---|---|---|---|---|---|
| **This project will contribute to the following Sustainable Development Goal (s):** 9 (Industry, Innovation, and Infrastructure) and 15 (life on land) | | | | | | |
| **This project will contribute to the following country outcome (UNDAF 2016-2020):** 3.2: By 2020, the State has strengthened its capacities to design and implement policies, plans and programs that contribute to environmental sustainability, food and nutrition security, adaptation to climate change, disaster risk reduction and resilience build-up<br>CPD Output 3.1: Improved compliance of commitments to international environmental agreements. | | | | | | |
| | **Objective and Outcome Indicators** | **Baseline** | **Mid-term Target** | **End of Project Target** | **Status as per TE** | **TE Comments** |
| **Project Objective:**<br>**To support the realization of the potential of native microorganisms to contribute to the agriculture sector while generating global environmental benefits, in accordance with the provisions of the Nagoya Protocol** | **Mandatory** Indicator 1(GEF Core Indicator 11): # direct project beneficiaries disaggregated by gender (individual people) | – 0 | – 465 (165 women; 300 men) | – 1,070 (535 women; 535 men) | – 1,233 (607 women; 626 men) | Project result exceeded.<br>The project was able to train 163 more people. |
| | **Mandatory** Indicator 2 (GEF Core Indicator 4): Area of landscapes under improved practices (excluding protected areas) | – 0 | – 500 ha of coffee farms | – 1,000 ha of coffee farms | – 1,105 ha of coffee farms | Project result exceeded.<br>105 ha more are under improved practices. |
| **Project Component 1** | **Development of a product for the crop protection industry** | | | | | |
| **Project Outcome 1.1**<br>**Promising active compounds identified from endophytic fungi, as biological crop protection agents in the agricultural sector** | Indicator 3: Number of active extracts and compounds isolated in order to develop a product for the crop protection industry focused on the coffee sector. | – Extracts: 0<br>– Compounds: 0 | – Extracts: 100<br>– Compounds: 2 | – Extracts: 200<br>– Compounds: 4 | – Extracts: 548<br>– Compounds: 8 | Project result exceeded.<br>A total of eight (8) compounds have been isolated, exceeding the original goal of four (4) compounds initially proposed in the project. At least two of these metabolites are new to science. |
| **Outputs to achieve Outcome 1.1** | 1.1.1 In vitro active extracts and compounds with potential for the development of a phytosanitary product identified. | | | | | |
| **Project Outcome 1.2**<br>**Strengthened research and development of novel biological crop protection agents** | Indicator 4: Number of formulations with potential for crop protection product development, on the basis of field trials of the prioritized formulations | – 0 | – 2 | – 4 | – 5 | Project result exceeded. Five formulations have been tested on coffee farms. It is expected that more formulations will be tested until the end of the project. |
| **Outputs to achieve Outcome 1.2** | 1.2.1 In vitro trials of candidate biological crop protection agents (endophytic fungi and aqueous extracts). | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1.2.2 In vivo growth chamber and greenhouse trials to determine the most promising formulations of fungi (e.g. active ingredients, spore concentrations, abiotic conditions and leaf development) for field trials.<br>1.2.3 At least four alternative formulations of selected endophytic fungi evaluated in field trials in coffee crops.<br>1.2.4 Interinstitutional collaborative research strengthened. | | | | | |
| **Project Component 2** | **Facilitating access, benefit-sharing and biodiversity conservation based on the development of a product for the crop protection industry** | | | | | |
| **Project Outcome 2.1**<br>**Increased capacity to negotiate an ABS agreement by the end of the project** | Indicator 5: Number of authorities and technical staff and local stakeholders practically applying the skills learned in negotiation of ABS agreements, disaggregated by gender | – Men: 0<br>– Women: 0 | – Men: 45<br>– Women: 30 | – Men: 75<br>– Women: 75 | – Men: 75<br>– Women: 84 | Project result exceeded. |
| | Indicator 6: Number of ABS agreements negotiated between the government and users of the crop protection product by project end | – 0 | – 0 | – One (1) | – 0 | Result not met.<br>Formulation testing is still ongoing.<br>ABS negotiation start once a viable compound has been identified. |
| **Outputs to achieve Outcome 2.1** | 2.1.1 Capacity development programme for the negotiation of ABS agreements. | | | | | |
| **Project Outcome 2.2**<br>**Increased technical capacity for conservation-based biological crop protection in 1,000 ha of coffee farms in the La Amistad National Park (World Heritage Site and Biosphere Reserve) and the Volcán Barú National Park and their and buffer zones, with potential to contribute to the conservation status of two globally important microbes (endophytic fungi) and their host ecosystems** | Indicator 7: Number of coffee producers practically applying the skills learned on the use of conservation -based biological crop protection agents, disaggregated by gender. | – Men: 0<br>– Women: 0 | – Men: 30<br>– Women: 20 | – Men: 50<br>– Women: 50 | – Men: 87<br>– Women: 64 | Project result exceeded. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Outputs to achieve Outcome 2.2** | 2.2.1 Protocols developed and tested for the use and management regimes of conservation-based biological crop protection in coffee production systems<br>2.2.2 Guidance manuals developed for farmers and extensionists on the use of conservation-based biological crop protection agents in coffee<br>2.2.3 Demonstration plots and training programmes established in or near the areas of collection of native micro fungi, on the use of conservation-based biological crop protection agents in coffee | | | | | |
| **Project Outcome 2.3**<br>**Increased knowledge and awareness regarding microbe biodiversity, conservation-based biological crop protection and genetic resources** | Indicator 8: Number of people in La Amistad National Park (World Heritage Site and Biosphere Reserve) and in the Volcán Barú National Park practically applying the skills learned on the importance and use of biodiversity and genetic resources, with specific reference to microbes, disaggregated by gender | – Men: 0<br>– Women: 0 | – Men: 200<br>– Women: 100 | – Men: 350<br>– Women: 350 | – Men: 505<br>– Women: 253 | Total number of persons trained exceeded, yet number of women to be trained has not been met.<br><br>Although, awareness training are ongoing. |
| **Outputs to achieve Outcome 2.3** | 2.3.1 Communication, education, and public awareness about ABS strengthened in line with the management plans for La Amistad National Park (World Heritage Site and Biosphere Reserve) and Volcán Barú National Park, prioritizing as target audiences communities and stakeholders within the PAs and their buffer zones (locations of endophytic fungus collections).<br>2.3.2 Dissemination programme implemented, including:<br>-Public media campaign on protection and use of microbe biodiversity and genetic resources, with a gender approach<br>-Community extension presentations explaining the uses of microbe biodiversity and genetic resources<br>2.3.3 Presentations carried out in colleges, associations, civic groups, NGOs, local government institutions, and the private sector. | | | | | |
| **Project Component 3** | **Monitoring and Evaluation (M&E) with a gender focus** | | | | | |
| **Outcome 3.1**<br>**M&E assesses project impact and guides adaptive management.** | Indicator 9: Progress in Project Gender Action Plan and M&E Plan | – M&E Plan: 0%<br>– Gender Action Plan: 0% | – M&E Plan: 50%<br>– Gender Action Plan: 50% | – M&E Plan: 100%<br>– Gender Action Plan: 100% | – M&E Plan: 90%<br>– Gender Action Plan: 75 % | Expected final Result has not yet been met.<br><br>The M&E Plan and Project Gender Mainstreaming Plan are in progress. |
| **Outputs to achieve Outcome 3.1** | 3.1.1 Project's M&E Plan and Gender Action Plan implemented, ensuring the achievement of the planned goals. | | | | | |

94. **Efficiency**. Efficiency is the extent to which an intervention produces, or is likely to produce, results in a cost-effective and timely manner. For this purpose, economic is defined as the conversion of inputs (funds, expertise, natural resources, time, etc.) into outputs, outcomes and impacts, in the most cost-effective manner possible, compared to feasible alternatives in the context. This criterion also includes operational efficiency.
95. **Efficiency during implementation**. The Project was implemented under UNDP's National Implementation Modality (NIM) and in accordance with the Preparatory Support and Readiness Grant Agreement between the GEF and UNDP. The project management structure has been efficient in delivering results. The combined experience of the Project team and advisors/consultants is satisfactory in meeting the objectives and goals of the Project.
96. Despite the efficiency of the project management unit, there were delays in project implementation due to various sources of delays. First, the outbreak of the COVID-19 pandemic in the first year of project implementation negatively impacted several activities, although the project was able to successfully adapt. En este contexto se deben destacar buenas prácticas implementadas como son (i) la compra de equipos para faciliar reuniones virtuales con actores, (ii)
97. Regarding the work implemented in the field, it was recognized that although the number of workshops planned was met, there is still a need for more practical workshops for application in situ, aimed especially at farm workers. During the evaluation it was mentioned that there is a need to reinforce negotiation issues and patents with the owners of the large coffee farms (extensionists). In addition, the local actors indicated an initial lack of coordination with the technical team in charge of collecting samples on the farms, which resulted in unannounced visits.
98. Implementation efficiency was rated **Satisfactory.**
99. **Financial Efficiency**. The total project amount funded by GEF was USD 863,242. Project expenditure up to the time of appraisal is USD 777,224,73 (June 2023). This represents 90 percent of the total budget. Due to several factors such as the pandemic, shortage or undersupply of inputs and less field work, the project has an outstanding amount of USD 86,017,27 which is expected to be implemented (fully or partially) until project closure in October.
100. Project resources have been strategically allocated to produce results cost-effectively and as planned, despite problems such as the COVID-19 pandemic. There is a positive relationship between inputs and outputs, with the project producing more outputs than originally planned. At the time of this evaluation (i.e., nearing the planned end of the intervention), all expected overall objectives have been achieved or are on track to be achieved, meeting expectations with respect to financial performance against the overall objectives as compared to the realization of the stated outputs.
101. The financial efficiency was evaluated as **Highly Satisfactory.**
102. **Efficiency in M&E**. The Project had a monitoring and evaluation plan with gender focus to track results and progress towards the achievement of objectives. As stated in the project documents, the results described in the Project's results framework were to be monitored and reported annually and evaluated periodically during project implementation to ensure that the Project achieves these results effectively. The Project had to address various M&E and reporting requirements, both UNDP-related and mandatory through the specific M&E and reporting requirements of the GEF. Regarding the UNDP requirements, since the Project is part of UNDP and is linked to UNDP's corporate strategic objectives, therefore, like all other projects in the CO, it reported on its contribution to those objectives. With respect to the GEF, the Project reported through technical and financial annual reports.

103. In the final phase of project implementation quarterly Committee meetings were held to follow up on the progress of ongoing consultancies.
104. In addition, to monitor gender related activities a project gender specialist was hired.
105. Efficiency in M&E was rated as **Satisfactory.**
106. In that sense, the overall efficiency of the project is rated as **SATISFACTORY**.

### Country ownership.

107. The level of ownership of the project by the Government of Panama, through MiAMBIENTE, is considered highly satisfactory. The project has had an active participation of MiAMBIENTE in its development and implementation, and the project is aligned with, and meets the needs of bioprospection, ABS and NP strategy planning in Panama. Similarly, and as explained in the project relevance section, the project is highly relevant and aligns with the country's NP policies, genetic and biological resource plans and strategies.
108. In addition, there has been a high level of ownership of the process by local stakeholders, who recognize the need for this type of product, both from the point of view of protecting the harvest from increasingly frequent extreme weather events, as well as from the point of view of implementing cleaner production mechanisms and the certification opportunities that can be obtained under this modality. Finally, several local stakeholders mentioned the opportunity to generate new jobs through research on biological and genetic resources and the possibilities of patenting and marketing these types of products.

