

# INTERNATIONAL TROPICAL TIMBER ORGANIZATION

## ITTO

### PROJECT PROPOSAL

<b>TITLE:</b>	DEVELOPING SILVICULTURAL MANAGEMENT MODELS FOR FOREST RESTORATION BASED ON THE USE OF SEED TREES FOR THE ESTABLISHMENT OF NATURAL AND ARTIFICIAL REGENERATION IN THE PROVINCE OF TAHUAMANU, PERU
<b>SERIAL NUMBER:</b>	PD 929/22 Rev.1 (F)
<b>COMMITTEE:</b>	REFORESTATION AND FOREST MANAGEMENT
<b>SUBMITTED BY:</b>	GOVERNMENT OF PERU
<b>ORIGINAL LANGUAGE:</b>	SPANISH

#### SUMMARY

This project seeks to silviculturally manage seed trees, to find a procedure that will encourage the production of seeds and the establishment of natural and artificial regeneration, which will lead to the restoration of harvested species populations for the next harvesting cycle by ensuring that these trees reach the desired wood quality and quantity in the areas under forest management.

The results of the project will contribute to the development of a silvicultural system to be applied in the restoration of commercial species populations in areas under forest management plans and operational plans, which will directly support forest concessions and native communities. In addition, the methodology developed may be replicated in other forest regions of the country, thus contributing to national forest development.

**EXECUTING AGENCY:** NATIONAL FORESTRY CHAMBER (CNF) /NATIONAL AGRARIAN UNIVERSITY OF LA MOLINA (UNALM)

**COLLABORATING AGENCIES** Ministry of Agrarian Development and Irrigation (MIDAGRI)  
National Forest and Wildlife Service (SERFOR)  
Ministry of the Environment (MINAM)  
Associated Nature and Development Consultants (CANDES)  
Regional Forest and Wildlife Authority of Madre de Dios  
Forest concessions and native communities in the region

**DURATION:** 37 MONTHS

**ESTIMATED STARTING DATE** UPON PROJECT APPROVAL

#### BUDGET AND PROPOSED FUNDING SOURCES:

Source	Contribution in US\$
ITTO	1,061,040
CNF	850,572
<b>TOTAL</b>	<b>1,911,612</b>

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## PROJECT BRIEF

Since 2002, the National Agrarian University of La Molina (*Universidad Nacional Agraria La Molina* – UNALM) has been working on a long-term strategy to develop silvicultural tools and outputs that could lead to the unlisting of CITES-listed species (mahogany and cedar), and in recent years the National Forestry Chamber has joined this initiative.

Forest concessions and native communities have not yet developed sufficient silvicultural skills. The key problem identified by the project is the limited natural regeneration of mahogany (*Swietenia macrophylla*), cedar (*Cedrela* spp.) and shihuahuaco (*Dipteryx* spp.), as well as the low probability of developing and reaching adequate maturity to ensure the restoration of these species' populations and the generation of economic returns over time, without diminishing the ecological and environmental functions of forests. These target species are included within Executive Resolution No. 118-2019 MINAGRI-SERFOR, which also covers other species of the same genus.

**The scope of the project has been narrowed down to cover the assessment of 3 species, including 2 CITES-listed species plus an additional one that some countries have proposed to list – mahogany (*Swietenia macrophylla*), cedar (*Cedrela* spp.) and shihuahuaco (*Dypteryx* spp.).**

This project seeks to validate silvicultural methods to assess and monitor seed trees of **three (3)** commercial species with good post-logging regeneration potential by analyzing their phenology, which involves seed production and dispersal, as well as the establishment of regeneration and seedling development. Furthermore, the project is expected to develop silvicultural techniques for each species, in order to establish a silvicultural model that can be applied in forest management plans and operational plans.

The project is aimed at finding a procedure that will encourage the production of seeds, which will lead to the restoration of species through natural and artificial regeneration, ensuring that these species reach the desired wood quality and quantity in the areas under forest management.