### Mainstreaming.

109. **Gender and vulnerable groups.** The project maintained permanent attention to actions related to the gender mainstreaming strategy in each of the actions implemented during project execution, ensuring gender considerations in each of the spaces for exchange and communication with beneficiaries and key stakeholders.
110. The updating of the Gender Plan and review of the strategies for addressing the issue has enabled the executing team to make the necessary adjustments to comply with the commitments established in the project results framework and the Gender Plan.
111. During the project execution process, efforts have been made to promote greater involvement of women in training and direct actions; their effective participation is conditioned by the time dedicated to care work, schedules and daily commitments; however, their interest in participating in the process is evident.
112. During the project, training workshops on basic gender concepts were held for the team of collaborators of the biodiversity office of the Ministry of the Environment, training on environmental education, application of biological agents and project dissemination.
113. It is important to mention that to date there is a communications plan in place and communication and information dissemination materials have been prepared in which gender considerations are maintained to highlight the importance of the role of women in the development processes of all project components and to ensure that the benefits derived from the project reach men and women equally; these materials have served as support in the project's extension processes and dissemination actions.
114. A forum was held on "Women in the use of genetic resources" to promote the exchange of experiences and best practices, to create networks and strengthen women's autonomy in the use of genetic resources and biodiversity.

115. The project's gender plan was updated in a participatory manner and actions were planned for the last months of project execution to ensure compliance with the commitments established.

### Impact.

116. In general terms, the project has succeeded. In the past, one of the areas of least investment has been research. This project addressed the deficit of investment in research. It was applied research, which also gave added value to this project, given that through visits to laboratories and to the territory (farms) it has been possible to attract the private sector to participate during various processes.
117. The project succeeded in promoting new forms of sustainable and clean production, which encourages local farmers to rethink and change their production methods. It is recognized that producers have been interested in changing their production methods to organic production, but they often do not know how to achieve this change.
118. Local Universities and the research sector have opened the door to expand this type of research, which has proven to have a high potential for local development and care of biodiversity. In addition, the project demonstrated the need to work hand in hand and in a coordinated manner among several institutions, thus generating greater benefits than initially expected.
119. Cross-cutting issues such as gender equality and vulnerable communities were also considered in the project. Institutional gender frameworks were strengthened, methodologies were developed, and groups such as women, children and the elderly were included in the project. Positive changes were achieved, such as sensibilization of people and institutions on gender mainstreaming.
120. Within the framework of the capacity building, where around 1,300 people were trained, and communities and territories were incorporated into the work of the project.

### Sustainability.

121. Sustainability of a project is defined as the extent to which the net benefits of an intervention continue, or are likely to continue, after the intervention is completed. Within the project there are some very specific, concrete potential sustainability factors and elements. These relate to issues such as relevance/ownership, institutional capacity and development, policy, etc. that the project supported. The following describes the sustainability of the project results and the extent to which there are different potentially sustainable elements.
122. **Socio-political sustainability**. There is a high level of ownership of the local stakeholders to achieve the development of a product that can be commercialized. In the framework of the interviews conducted with project stakeholders, it was recognized that this ownership will depend in the future on factors such as (i) negotiations and agreements on the distribution of the benefits of the product achieved (ii) the accessibility of local producers to the commercialized solutions.
123. Sustainability should be provided by the private sector. It is expected that the coffee growers themselves who were part of the project will insist with the central and local governments to give continuity to the results achieved under the project. The research institutions have been able to lend credibility to the significant degree of progress achieved and, in this way, influence the search for additional funds within the private sector to continue the processes.
124. Socio-Political sustainability is rated as **LIKELY**.
125. **Sustainability of the Institutional and Governance Framework**. At the institutional level, sustainability is largely linked to the rotation of technical staff. In this sense, it is recognized that institutions such as MiAMBIENTE have had many rotations of technical staff in the past. This often hinders the continuity of activities and requires additional time for the integration of new teams in

the thematic, as well as to establish inter-institutional relationships. However, in this context it is important to recognize that other relevant institutions in the implementation of the project, such as IDIAP or INDICASAT, have more stable workforce.

126. In the year 2024 Panama has elections for the Central Government. Although it is recognized that the implementation of the Nagoya Protocol is integrated into national laws and regulations, the arrival of a government with a different environmental focus may hinder the work that has been done so far.
127. The sustainability of the institutional and governance framework is rated **MODERATELY LIKELY**.
128. **Financial Sustainability**. Financial sustainability is key to the empowerment of institutions. It is recognized that raising funds for this type of research has not been easy in the past. However, it has been possible to establish relationships with the private sector and awaken the interest of this sector to support product development. In this context, it is hoped that through coordinated work between MiAMBIENTE, INDICASAT and local producers, more funds can be raised.
129. SENACYT's Strategic Plan for Science, Technology and Innovation is expected to allocate resources to continue research on INDICASAT's biological and genetic components.
130. Financial sustainability is rated as **MODERATELY LIKELY**.
131. Based on these various aspects, it is for these reasons that the sustainability of the project results is rated as **MODERATELY LIKELY.**

## 3.4. Conclusions, Recommendations & Lessons Learned

### Summary of the main findings

132. The main findings of this evaluation include:
133. **Project design**. The main findings during project design include: In general terms, project's objectives and components were clear, practicable and feasible within its time frame. But some consideration should be made regarding the results framework.

    i. In general terms, project's objectives and components were clear, practicable and feasible within its time frame. Nevertheless, it is noticed that the achievement of component 2 depends to a high degree on the results obtained in component 1.
    ii. The ProDoc presented a monitoring plan with gender considerations and specific indicators for an adequate follow-up of implementation. The project design also included a Gender Action Plan.

134. **Project Implementation**. The main findings during project implementation include:

    i. The IA and EA played an active role during project implementation. Also, interinstitutional coordination was appraised by most of the involved stakeholders.
    ii. The local response to project activities exceeded expectations, and more coffee producers than expected were included into project activities.
    iii. Despite the delays caused by the COVID- 19 pandemic, most of the results exceeded expectations.
    iv. A key aspect to be concluded is the ABS negotiations for benefit sharing once the research to develop a biological crop protection component has been completed.
    v. The total project amount funded by GEF was USD 863,242. Project expenditure up to the time of appraisal is USD 777,224,73 (June 2023), which represents 90 percent of the total budget. Due to several factors such as the pandemic, shortage or undersupply of inputs and less field

work, the project has an outstanding amount of USD 86,017,27 which is expected to be implemented (fully or partially) until project closure in October 2023.

## Conclusions

i. **Government's institutions active role during project implementation**. MiAMBIENTE and MIDA (through IDIAP) played an active role in the project implementation, ensuring the ownership of the process by the Government sectoral Ministries. The active participation of the sectoral Ministries also strengthened the institutional image, especially the Ministry of the Environment, which has been recognized by many as an entity focused on control and compliance, rather than on the implementation of projects that promote local development. In addition, IDIAP has technical personnel on the ground, which is recognized by local producers and has allowed IDIAP to play an active role during the work in the territory.

ii. **Good coordination and synergies between institutions and project stakeholders**. Several stakeholders interviewed during the information gathering process with key actors highlighted the inter-institutional and multi-stakeholder coordination. It has been mentioned that in the past it has been very difficult to implement projects involving more than one ministry, however, this project has shown the potential for outstanding coordination between the ministries involved, as well as with other key stakeholders for implementation such as INDICASAT, University of Panama, UNACHI and the Chiriqui Coffee Producers Associations.

iii. **Effective gender and vulnerable groups mainstreaming**. During the design of ProDoc, a Gender Action Plan was designed, and basic indicators were defined to monitor the implementation of the gender variable. Although it has been mentioned that the gender indicators and the actions proposed within the framework of the action plan were general in nature and focused especially on the effective participation of men and women, many stakeholders emphasized that the project was able to work on gender issues from a comprehensive, rather than isolated, point of view. In addition, through training for stakeholders involved in the implementation of activities (especially MiAMBIENTE and INDICASAT), these institutions were strengthened in their actions in this area. In the case of MiAMBIENTE, it is recognized that this institution has managed to mainstream the gender approach in its activities and tasks to a greater extent. Finally, the high participation of women at both the scientific and local levels (coffee producers, heads of farms) is noteworthy.

iv. **Applied research approach with local trials at producer level**. As this project used applied research, a key success factor was the collection of samples in different farms selected in buffer zones of Protected Areas. Afterwards initial trials were carried out for the structural determination of extracts and compounds, which were then subjected to a succession of in vitro, in vivo, and field trials with selected coffee producers for the development of a crop protection product for use against coffee pathogens.

v. **Effective Capacity Building**. Development of various training processes on relevant topics for the development of the project allowed a more active participation of the stakeholders involved in the development of the activities. In this context, it is important to highlight the training on the inclusion of gender, technical training related to the Nagoya Protocol, biodiversity protection, intellectual property, patents and negotiations.

Some of the **weak points** of the project include:

i. **Impacts of the COVID 19 pandemic**. The COVID 19 pandemic delayed the start of the activities, especially the visits to the farms and the collection of samples. In addition, the work of the University of Panama for the survey of the vegetation cover around the coffee-growing areas was affected, given that the severe restrictions of mobilization did not allow the trips to the territory in the initially programmed schedules. Although it was finally possible to collect most of the planned samples, some species could not be identified because the survey was not carried out during the flowering period of the plant. Another impact of the pandemic was the delay of laboratory work by INDICASAT, this aspect is also closely related to the collection of samples.

ii. **Segmentation of communications and capacity building**. While recognizing the great effort in the development of products and means of dissemination, several stakeholders recognized that the information was not always correctly targeted to the different audiences. Especially for local stakeholders such as coffee producers, a finer segmentation was lacking, considering that there are great differences between the producers of the different communities (extension producers, small producers as well as coffee farm owners and field workers).

### Recommendations for the design, implementation, monitoring, and evaluation of the project.

135. Recommendations on the design and implementation of the project include:

136. **Inclusion of training in project management and financial administration for actors involved in the execution of funds and project management**. As part of the Stakeholder Engagement Plan an assessment of the operational capacities of the implementing and executing agencies was carried out. However, during the implementation phase, administrative and financial processes (procurement, disbursements, etc.) became a bottleneck. In this context, it is recommended that the UNDP country office support the implementing and executing agencies with a close follow-up during the start-up of the process and provide training related to project management and administration under UNDP standards (including necessary documentation for procurement processes, contracting, field trips, financial reports).

137. **Strengthen Stakeholder Engagement Plan.** The ProDoc mentions the roles and responsibilities of the IA but not those of the EA. In addition, the mechanisms of involvement of local stakeholders should be rethought to make them feel part of the process and not only as beneficiaries. For this it is important to understand and recognize their idiosyncrasies and particular circumstances. For example, consider the harvest calendar and periods of hard work in the field so as not to carry out training in parallel, work mode (e.g., more practical than theoretical training). Also consider that having a CLIP, does not mean that it is a free pass to access the farms at any time.

### Recommendations as actions to follow up or reinforce initial benefits from the project.

138. Recommendations for developing themes or reinforcing initial project outcomes include:

139. **Creation of an ABS Business Facility for genetic/biological resources**. This Business Facility could deepen the utilization of genetic resources with other researchers in Panama and in other areas where they can be used (e.g., cosmetics, pharmaceuticals, etc.) using terrestrial/ marine resources. The Business Facility could: 1) Facilitate new product development (technical part); 2) Attract national and international financiers to invest, and 3) Attract private sector participation.

140. **Strengthen gender analysis with updated research.** The Gender Analysis and Gender Action Plan designed under the project were based on secondary sources available at the national level. However, it is recognized that there is currently limited information on gender in the various productive sectors

and there is a need to collect/update and/or complete relevant information in this area. To this end, an approach with the Ministry of Women of Panama is recommended, to identify the relevant diagnoses that finally allow for the development of an institutional baseline useful for the various development projects at the national level.

141. **Continue and expand communication products and media at local level**. Means should be generated that allow local stakeholders, especially small producers to better understand the work done and next steps. To guarantee the application of the results by the local stakeholders, it is important that the producers feel that they are part of the effort. To this end, stakeholder participation must be fully integrated into the framework of project activities.
142. **Continue capacity building and knowledge and information management with an active involvement of local producers**. Local stakeholders indicated during the interview process that there is a need to continue with capacity building processes, especially on-farm demonstrations, recognizing that local stakeholders learn by doing. In addition, visits to model farms with successful applications should be promoted. For the design of communication materials, it is important to have a more active participation of local stakeholders, thus ensuring that the contents are tailored to local needs and the circumstances of each territory (recognizing that there are differences between the three departments of Chiriqui).
143. **Establishment of a local research center.** To strengthen capacities at the local level, there is a need to strengthen existing local research centers (e.g. UNACHI) and promote local research through the installation of new centers (e.g., possible Coffee Research Center). This will also create new jobs and promote the training of local specialists (decentralization from the capital city of Panama into the Provinces).
144. **Participatory negotiation of benefit-sharing agreements.** Once a crop protection product for use against coffee pathogens has been identified, an ABS agreement must be negotiated with local stakeholders considering their needs and circumstances. This will also guarantee the application of the product from local farmers.
145. **Establishment of a national biodiversity database.** At this moment there is no national database that captures information and results achieved on biodiversity. To make information accessible at the national level, the creation of a database that includes updated information collected at provincial and national level is recommended.
146. **Improved farmer engagement.** A simplified operations manual or rules of engagement agreed with farmers, should be considered for future operations.

### Proposals for future directions underlining main objectives.

147. Recommendations for continuing with the Nagoya Protocol process include the following:
148. **Strengthening of a national interdisciplinary network/commission on genetic resources**. The need for a more coordinated work between public institutions and research institutions on genetic resources and biodiversity is recognized by multiple stakeholders. To this end, the creation of a Network or Commission should be facilitated to coordinate national efforts in this area.
149. **Scaling up national capacities around the Nagoya Protocol.** Within the framework of the project, several training sessions were held on the Nagoya Protocol (e.g., what it is, what it is for). However, it is recognized that it is important to strengthen national capacities beyond specific technical trainings. In this context, the important role of the academia is recognized, which has the power to include specific contents/subjects related to the NP and its effective application within the curriculum of

careers such as law, and in this way close the gap at national level relating specialists on the application of the NP. Within the project, trainers on the NP and ABS came from other countries such as Spain and Venezuela.

# ANNEXES

## Annex 1. Terms of Reference for the evaluation

**Términos de Referencia de la Evaluación Final (TE)**

**Título del Proyecto**: "Alcanzando el potencial de los microbios nativos en el sector agrícola, de conformidad con el Protocolo de Nagoya"

**Número de Proyecto**: Award 97410 / Output 101154 / PIMS PNUD-GEF: 5979

**Tipo de Contrato**: Contrato Individual (IC) para realizar Evaluación Final del Proyecto: "Alcanzando el potencial de los microbios nativos en el sector agrícola, de conformidad con el Protocolo de Nagoya"

**Supervisor Directo**: Oficial de Programa y Coordinadora de Proyecto, quienes coordinarán con MiAMBIENTE y PNUD

**Modalidad de Ejecución**: Proyecto de Implementación Nacional (NIM)

**Lugar**: Ciudad de Panamá / Provincia de Chiriquí

**Fecha de Inicio Estimada**: 20 de abril al 25 de junio de 2023

**Duración:** 60 días calendario (33 días efectivos de trabajo)

### 1. INTRODUCCIÓN

De acuerdo con las políticas y los procedimientos de SyE del PNUD y del FMAM, todos los proyectos de tamaño mediano y ordinarios respaldados por el PNUD y financiados por el FMAM deben someterse a una evaluación final una vez finalizada la ejecución. Estos términos de referencia (TdR) establecen las expectativas de una **evaluación final del proyecto mediano titulado "Alcanzando el potencial de los microbios nativos en el sector agrícola, de conformidad con el Protocolo de Nagoya" (N.º del PIMS 5979) Award 97410 / Output 101154** implementado a través del Ministerio de Ambiente/Asociado en la ejecución. El proyecto comenzó en octubre de 2020 y está en su tercer y último año de implementación. La evaluación final se realizará según se establece en la "Guía para realizar evaluaciones terminales de proyectos respaldados por el PNUD y financiados por el FMAM" (http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf)

## 2. ANTECEDENTES Y CONTEXTO DEL PROJECTO

Panamá es parte del Convenio sobre la Diversidad Biológica (CBD) desde 1995 y en octubre de 2014 ratificó el Protocolo de Nagoya. El país cuenta con un marco legal de acceso a los Recursos Genéticos y Participación Justa y Equitativa de los Beneficios derivados de su utilización (ABS, por sus siglas en inglés) establecido. La Estrategia Nacional de Biodiversidad y el Plan de Acción (NBSAP) 2018-2050. El NBSAP promueve la implementación del biocomercio y la bioprospección en Panamá, incluyendo el fortalecimiento de los recursos humanos, marcos reglamentarios y capacidades institucionales para implementar el Protocolo de Nagoya y el apoyo a iniciativas para biodescubrimientos que tengan potencial de comercialización.

La finalidad del Proyecto es apoyar el logro del potencial de los microorganismos nativos para contribuir al sector agrícola, en tanto que genera beneficios ambientales globales (GEB), conforme a las disposiciones del Protocolo de Nagoya (PN). Este objetivo se alcanzará mediante tres componentes interrelacionados que apoyarán las investigaciones sobre compuestos activos que permitan el desarrollo de un producto para la protección de cosechas, y que faciliten el acceso a los recursos genéticos y la participación justa y equitativa en los beneficios derivados de su utilización (ABS) y la conservación de la biodiversidad en base al desarrollo de un producto para la industria de protección de las cosechas. Dicha estrategia fortalecerá las capacidades nacionales y locales para emprender investigación y desarrollo con miras a realizar ensayos con microhongos de fuentes terrestres para comprobar su potencial para proteger cosechas biológicas y negociar acuerdos ABS bajo el PN.

El periodo de implementación es de 2020 a agosto de 2023 y el socio en la Implementación es el Ministerio de Ambiente. La estrategia también reducirá las amenazas a la biodiversidad a través de la protección biológica de cosechas basada en la conservación en las zonas de amortiguamiento del Parque Nacional La Amistad (Sitio de Patrimonio Mundial y Reserva de la Biosfera) y del Parque Nacional Volcán Barú, y proveerá beneficios ambientales globales, incluyendo la distribución justa y equitativa de los beneficios derivados de la utilización de los recursos genéticos entre proveedores y usuarios; una mejor conservación de los ecosistemas y de las plantas receptoras de donde se recoja la biodiversidad microbial; 1,070 hectáreas de paisajes de cafetales bajo protección biológica de cosechas basada en la conservación; y 1,070 beneficiarios (535 mujeres y 535 hombres) directos de la inversión hecha por el GEF.

Los 3 resultados esperados del Proyecto son:

1. Desarrollo de un producto para la industria de la protección de cosechas. 2.
2. Facilitando el acceso a los recursos genéticos, la participación justa y equitativa de los beneficios que se deriven de su utilización, y la conservación de la biodiversidad en base al desarrollo de un producto para la industria de protección de cosechas
3. Monitoreo y Evaluación (M&E) con enfoque de género.

Este proyecto está alineado con el Marco de Cooperación de Naciones Unidas para el Desarrollo Sostenible en Panamá y al Programa de País del PNUD:2021-2025 del PNUD; contribuyendo al Efecto 3: “Para 2025, Panamá es resiliente y ha implementado políticas públicas para la adaptación y la mitigación del cambio climático, la neutralización de la degradación de las tierras, la protección de la biodiversidad, la gestión ambiental integrada y la reducción de riesgos de desastres y las crisis sanitarias, con un enfoque territorial, intercultural, de derechos humanos, de género y del ciclo vital”; así como al Producto 3.1 “Se han mejorado las capacidades nacionales

para elaborar soluciones basadas en la naturaleza y mecanismos de adaptación al cambio climático que generen medios de vida sostenibles". Además, el proyecto forma parte de los esfuerzos del PNUD Panamá por apoyar el avance de Panamá hacia el logro de los Objetivos de Desarrollo Sostenible (ODS): Objetivo de Desarrollo Sostenible 9: Industria, Innovación e Infraestructura y el Objetivo de Desarrollo 15: Vida de Ecosistemas Terrestres, al cual ha adherido Panamá, específicamente la promoción del acceso a los recursos genéticos y la participación justa y equitativa de los beneficios derivados de la utilización de los recursos genéticos, y la promoción del acceso adecuado a los recursos internacionalmente acordados.

## 3. PROPÓSITO DE LA EVALUACIÓN FINAL

El propósito de la evaluación final del proyecto es:

ii. Valorar el avance de los resultados esperados hasta la fecha
iii. Capturar las buenas prácticas y lecciones aprendidas;
iv. Determinar el nivel de desempeño en términos de su relevancia, coherencia, eficacia (resultados, productos) y eficiencia;
v. Identificar la sostenibilidad y la posible ampliación de los resultados

La evaluación se lleva a cabo según los planes de evaluación del GEF y el Plan de Evaluación del Programa de País de PNUD Panamá 2021-2025, el Plan Estratégico del PNUD 2022-2025, de acuerdo con la Política de Evaluación del PNUD, revisada en 2021, que establece una serie de principios rectores, normas y criterios evaluación en la organización, incluyendo medidas para las evaluaciones durante la pandemia.

El ejercicio de evaluación debe ser independiente, imparcial y de calidad apropiada, pero además debe ser intencional y diseñarse con la utilidad en mente. La evaluación debe generar información relevante y útil para apoyar la toma de decisiones basada en evidencia.

La evaluación valorará el avance de los resultados hasta la fecha (directos e indirectos, intencionados o no) en el avance del proyecto y se espera que se siga un enfoque prospectivo y brinde recomendaciones útiles y viables.

Los hallazgos, las lecciones aprendidas y las recomendaciones generadas por la evaluación final del proyecto serán utilizados por el PNUD y sus contrapartes nacionales claves (Ministerio de Ambiente) para mejorar este y futuros proyectos y programas en Panamá e identificar estrategias de sostenibilidad.

Esta evaluación debe cumplir con los estándares de calidad establecidos en la "Política de Evaluación del PNUD" en lo que respecta a las siguientes características:

a) Independiente
b) Intencionada
c) Transparente
d) Ética
e) Imparcial
f) De alta calidad
g) Oportuna y
h) Útil

## 4. ENFOQUE Y MÉTODO DE LA EVALUACIÓN FINAL

La evaluación debe proporcionar información empírica que sea creíble, confiable y útil.

El consultor (a) de la evaluación final examinará todas las fuentes de información pertinentes, incluidos los documentos elaborados durante la fase de preparación (es decir, el FIP (PIF), el Plan de iniciación del PNUD, el Procedimientos de Evaluación Social y Ambiental (SESP) del PNUD) el documento del proyecto, los informes del proyecto, incluidos los IEP (PIRs) anuales, las revisiones del presupuesto del proyecto, los informes de lecciones aprendidas, los documentos estratégicos y jurídicos nacionales y cualquier otro material que el equipo considere útil para esta evaluación con base empírica. El consultor(a) de la evaluación final revisará los indicadores básicos/herramientas de seguimiento de referencia y de mitad de período del área focal del FMAM presentados al FMAM en las fases de aprobación del CEO y de mitad de período, y los indicadores básicos/herramientas de seguimiento finales que deben completarse antes de que comience la misión sobre el terreno de la evaluación final.

Se espera que el consultor(a) de la evaluación final acoja un enfoque participativo y consultivo que garantice una estrecha colaboración con el equipo del proyecto, las contrapartes gubernamentales (el Punto focal operativo del FMAM en Panamá), los asociados en la ejecución, la oficina del PNUD en Panamá, el Asesor Técnico Regional, los beneficiarios directos y otras partes interesadas.

El compromiso de los interesados es fundamental para el éxito de la evaluación final. La participación de las partes interesadas debe incluir entrevistas con los interesados que tengan responsabilidades en el proyecto, incluidas, entre otras, *representantes del Ministerio del Ambiente, del Ministerio de Relaciones Exteriores, el Instituto de Investigaciones Científicas y Servicios de Alta Tecnología (INDICASAT), el Instituto de Innovación Agropecuaria de Panamá (IDIAP), la Universidad Autónoma de Chiriquí (UNACHI), las asociaciones de productores de café, de los grupos comunitarios, así como las personas y las comunidades beneficiadas por el proyecto*). Así se garantiza las consultas a los organismos de ejecución, altos funcionarios y jefes de equipo de tareas/componentes, expertos y consultores clave en el área temática, a la Junta Directiva del proyecto, beneficiarios del proyecto, el sector académico, el Gobierno y organizaciones no gubernamentales locales, etc. Además, se espera que el consultor (a) de la evaluación final lleve a cabo misiones sobre el terreno en la provincia de Chiriquí.

El diseño y la metodología específica de la evaluación final debe surgir de las consultas entre el equipo de la evaluación final y las partes antes mencionadas sobre lo que sea apropiado y factible para cumplir el propósito y los objetivos de la evaluación final y responder a las preguntas de evaluación, dadas las limitaciones de presupuesto, tiempo y datos. No obstante, el consultor(a)de la evaluación final debe utilizar metodologías e instrumentos sensibles al género y garantizar que la igualdad de género y el empoderamiento de las mujeres, así como otras cuestiones intersectoriales y los ODS, se incorporen en el informe de la evaluación final.

El enfoque metodológico final, que incluye el calendario de entrevistas, las visitas sobre el terreno y los datos que se utilizarán en la evaluación deberían esbozarse claramente en el informe inicial de la evaluación final, y el PNUD, las partes interesadas y el consultor(a) de la evaluación final deberían debatirlo y ponerse plenamente de acuerdo acerca de este.

(**Nota**: Estos TdR gozan de suficiente flexibilidad para que el evaluador(a) determine los mejores métodos y herramientas para la recopilación y análisis de datos. Se sugiere el uso de cuestionarios, visitas sobre el terreno y entrevistas, pero el evaluador(a) podrá revisar el enfoque, en consulta con el coordinador de evaluación y las principales partes interesadas. Estos cambios en el enfoque deben acordarse y reflejarse claramente en el informe inicial de la evaluación final.)

El informe final debe describir plenamente el enfoque de evaluación final adoptado y la justificación de dicho enfoque, haciendo explícitos los supuestos, desafíos, fortalezas y debilidades subyacentes sobre los métodos y el enfoque de la evaluación.

## 5. ALCANCE DETALLADO DE LA EVALUACIÓN FINAL

La evaluación final evaluará el desempeño del proyecto en función de las expectativas establecidas en el Marco lógico/Marco de resultados del proyecto (consultar el anexo A de los TdR). La evaluación final evaluará los resultados de acuerdo con los criterios descritos en la Guía de evaluaciones finales para proyectos respaldados por el PNUD con financiación del FMAM (http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf). La sección de Conclusiones del informe de la evaluación final cubrirá los temas que se enumeran a continuación.

En el anexo C del TdR se presenta un resumen completo del contenido del informe de la evaluación final de Evaluación.

El asterisco "(*)" indica los criterios para los que se requiere una clasificación. Conclusiones

i. Diseño/formulación del proyecto
   - Prioridades nacionales e impulso del país
   - Teoría del cambio
   - Igualdad de género y empoderamiento de las mujeres
   - Salvaguardias sociales y ambientales
   - Análisis del Marco de Resultados: lógica y estrategia del proyecto, indicadores
   - Supuestos y riesgos
   - Lecciones de otros proyectos pertinentes (p. ej., la misma área focal) incorporadas en el diseño del proyecto
   - Participación prevista de las partes interesadas
   - Vínculos entre el proyecto y otras intervenciones dentro del sector
   - Disposiciones de gestion

ii. Ejecución del proyecto
   - Gestión adaptativa (cambios en el diseño y los productos del proyecto durante la ejecución)
   - Participación real de las partes interesadas y disposiciones de asociación
   - Financiación y cofinanciación de proyectos
   - Seguimiento y evaluación: diseño inicial (*), implementación (*), evaluación general del SyE (*)
   - Organismo de implementación (PNUD) (*) y Organismo de ejecución (*), supervisión/implementación y ejecución generales del proyecto (*)
   - Gestión de riesgos, incluidos los Estándares sociales y ambientales

iii. Resultados del proyecto

- El informe de la evaluación final debe evaluar de manera individual la consecución de los resultados de cara a los indicadores, e informar sobre el nivel de progreso de cada indicador de objetivo y resultado en el momento de la evaluación final, al tiempo que señala los logros finales.
- Pertinencia (*), efectividad (*), eficiencia (*) y resultado general del proyecto (*)
- Sostenibilidad: económica (*), sociopolítica (*), de marco institucional y gobernanza (*), ambiental (*), probabilidad general de sostenibilidad (*)
- Implicación nacional
- Igualdad de género y empoderamiento de las mujeres
- Cuestiones transversales (reducción de la pobreza, mejora de la gobernanza, mitigación y adaptación al cambio climático, prevención y recuperación de desastres, derechos humanos, desarrollo de la capacidad, cooperación Sur-Sur, gestión del conocimiento, voluntariado, etc., según corresponda)
- Adicionalidad del FMAM
- Función catalizadora/efecto de replicación
- Progreso hacia el impacto

iv. Principales constataciones, conclusiones, recomendaciones, lecciones aprendidas

- El consultor (a) de la evaluación final incluirá un resumen de las principales conclusiones del informe de la evaluación final. Las conclusiones deben presentarse como declaraciones de hecho basadas en el análisis de los datos.
- La sección sobre las conclusiones se redactará a partir de los resultados. Las conclusiones deben ser declaraciones completas y equilibradas que estén bien fundamentadas por la evidencia y lógicamente relacionadas con las constataciones de la evaluación final. Deben destacar los puntos fuertes, las debilidades y los resultados del proyecto, responder a preguntas clave de evaluación y proporcionar información sobre la identificación y/o soluciones de problemas o cuestiones importantes pertinentes a los beneficiarios del proyecto, el PNUD y el FMAM, incluidas cuestiones relacionadas con la igualdad de género y el empoderamiento de las mujeres.
- Las recomendaciones deben ofrecer recomendaciones concretas, prácticas, factibles y específicas dirigidas a los usuarios previstos de la evaluación sobre las medidas que deben adoptarse y las decisiones que deben tomarse. Las recomendaciones deberían estar específicamente respaldadas por las pruebas y vinculadas con las constataciones y conclusiones en torno a las cuestiones clave abordadas en la evaluación.
- El informe de la evaluación final también debe incluir lecciones que puedan tomarse de la evaluación, incluidas las mejores y peores prácticas para abordar cuestiones relacionadas con la pertinencia, el desempeño y el éxito, que puedan proporcionar conocimientos obtenidos de la circunstancia particular (métodos de programación y evaluación utilizados, asociaciones, apalancamiento financiero, etc.) Esto se aplica a otras intervenciones del FMAM y del PNUD. Cuando sea posible, el equipo de la evaluación final debe incluir ejemplos de buenas prácticas en el diseño y la implementación de proyectos.
- Es importante que las conclusiones, recomendaciones y lecciones aprendidas del informe de la evaluación final incluyan resultados relacionados con la igualdad de género y el empoderamiento de las mujeres.

El informe de la evaluación final contará con una tabla de valoraciones de evaluación, como se muestra a continuación:

**Tabla 2 de los Términos de Referencia: Tabla de valoraciones de evaluación del proyecto de *"Alcanzando el potencial de los microbios nativos en el sector agrícola, de conformidad con el Protocolo de Nagoya"***

| Seguimiento y evaluación (SyE) | Calificación[1] |
|---|---|
| Diseño de SyE al inicio | |
| Seguimiento y evaluación (SyE) | Calificación[1] |
| Implementación del Plan de SyE | |
| Calidad general de SyE | |
| Implementación y ejecución | Calificación |
| Calidad de la implementación/supervisión del PNUD | |
| Calidad de la ejecución del asociado en la ejecución | |
| Calidad general de la implementación/ejecución | |
| Evaluación de resultados | Calificación |
| Pertinencia | |
| Efectividad | |
| Eficiencia | |
| Valoración de los resultados generales del proyecto | |
| Sostenibilidad | Calificación |
| Recursos financieros | |
| Sociopolítica | |
| Marco institucional y gobernanza | |
| Medioambiental | |
| Probabilidad general de sostenibilidad | |

[1] Los resultados, la efectividad, la eficiencia, el SyE, la ejecución de IyE y la relevancia se clasifican en una escala de 6 puntos: 6 = Altamente satisfactorio (AS), 5 = Satisfactorio (S), 4 = Moderadamente satisfactorio (MS), 3 = Moderadamente insatisfactorio (MI), 2 = Insatisfactorio (I), 1 = Altamente insatisfactorio (AI). La sostenibilidad se clasifica en una escala de 4 puntos: 4 = Probable (P), 3 = Moderadamente probable (MP), 2 = Moderadamente improbable (MI), 1 = Improbable (I)

## 6. CRONOGRAMA

La duración total de la evaluación final será de aproximadamente (25-35 días laborables en promedio) durante un período de (6 de semanas) a partir del (15 de abril 2023). El cronograma tentativo de evaluación final es el siguiente:

| Cronograma | Actividad |
|---|---|
| *(20 de abril 2023)* | Cierre del plazo se solicitud |
| *(25 de abril 2023)* | Selección del consultor(a) de la evaluación final |
| *(25 al 30 de abril 2023)* | Período de preparación del consultor(a)de la evaluación final (entrega y revisión de documentos) |
| *(1 al 8 de mayo 2023)* | Examen y preparación de documentos del informe inicial de la evaluación final |
| *(10 de mayo 2023)* | Finalización y validación del informe inicial de la evaluación final; inicio de la misión de la evaluación final. (Requiere presentación) |

| Cronograma | Actividad |
|---|---|
| *(15 de mayo al 25 de mayo 2023) (se recomiendan 7-15)* | Misión de la evaluación final: reuniones con las partes interesadas, entrevistas, visitas sobre el terreno, etc. |
| *(25 de mayo 2023)* | Reunión de recapitulación de la misión y presentación de las constataciones iniciales; finalización más temprana de la misión de la evaluación final. (Requiere presentación) |
| *(30 de mayo al 5 junio 2023 (se recomiendan 5-10)* | Preparación del proyecto de informe de evaluación final |
| *(5 dejunio 2023)* | Distribución del Borrador de proyecto de informe de evaluación final para comentarios (Requiere presentación) |
| *(5 al15 de junio 2023)* | Incorporación de comentarios sobre el informe de la evaluación final del proyecto en el historial de auditoría y finalización del informe de la evaluación final |
| *(18 de junio 2023)* | Preparación y emisión de la respuesta del personal directivo |
| *(20 de junio 2023)* | Conclusión del taller de partes interesadas (opcional) |
| *(25 de junio 2023)* | Fecha prevista de finalización de la evaluación final. |

Las opciones de visitas sobre el terreno deben proporcionarse en el informe inicial de la evaluación final.

### 7. RESULTADOS CONCRETOS DE LA EVALUACION FINAL

| N.º | Resultado esperado | Descripción | Plazo | Responsabilidades |
|---|---|---|---|---|
| 1 | Informe inicial de la evaluación final | El equipo de la evaluación final aclara los objetivos, la metodología y el plazo de la evaluación final | A más tardar 2 semanas antes de la misión de la evaluación final: *a más tardar el 10 de mayol 2023)* | El consultor(a) de la evaluación final envía el informe inicial a la unidad encargada y a la dirección del proyecto |
| 2 | Presentación en español | Constataciones iniciales | Finalización de la misión de la evaluación final: *(a más tardar el 25 de mayo 2023)* | El consultor(a) de la evaluación final presenta a la unidad encargada y a la dirección del proyecto |
| 3 | Proyecto de informe de evaluación final, presentado en inglés. | Proyecto del informe completo *(usando las directrices sobre el contenido del informe del anexo C de los TdR)* con anexos | En un plazo de 3 semanas desde el final de la misión de la evaluación final: *(a más tardar el 10 de junio2023)* | El consultor(a)de la evaluación final envía a la unidad encargada; con revisión del ATR de la DPAP-FMAM, la Unidad de Coordinación de Proyectos, el Punto focal operativo del FMAM |
| 4 | Informe final de la evaluación final* + Historial de auditoría **El Informe de Evaluación Final debe ser presentado en** | Informe final e historial de auditoría de evaluación final, en que la evaluación final detalla cómo se han (o no se han) abordado todos los comentarios recibidos | En el plazo de 1 semana a partir de la recepción de comentarios sobre el proyecto de informe: *(a más tardar el 25 de* | El consultor(a) de la evaluación final envía ambos documentos a la unidad encargada |

| N.º | Resultado esperado | Descripción | Plazo | Responsabilidades |
|---|---|---|---|---|
| | **español y en inglés** | en el informe final de evaluación final *(consultar la plantilla en el anexo H de los TdR)* | *junio 2023)* | |

*La calidad de todos los informes finales de la evaluación final será evaluada por la Oficina de Evaluación Independiente (OEI) del PNUD. La información sobre la evaluación de la calidad de las valoraciones descentralizadas realizada por la OEI se encuentra en la sección 6 de las Directrices de Evaluación del PNUD. Disponible en: http://web.undp.org/evaluation/guideline/section-6.shtml

## 8. DISPOSICIONES DE LA EVALUACIÓN FINAL

La principal responsabilidad de la gestión de la evaluación final recae en la unidad encargada. La unidad encargada de la evaluación final de este proyecto es la Oficina del PNUD en el Panamá).
La unidad encargada contratará al evaluador(a) y garantizará la oportuna provisión de dietas y arreglos de viaje dentro del país. El equipo del proyecto será responsable de establecer contactos. con el evaluador(a) para suministrar todos los documentos pertinentes, organizar entrevistas con los interesados y visitas sobre el terreno.

## 9. COMPOSICION DEL EQUIPO DE LA EVALUACION FINAL

Un evaluador independiente dirigirá la evaluación final: con experiencia y contacto con proyectos y evaluaciones en otras regiones. El evaluador (a) será responsable del diseño general y la redacción del informe de la evaluación final, evaluará las tendencias emergentes con respecto a los marcos normativos, las asignaciones presupuestarias.
El evaluador(a) no puede haber participado en la preparación, formulación y/o ejecución del proyecto (incluida la redacción del documento del proyecto), no debe haber realizado el examen de mitad de período de este proyecto, ni deben tener un conflicto de intereses con las actividades relacionadas con el proyecto.
La selección del evaluador(a) tendrá como objetivo maximizar las cualidades en las áreas que se indican a continuación: (Ajuste las competencias según sea necesario y asigne una ponderación a cada competencia. En la mayoría de los casos, las competencias del jefe del equipo y las del experto del equipo serán distintas. Por lo tanto, debe haber dos listas distintas de competencias o TdR distintos.)

Educación

- Maestría en *ciencias ambientales* u otro campo estrechamente relacionado; Experiencia
- Experiencia pertinente con metodologías de evaluación de la gestión basada en los resultados;
- Experiencia en la aplicación de indicadores del tipo SMART y en la reconstrucción o validación de escenarios de referencia;
- Competencia en la gestión adaptativa, tal como se aplica en *Biodiversidad*

- Experiencia en el diseño y la evaluación de proyectos
- Experiencia trabajando en *América Latina*
- Experiencia de al menos *10 años* en áreas técnicas pertinentes
- Comprensión demostrada de las cuestiones relacionadas con el género y la *Biodiversidad*, experiencia en evaluación y análisis con perspectiva de género
- Excelentes aptitudes de comunicación
- Aptitudes analíticas demostrables
- La experiencia de evaluación/examen de proyectos dentro del sistema de las Naciones Unidas constituye una ventaja

Idioma

- Fluidez en español escrito y hablado.
- Fluidez en inglés escrito y hablado.

## 10. ETICA DEL EVALUADOR

El equipo de la evaluación final deberá apegarse a los más altos estándares éticos, y se exige que firme un código de conducta al aceptar el encargo. Esta evaluación se llevará a cabo de conformidad con los principios esbozados en las "Directrices éticas para evaluaciones" del UNEG. El evaluador debe proteger los derechos y la confidencialidad de los proveedores de información, los entrevistados y las partes interesadas mediante medidas que garanticen el cumplimiento de los códigos jurídicos y de otro tipo pertinentes que rigen la recopilación de datos y la presentación de informes sobre estos. El evaluador también debe garantizar la seguridad de la información recopilada antes y después de la evaluación, así como de los protocolos que garantizan el anonimato y la confidencialidad de las fuentes de información cuando esté previsto. Los conocimientos y datos de información reunidos en el proceso de evaluación también deben utilizarse exclusivamente para la evaluación y no para otros usos sin la autorización expresa del PNUD y sus asociados.

## 11. CALENDARIO DE PAGOS

- Pago del 20 % tras la entrega satisfactoria del informe inicial de la evaluación final y la aprobación de la unidad encargada
- Pago del 40 % tras la entrega satisfactoria del informe provisional de evaluación final a la unidad encargada
- Pago del 40 % tras la entrega satisfactoria del informe final de evaluación final y la aprobación de la unidad encargada y el ATR (mediante firmas en el formulario de autorización de informe de evaluación final) y la entrega del historial de auditoría de la evaluación final completo

Criterios para la emisión del pago final del 40 %[3]

- El informe final de evaluación final incluye todos los requisitos descritos en los TdR de la evaluación final y se ajusta a las directrices de la evaluación final.

- El informe final de evaluación final está escrito con claridad, está organizado lógicamente y es específico de este proyecto (es decir, el texto no ha sido cortado y pegado de otros informes de evaluación final).
- El historial de auditoría incluye respuestas y justificación de cada comentario enumerado.

[3] La unidad encargada está obligada a emitir pagos al equipo de la evaluación final tan pronto como se cumplan los términos de los TdR. Si no se cumplen los términos y se disputan la calidad e integridad de los resultados concretos finales, y dicha controversia que no puede ser resuelta entre la unidad encargada y el equipo de la evaluación final, se consultará al Asesor Regional de SyE y a la Dirección del Fondo Vertical. Si resulta necesario, se notificará también al personal directivo superior de la Dependencia de Servicios de Adquisiciones y a la Oficina de Apoyo Jurídico de la unidad encargada, de manera que se pueda tomar una decisión sobre si se debe o no retener el pago de las cantidades que se deban al (a los) evaluador(es), suspender o rescindir el contrato y/o retirar al contratista individual de las listas correspondientes.

## 12. **PROCESO DE SOLICITUD**[4]

Presentación recomendada de la propuesta:

a) **Carta de confirmación de interés y disponibilidad** a partir de la plantilla5 proporcionada por el PNUD;

b) **Currículo** y **formulario de antecedentes personales** (formulario P116);

c) Breve descripción **del enfoque del trabajo/propuesta técnica** de por qué la persona se considera la más adecuada para el trabajo, y una propuesta metodológica del modo en que abordará y completará la asignación (máximo de 1 página)

d) **Propuesta económica** que indica el precio total fijo del contrato y todos los demás gastos relacionados con viajes (como boletos de avión, dietas, etc.), respaldada por un desglose de costos, según la plantilla adjunta a la carta de confirmación de intereses. Si un solicitante es empleado por una organización/empresa/institución, y espera que su empleador le cobre una comisión de gestión en el proceso de asignarlo al PNUD en virtud del acuerdo de préstamo reembolsable, el solicitante debe indicar en este momento, y velar por que todos esos gastos figuren debidamente en la propuesta económica presentada al PNUD.

Todos los materiales de solicitud deben enviarse a la dirección (escribir dirección postal) en un sobre sellado que indique la siguiente referencia "Consultor para la evaluación final de *(título del proyecto)*", o por correo electrónico ÚNICAMENTE a la siguiente dirección: *(escribir dirección de correo electrónico)* a más tardar *(hora y fecha)*. Las solicitudes incompletas no serán consideradas.

**Criterios para la evaluación de la propuesta:** Solo se evaluarán aquellas solicitudes que respondan y cumplan con las normas. Las ofertas se evaluarán de acuerdo con el método de puntuación combinada, en que los antecedentes educativos y la experiencia en tareas similares se ponderarán con un 70 % y la propuesta de precio se ponderarán con un 30 % de la puntuación total. Se adjudicará el contrato al solicitante que reciba la puntuación combinada más alta y que también haya aceptado los Términos y Condiciones Generales del PNUD.

[4] El contacto con los evaluadores debe realizarse de conformidad con las directrices para contratar consultores que se aprecian en POPP https://popp.undp.org/SitePages/POPPRoot.aspx

[4] Engagement of evaluators should be done in line with guidelines for hiring consultants in the POPP https://popp.undp.org/SitePages/POPPRoot.aspx

[5]https://intranet.undp.org/unit/bom/pso/Support%20documents%20on%20IC%20Guidelines/Template%20for%20Confirmation%20of%20Interest%20and%20Submission%20of%20Financial%20Proposal.docx

[6] http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc

13. **ANEXOS DE LOS TDR**

- Anexo A de los TdR: Marco de lógico/de resultados del proyecto
- Anexo B de los TdR: Paquete de información del proyecto que debe revisar el equipo de la evaluación final
- Anexo C de los TdR: Contenido del informe de la evaluación final
- Anexo D de los TdR: Plantilla de matriz de criterios de evaluación
- Anexo E de los TdR: Código de Conducta de los evaluadores del UNEG
- Anexo F del TdR: Escalas de valoración de la evaluación final
- Anexo G de los TdR: Formulario de autorización de informe de la evaluación final
- Anexo H de los TdR: Historial de auditoría de la evaluación final

**Este Termino de referencia está aprobado por**: Jessica Young, Oficial de Programa.

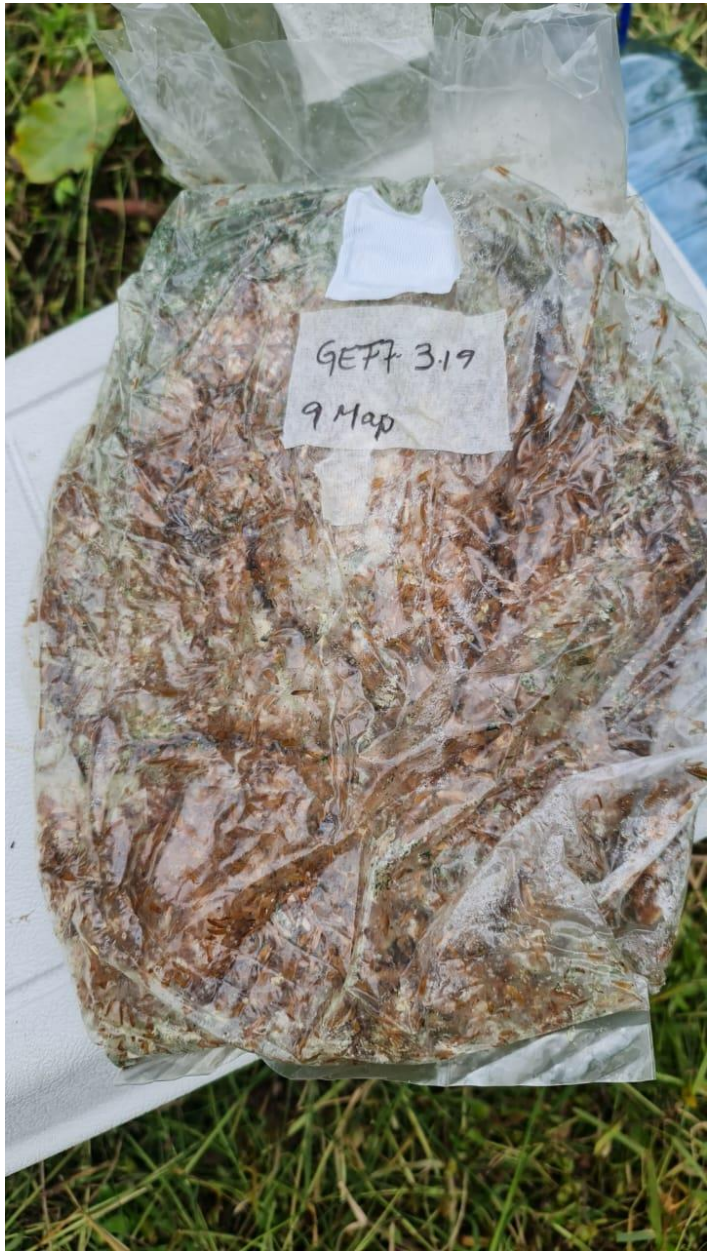
## Annex 2. Individuals consulted

| Name | Position | Institution | Date of Interview |
|---|---|---|---|
| Jessica Young | Program Officer | UNDP | June 6th, June 9th |
| Anarela Sanchez | Program Associate | UNDP | June 5th |
| José De Gracia | Project Coordinator | UNDP | June 2nd, June 5th, June 9th |
| Alicia Díaz | Gender Specialist | UNDP | June 12th |
| Larissa De León | Communication Specialist | UNDP | June 12th |
| Santiago Carrizosa | Technician in the Development of Proposals for the UNDP | UNDP | June 12th |
| Irina Madrid | Planification, Monitoring and Office Evaluation Specialist | UNDP | June 8th |
| Nelva Araùz | Office Gender Specialist | UNDP | June 12th |
| Raúl Pinedo | GEF Operational Focal Point | MiAMBIENTE | June 6th |
| Erick Nuñez | Head of the Biodiversity Department | MiAMBIENTE | June 6th |
| Dario Luque | Biodiversity Technician | MiAMBIENTE | June 12th |
| Anthony Vega | Biodiversity Technician | MiAMBIENTE | June 6th |
| Luis Mejía | Researcher | INDICASAT | June 7th |
| Marcelino Gutierrez | Researcher | INDICASAT | June 7th |
| Jessica Hidalgo - | Researcher | Autonomous University of Chiriquí (UNACHI) | June 6th |
| Maria Stapf | Herbarium | University of Panamá | June 7th |

Interviews during local field visits

| | | | |
|---|---|---|---|
| Nicomedes Jimenez | Chiriqui Technician of Protected Areas and Biodiversity | MiAMBIENTE | June 2nd |
| Krislly Quintero | Chiriqui Regional Director | MiAMBIENTE | June 2nd |
| Maria Ruiz | Secretary of the Association of Specialty Coffees of Panamá | Coffee Producers Association | June 2nd - 11:00-12:00 pm |
| Carmen Teddman | Local Coffee Producer | Local Coffee Association | June 2nd - 12:00 pm-1:30 pm |
| Jorge Pitty | Local Coffee Producer | Local Coffee Association | June 2nd - 8:00-9:00 am |
| José Lezcano | Researcher | MIDA/ Institute for Agricultural Innovation of Panamá (IDIAP) | June 2nd - 12:00 -1:30 pm |
| Carlos Araúz | Specialist in Agroforestry | Consultant | June 2nd - 12:00 -1:30 pm |

Photographic archives of the visit to the territory:


GEF7 3.19
9 Map

## Annex 3. List of documents reviewed and consulted

| # | Items |
|---|---|
| 1 | Project Identification Form (PIF) |
| 2 | UNDP Initiation Plan |
| 3 | Final UNDP-GEF Project Document with all annexes |
| 4 | CEO Endorsement Request |
| 5 | UNDP Social and Environmental Screening Procedure (SESP) and associated management plans (if any) |
| 6 | Inception Workshop Report |
| 7 | Mid-Term Review report and management response to MTR recommendations |
| 8 | All Project Implementation Reports (PIRs) |
| 9 | Progress reports (quarterly, semi-annual or annual, with associated workplans and financial reports) |
| 10 | Oversight mission reports |
| 11 | Minutes of Project Board Meetings and of other meetings (i.e. Project Appraisal Committee meetings) |
| 12 | GEF Tracking Tools (from CEO Endorsement, midterm and terminal stages) |
| 13 | GEF/LDCF/SCCF Core Indicators (from PIF, CEO Endorsement, midterm and terminal stages); for GEF-6 and GEF-7 projects only |
| 14 | Financial data, including actual expenditures by project outcome, including management costs, and including documentation of any significant budget revisions |
| 15 | Co-financing data with expected and actual contributions broken down by type of co-financing, source, and whether the contribution is considered as investment mobilized or recurring expenditures |
| 16 | Audit reports |
| 17 | Electronic copies of project outputs (booklets, manuals, technical reports, articles, etc.) |
| 18 | Sample of project communications materials |
| 19 | Summary list of formal meetings, workshops, etc. held, with date, location, topic, and number of participants |
| 20 | Any relevant socio-economic monitoring data, such as average incomes / employment levels of stakeholders in the target area, change in revenue related to project activities |
| 21 | List of contracts and procurement items over ~US$5,000 (i.e. organizations or companies contracted for project outputs, etc., except in cases of confidential information) |
| 22 | List of related projects/initiatives contributing to project objectives approved/started after GEF project approval (i.e. any leveraged or “catalytic” results) |
| 23 | Data on relevant project website activity – e.g. number of unique visitors per month, number of page views, etc. over relevant time period, if available |
| 24 | UNDP Country Programme Document (CPD) |
| 25 | List/map of project sites, highlighting suggested visits |
| 26 | List and contact details for project staff, key project stakeholders, including Project Board members, RTA, Project Team members, and other partners to be consulted |
| 27 | Project deliverables that provide documentary evidence of achievement towards project outcomes |
| | *Additional documents, as required* |

## Annex 4. Evaluation Criteria Matrix

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| ***Evaluation Criteria: Relevance*** | | | |
| **What is the relevance of the project to national policies and mandates?** | Existence of a clear link between project objectives and policies in Panamá. | Project documents. Biodiversity, ABS, NP strategies and documents in Panamá. | Document analysis<br>Interviews with key actors and project stakeholders, UNDP and project staff |
| ○ Were the project objectives relevant to the country's needs and priorities, taking into account the country's political, social, legal and institutional context? | Existence of a clear relationship between Panamá's needs and priorities in. | Project documents. Strategies and documents on climate change and environment in Panama. | Document analysis<br>Interviews with project stakeholders and key actors, UNDP and project staff |
| **What level of consistency is there with other interventions at the national level in the same area?** | Existence of information between the project and other interventions | Project documents | Document analysis<br>Interviews with key actors and project stakeholders, UNDP and project staff |
| ○ To what extent was the theory of change presented in the results model a relevant and appropriate vision on which to base project activities? | Existence of a clear link between the project objectives and the results achieved. | Project documents. Quarterly and annual progress reports | Document analysis<br>Interviews with project stakeholders and key actors, UNDP and project staff |
| ○ To what extent have the different ministries and levels of government in Panama worked together to address the use of biological and genetic resources, bioprospection, ABS under the project? | Existing structures for communication and cooperation between institutions | Project documents | Document analysis<br>Interviews with project stakeholders and key actors, UNDP and project staff |
| ○ Are the project objectives and implementation strategies consistent with global, regional and national environmental policies and strategies, taking into account the GEF and the UN and UNDP strategic frameworks? | Existence of a clear link between the project objectives and the environmental and development priorities of the countries. | Climate change and environment strategies and documents in Panama, GEF, UN and UNDP and project documents | Document analysis<br>Interviews with project stakeholders and key actors, UNDP staff and project staff |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| ○ To what extent are gender equality and social inclusion integrated into the project? Has this integration been relevant to the needs of socially excluded groups and women and men? | Number of women and men benefiting from the project results | Project documents. Quarterly and annual progress reports. Interviews with affected groups. | Document analysis<br>Interviews with project stakeholders and key actors, UNDP staff and project staff |
| ○ Has the Project taken appropriate measures to adjust its implementation strategy to the new circumstances and needs imposed by the COVID-19 pandemic? | Existence of rules of procedure in relation to project objectives and country environmental and developmental priorities | Project documents. | Document analysis<br>Interviews with project stakeholders and key actors, UNDP and project staff |
| ○ To what extent has the Project managed to ensure complementarity, harmonization and coordination with other relevant government interventions in Panama and other donors, avoiding duplication of efforts and adding value? | Existence of a clear link between project objectives and local/regional environmental and development initiatives and investigations. | Project documents. Reference documents at local and regional level that address Environment and Development priorities. | Document analysis<br>Interviews with key actors and project stakeholders, UNDP and project staff |
| ***Evaluation Criteria:*** **Effectiveness** | | | |
| **To what extent have the expected results and objectives of the project been achieved?** | Indicators from the SRF/project logframe | Project documents. Quarterly and annual progress reports | Document analysis<br>Interviews |
| To what extent have the expected results been achieved? What are the main achievements of the project? | Indicators from the SRF/project logframe | Project documents. Quarterly and annual progress reports | Document analysis. Interviews |
| Explain briefly the reasons for the success (or failure) of the Project in obtaining its different products and in meeting the expected quality standards. | Indicators of the SRF/project logframe | Project documents. Quarterly and annual progress reports | Document analysis.<br>Interviews |
| **Have key stakeholders been adequately involved in the delivery of planned outputs?** | Number of participants in project activities. | Quarterly and annual progress reports. | Document analysis. Interviews. |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| To what extent and how effectively have the Project's approach and specific actions contributed to its outputs and outcomes? If yes, why? If no, why not? | Indicators of the SRF/project logframe in relation to the project results | Committee minutes and annual progress reports | Document analysis<br>Interviews |
| What has been the contribution of partners and other organizations to the results, and to what extent have the project partnerships been effective in contributing to the achievement of the results? | Involvement of organizations and partners (qualitative analysis) | Committee minutes and annual progress reports | Document analysis<br>Interviews |
| To what extent has the project contributed to the country having operational roadmaps and institutions to advance medium- and long-term adaptation planning processes in the context of national development strategies and budgets? | Existence of a clear link between project objectives and local/regional environmental and development priorities. | Project documents. Reference documents at local and regional level that address Environment and Development priorities. | Document analysis<br>Interviews |
| Has the NP programme been effective in helping to improve bioprospection, investigation of biological and genetic resources for crop protection, ABS planning and negotiation in Panama? | Existence of a clear link between project objectives and local/regional genetic resource and development priorities. | Project documents. Reference documents at local and regional level that address Environment and Development priorities. | Document analysis<br>Interviews |
| ***Evaluation Criteria: Efficiency*** | | | |
| **Has the project been implemented efficiently, in accordance with national and international norms and standards?** | Resources allocated to the project compared to other alternatives | Project documents. annual progress reports. Minutes of the Project's Board of Directors<br>Audit Report (if available) | Document analysis<br>Interviews |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| Have the resources (financial, human, technical) been allocated strategically and economically to achieve the project results? Were the project activities implemented as planned and with the planned financial resources? Is the relationship between project inputs and outputs adequate and justifiable? | Resources allocated to the project compared to other alternatives | Project documents. annual progress reports. Minutes of the Project's Board of Directors.<br>Audit Report (if available) | Document analysis<br>Interviews |
| To what extent have target groups and other stakeholders played an active role in the implementation of the Project? What modalities of participation have taken place? To what extent have partner institutions supported the implementation of the Project? | Level of participation and ownership that actors and stakeholders have over the results and their degrees of interest in maintaining them. | Project documents. project reports. Closing strategy. | Document analysis<br>Interviews |
| Have the communication and dissemination of the Project been satisfactory? | Qualitative evaluation of the items involved | Project documents | Document analysis<br>Interviews |
| Did the Project have a robust monitoring and evaluation plan to monitor results and track progress towards the achievement of Project objectives? | Monitoring and evaluation plan | Project documents. annual progress reports. Minutes of the Project's Board of Directors.<br>Audit Report (if available) | Document analysis<br>Interviews |
| ***Evaluation Criteria: Results*** **(Impact)** | | | |
| **What have been the real effects and impacts of the project in Panama?** | Level of consolidation of the project's Theory of Change | Project documents. project reports. | Document analysis<br>Interviews |
| What is the impact of the Project in qualitative and quantitative terms from a broader development and systems building perspective? What would development have been | Level of consolidation of the project's Theory of Change<br>Existence of a clear link between project objectives and | Project documents. Final project report. | Document analysis<br>Interviews |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| like without the Project's interventions in the area of interest? | local/regional environmental and development priorities. | | |
| What are the positive or negative changes, intended or unintended, brought about by the Project's interventions? | Degree to which basic conditions are established and likelihood of achieving impact | Project documents. | Document analysis<br>Interviews |
| What real differences have the project interventions made to the beneficiaries? How many people have been affected? Have women and men benefited equally from the project? | Number of people who have been affected by or benefited from the project (women and men) | Project documents.<br>Project reports.<br>Gender M&E | Document analysis<br>Interviews |
| To what extent are the main stakeholders/end beneficiaries satisfied with the implementation and results of the Project, specifically in terms of partnership support, and what are the specific issues that remain to be resolved in the focus area? | Satisfaction of key stakeholders/end beneficiaries with project implementation and results (qualitative analysis) | Project documents.<br>Final project report. | Document analysis<br>Interviews |
| To what extent has the Project enhanced cooperation between relevant institutions? | Existence of cooperation between institutions | Project documents.<br>Final project report. | Document analysis<br>Interviews |
| How have cross-cutting issues, such as **gender** equality and reaching out to vulnerable groups, been effectively addressed? | Existence of a clear link between logframe, indicators, activities, monitoring and evaluation systems, reporting mechanisms and gender. | Project documents<br>Gender Análisis, Gender M&E | Document analysis<br>Interviews |
| What is the Project's medium- and long-term influence on bioprospecting, biological and genetic crop protection and ABS in the country, as a result of the NP policy frameworks? | Existence of a clear link between project objectives and local/regional environmental and development priorities. | Project documents.<br>Final project report. | Document analysis<br>Interviews |
| ***Evaluation Criteria: Sustainability*** | | | |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| **To what extent are the results and products obtained sustainable? How could the results of the Project be projected and expanded in a more sustainable way, taking into account the remaining needs? And by which institutions?** | Evidence/quality of the sustainability strategy | Project documents | Document analysis |
| Are there social or political factors that may positively or negatively influence the sustainability of Project outcomes and progress towards impacts? | Identification of potential threats and risk assessment | Project documents. Final project report. Closing strategy. | Document analysis<br>Interviews |
| Is the level of ownership by key stakeholders (institutional framework and governance) sufficient to enable the Project results to be sustained? Are the financial resources available? | Adequacy of governance structures<br><br>Identification of potential threats and risk assessment | Project documents. Final project report. Closing strategy. | Document analysis<br>Interviews |
| Is there sufficient awareness, interest, commitment and incentives from government and other key stakeholders to use the tools, approaches and roadmaps in the development of ABS solutions? | Evidence that the project partners and beneficiaries will continue the activities beyond the end of the project. | Project documents. Quarterly and annual progress reports.<br><br>Closing strategy. | Document analysis<br>Interviews |
| What are the innovations/best practices that need to be further developed? | Existing innovations and best practices | Project documents. Final project report. Closing strategy. | Document analysis<br>Interviews |
| Did the intervention activities aim to promote (and did they promote) sustainable positive changes in attitudes, behaviors and power relations among the different actors? To what extent has the integration of human rights and gender led to an increase in the likelihood of sustainability of the Project's results? | Evidence/ quality of the sustainability strategy. | Project documents | Document analysis |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| What mechanisms has the project put in place to help the government of Panama sustain the improvements made through these interventions? | Evidence/ quality of the sustainability strategy.<br>Level and source of future financial support to be provided to relevant activities and sectors after project completion.<br>Commitments from international partners, government or others | Project documents | Document analysis |
| ***Gender equality and women's empowerment* (Gender)** | | | |
| In your opinion, how are gender reflected in the design of the intervention (logical framework, indicators, activities, monitoring and evaluation systems, reporting mechanisms)? | Existence of a clear relationship between logframe, indicators, activities, monitoring and evaluation systems, reporting mechanisms and gender. | Project documents | Document analysis<br>Interviews with UNDP and project personnel |
| Did the intervention design benefit from a robust and inclusive stakeholder analysis? Was a gender analysis carried out to clearly define the underlying structural problems in the realization of gender? Does the design respond to this analysis? | Stakeholder analysis of the gender respectful structures and the relationship of the project with these structures. | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Was there a clear identification of women and individuals/groups who are marginalized and/or discriminated against as the focus of the intervention? | Strategy for participation of women and individuals/groups that are marginalized and/or discriminated against | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Have gender roles and relations been examined and areas of discrimination against women identified? | Strategy for participation of women and individuals/groups that are marginalized and/or discriminated against | Project documents | Document analysis<br>Interviews with UNDP and project personnel |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| Have stakeholders (both women and men) participated in the various activities of the intervention in an active, meaningful and free manner? | Strategy for participation of women and individuals/groups that are marginalized and/or discriminated against | Project documents | Document analysis<br>Interviews with UNDP and project personnel |
| Is there a specific gender strategy, are the objectives of the strategy clear and realistic, and do the proposed programme activities lead to gender goals and objectives? | Strategy for participation of women and individuals/groups that are marginalized and/or discriminated against | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Does the programme have the capacity to provide data for gender-sensitive evaluation? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project personnel |
| Are baseline data available on the situation of beneficiaries, particularly women, at the start of the intervention? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Are there gender-sensitive indicators integrated into the intervention? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Is there a consistent monitoring system to track progress in gender mainstreaming? | Existence of monitoring systems for data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Have monitoring systems captured gender information (e.g., the situation of different groups of people, specific indicators, etc.)? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| What kind of gender information is accessible and how can it be collected? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| Do implementation records and activity progress reports contain information on how gender issues were addressed? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| Are disaggregated data (e.g., by sex, ethnicity, age, etc.) that reflect the diversity of stakeholders available? | Existence of information for a data evaluation | Project documents | Document analysis<br>Interviews with UNDP and project staff |
| What are the likely costs of gender data collection and analysis? | Data collection cost analysis | Project documents | Document analysis<br>Interviews with UNDP and project personnel |
| Is the context in which the evaluation will be conducted conducive to gender-sensitive evaluations? Are stakeholder views on gender generally aligned with international standards? | Level of participation and ownership that actors and stakeholders have over the results and their degrees of interest in maintaining them. | Project documents | Document analysis<br>Interviews with UNDP and project personnel |
| Is the context (political, institutional, cultural, etc.) in which the intervention takes place conducive to the advancement of gender? | Level of participation and ownership that actors and stakeholders have over the results and their degree of interest in maintaining them. | Project documents. Final project report. Closing strategy. | Document analysis<br>Interviews |
| If there are issues that may provoke resistance or political opposition, what strategies will be put in place to include gender analysis in the evaluation? | Identification of potential threats and risk assessment.<br>Existing strategies to overcome resistance. | Project documents. Final project report. Closing strategy. | Document analysis<br>Interviews |
| Is there experience available to evaluate gender mainstreaming? | Documented experience of project stakeholders and actors. | Project documents. | Document analysis<br>Interviews |

## Annex 5. Evaluation Consultant Agreement Form

**Evaluators:**

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.
8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.
9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

**Evaluation Consultant Agreement Form**

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Evaluator: Carlos Ludeña

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at Panama on June 29, 2023

Signature: 

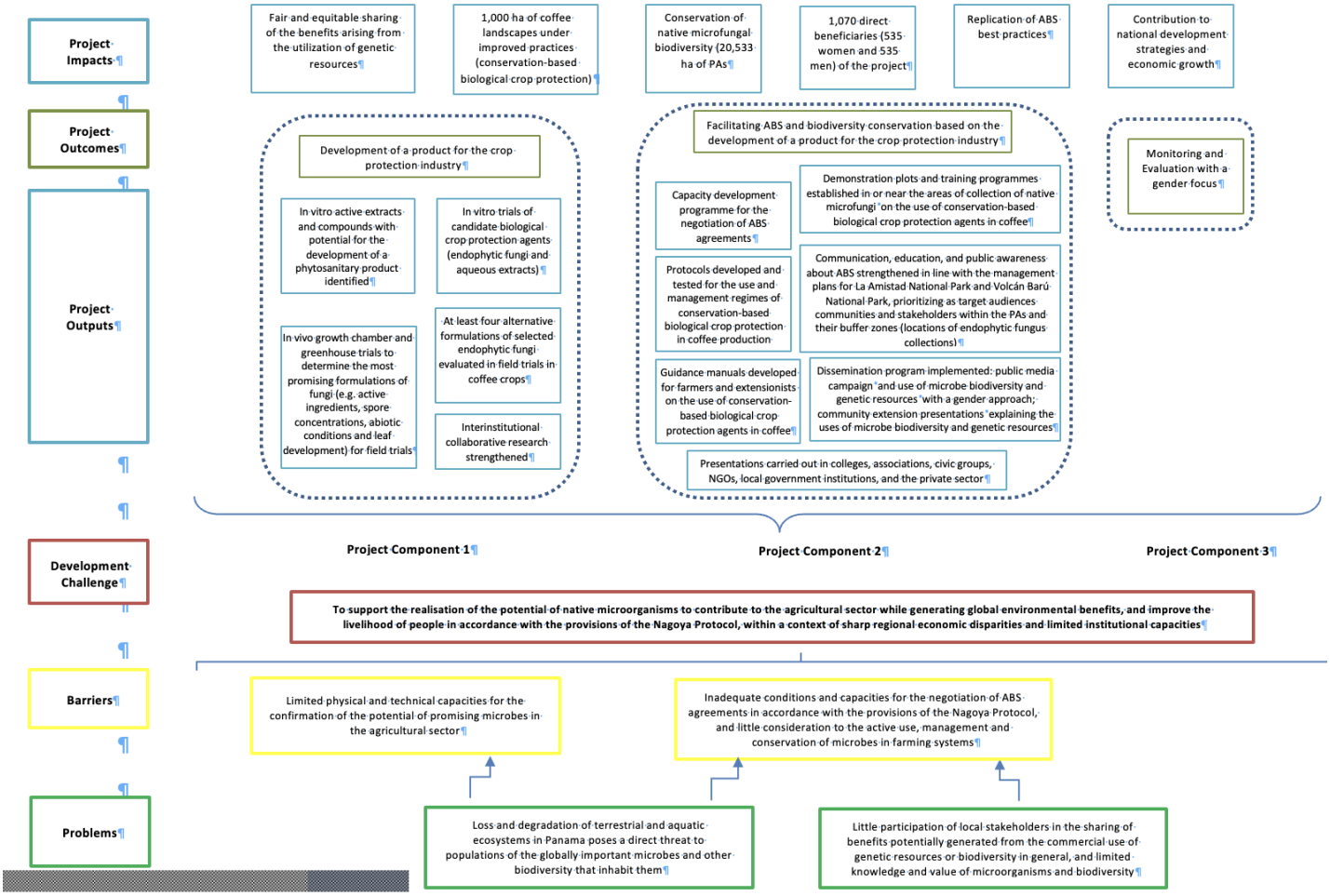
## Annex 6. Terminal Evaluation Audit Trail

The Annex will be included as a separate file.

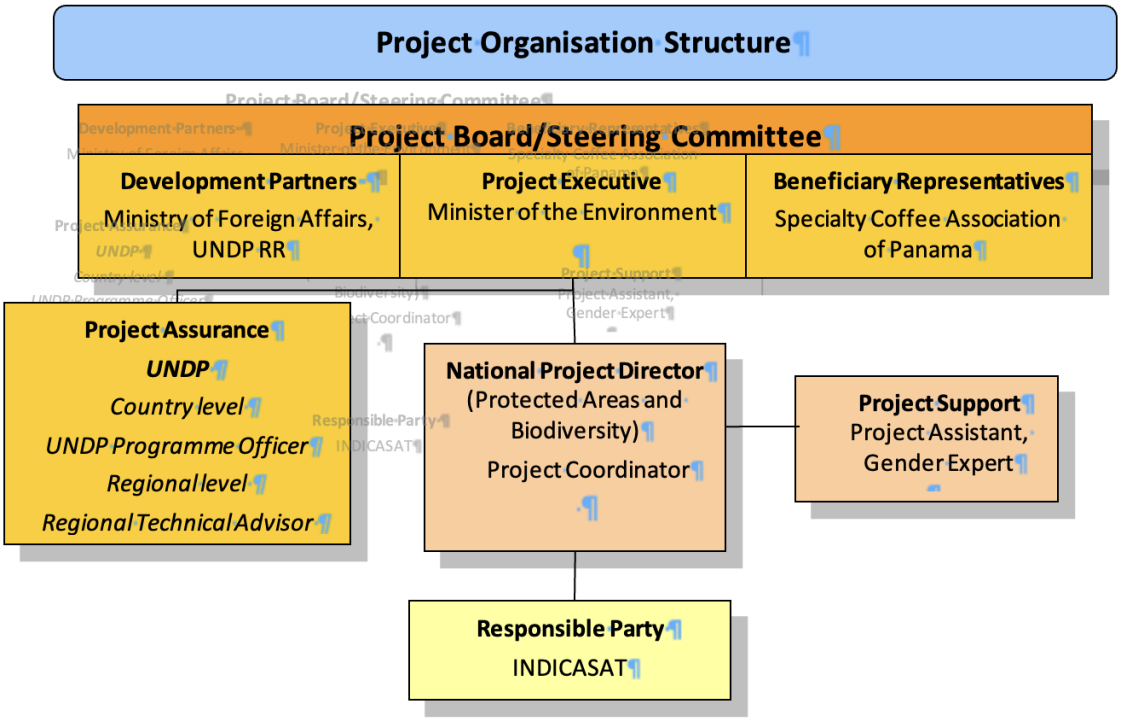
## Annex 7. Summary of the Rating Scales

| Ratings for Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight, Execution, Relevance |
|---|
| 6 = Highly Satisfactory (HS): exceeds expectations and/or no shortcomings |
| 5 = Satisfactory (S): meets expectations and/or no or minor shortcomings |
| 4 = Moderately Satisfactory (MS): more or less meets expectations and/or some shortcomings |
| 3 = Moderately Unsatisfactory (MU): somewhat below expectations and/or significant shortcomings |
| 2 = Unsatisfactory (U): substantially below expectations and/or major shortcomings |
| 1 = Highly Unsatisfactory (HU): severe shortcomings |
| Unable to Assess (U/A): available information does not allow an assessment |
| **Sustainability ratings:** |
| 4 = Likely (L): negligible risks to sustainability |
| 3 = Moderately Likely (ML): moderate risks to sustainability |
| 2 = Moderately Unlikely (MU): significant risks to sustainability |
| 1 = Unlikely (U): severe risks to sustainability |
| Unable to Assess (U/A): Unable to assess the expected incidence and magnitude of risks to sustainability |

# Annex 8. Theory of change



## Annex 9. Implementation arrangements




Source: ProDoc

## Annex 10. Logical Framework of the Project and fulfillment of deliverables

| | | | | | | |
|---|---|---|---|---|---|---|
| **This project will contribute to the following Sustainable Development Goal (s):** 9 (Industry, Innovation, and Infrastructure) and 15 (life on land) | | | | | | |
| **This project will contribute to the following country outcome (UNDAF 2016-2020):** 3.2: By 2020, the State has strengthened its capacities to design and implement policies, plans and programs that contribute to environmental sustainability, food and nutrition security, adaptation to climate change, disaster risk reduction and resilience build-up<br>CPD Output 3.1: Improved compliance of commitments to international environmental agreements. | | | | | | |
| | **Objective and Outcome Indicators** | **Baseline** | **Mid-term Target** | **End of Project Target** | **Status as per TE** | **TE Comments** |
| **Project Objective:**<br>**To support the realization of the potential of native microorganisms to contribute to the agriculture sector while generating global environmental benefits, in accordance with the provisions of the Nagoya Protocol** | **Mandatory** Indicator 1(GEF Core Indicator 11): # direct project beneficiaries disaggregated by gender (individual people) | – 0 | – 465 (165 women; 300 men) | – 1,070 (535 women; 535 men) | – 1,233 (607 women; 626 men) | Project result exceeded.<br>The project was able to train 163 more people. |
| | **Mandatory** Indicator 2 (GEF Core Indicator 4): Area of landscapes under improved practices (excluding protected areas) | – 0 | – 500 ha of coffee farms | – 1,000 ha of coffee farms | – 1,105 ha of coffee farms | Project result exceeded.<br>105 ha more are under improved practices. |
| **Project Component 1** | **Development of a product for the crop protection industry** | | | | | |
| **Project Outcome 1.1**<br>**Promising active compounds identified from endophytic fungi, as biological crop protection agents in the agricultural sector** | Indicator 3: Number of active extracts and compounds isolated in order to develop a product for the crop protection industry focused on the coffee sector. | – Extracts: 0<br>– Compounds: 0 | – Extracts: 100<br>– Compounds: 2 | – Extracts: 200<br>– Compounds: 4 | – Extracts: 548<br>– Compounds: 8 | Project result exceeded.<br>A total of eight (8) compounds have been isolated, exceeding the original goal of four (4) compounds initially proposed in the project. At least two of these metabolites are new to science. |
| **Outputs to achieve Outcome 1.1** | 1.1.1 In vitro active extracts and compounds with potential for the development of a phytosanitary product identified. | | | | | |
| **Project Outcome 1.2**<br>**Strengthened research and development of novel biological crop protection agents** | Indicator 4: Number of formulations with potential for crop protection product development, on the basis of field trials of the prioritized formulations | – 0 | – 2 | – 4 | – 5 | Project result exceeded. Five formulations have been tested on coffee farms. It is expected that more formulations will be tested until the end of the project. |
| **Outputs to achieve Outcome 1.2** | 1.2.1 In vitro trials of candidate biological crop protection agents (endophytic fungi and aqueous extracts).<br>1.2.2 In vivo growth chamber and greenhouse trials to determine the most promising formulations of fungi (e.g. active ingredients, spore concentrations, abiotic conditions and leaf development) for field trials.<br>1.2.3 At least four alternative formulations of selected endophytic fungi evaluated in field trials in coffee crops. | | | | | |

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| | 1.2.4 Interinstitutional collaborative research strengthened. | | | | | |
| **Project Component 2** | **Facilitating access, benefit-sharing and biodiversity conservation based on the development of a product for the crop protection industry** | | | | | |
| **Project Outcome 2.1**<br>**Increased capacity to negotiate an ABS agreement by the end of the project** | Indicator 5: Number of authorities and technical staff and local stakeholders practically applying the skills learned in negotiation of ABS agreements, disaggregated by gender | – Men: 0<br>– Women : 0 | – Men: 45<br>– Women: 30 | – Men: 75<br>– Women : 75 | – Men: 75<br>– Women: 84 | Project result exceeded. |
| | Indicator 6: Number of ABS agreements negotiated between the government and users of the crop protection product by project end | – 0 | – 0 | – One (1) | – 0 | Result not met.<br>Formulation testing is still ongoing.<br>ABS negotiation start once a viable compound has been identified. |
| **Outputs to achieve Outcome 2.1** | 2.1.1 Capacity development programme for the negotiation of ABS agreements. | | | | | |
| **Project Outcome 2.2**<br>**Increased technical capacity for conservation-based biological crop protection in 1,000 ha of coffee farms in the La Amistad National Park (World Heritage Site and Biosphere Reserve) and the Volcán Barú National Park and their and buffer zones, with potential to contribute to the conservation status of two globally important microbes (endophytic fungi) and their host ecosystems** | Indicator 7: Number of coffee producers practically applying the skills learned on the use of conservation - based biological crop protection agents, disaggregated by gender. | – Men: 0<br>– Women : 0 | – Men: 30<br>– Women: 20 | – Men: 50<br>– Women : 50 | – Men: 87<br>– Women: 64 | Project result exceeded. |
| **Outputs to achieve Outcome 2.2** | 2.2.1 Protocols developed and tested for the use and management regimes of conservation-based biological crop protection in coffee production systems<br>2.2.2 Guidance manuals developed for farmers and extensionists on the use of conservation-based biological crop protection agents in coffee | | | | | |

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| | 2.2.3 Demonstration plots and training programmes established in or near the areas of collection of native micro fungi, on the use of conservation-based biological crop protection agents in coffee | | | | | |
| **Project Outcome 2.3**<br>**Increased knowledge and awareness regarding microbe biodiversity, conservation-based biological crop protection and genetic resources** | Indicator 8: Number of people in La Amistad National Park (World Heritage Site and Biosphere Reserve) and in the Volcán Barú National Park practically applying the skills learned on the importance and use of biodiversity and genetic resources, with specific reference to microbes, disaggregated by gender | – Men: 0<br>– Women: 0 | – Men: 200<br>– Women: 100 | – Men: 350<br>– Women: 350 | – Men: 505<br>– Women: 253 | Total number of persons trained exceeded, yet number of women to be trained has not been met.<br><br>Although, awareness training are ongoing. |
| **Outputs to achieve Outcome 2.3** | 2.3.1 Communication, education, and public awareness about ABS strengthened in line with the management plans for La Amistad National Park (World Heritage Site and Biosphere Reserve) and Volcán Barú National Park, prioritizing as target audiences communities and stakeholders within the PAs and their buffer zones (locations of endophytic fungus collections).<br>2.3.2 Dissemination programme implemented, including:<br>-Public media campaign on protection and use of microbe biodiversity and genetic resources, with a gender approach<br>-Community extension presentations explaining the uses of microbe biodiversity and genetic resources<br>2.3.3 Presentations carried out in colleges, associations, civic groups, NGOs, local government institutions, and the private sector. | | | | | |
| **Project Component 3** | **Monitoring and Evaluation (M&E) with a gender focus** | | | | | |
| **Outcome 3.1**<br>**M&E assesses project impact and guides adaptive management.** | Indicator 9: Progress in Project Gender Action Plan and M&E Plan | – M&E Plan: 0%<br>– Gender Action Plan: 0% | – M&E Plan: 50%<br>– Gender Action Plan: 50% | – M&E Plan: 100%<br>– Gender Action Plan: 100% | – M&E Plan: 90%<br>– Gender Action Plan: 75 % | Expected final Result has not yet been met.<br><br>The M&E Plan and Project Gender Mainstreaming Plan are in progress. |
| **Outputs to achieve Outcome 3.1** | 3.1.1 Project's M&E Plan and Gender Action Plan implemented, ensuring the achievement of the planned goals. | | | | | |

## Annex 11. TE Report Clearance Form

The Annex will be included as a separate file.