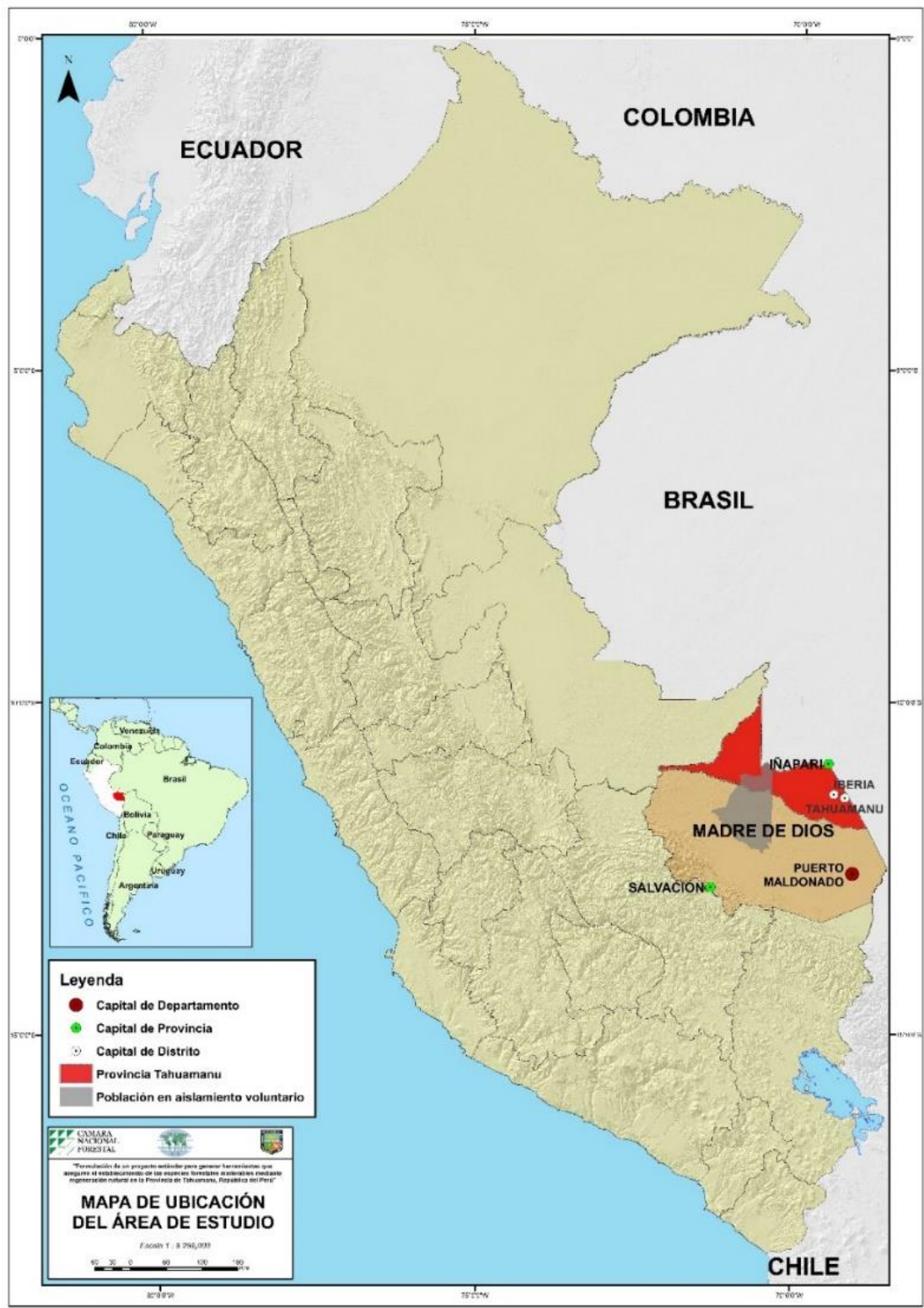
Four main causes of this problem have been identified: first, the limited production of good quality seeds, which leads to the second cause related to uncertainty about the species population restoration; this in turn leads to the third cause, which is the lack of establishment of individuals of the target species thus impairing their development to reach the desired maturity. The third cause is in turn due to the fourth identified cause i.e. that the few existing silvicultural studies have not been adequately disseminated or included in training programs, resulting in a lack of knowledge about silvicultural techniques.

The outcomes of the project will contribute to the restoration of commercial species populations, which will directly help forest concessions and native communities, and the methodology developed will be suitable for replication in other forest regions of the country, thus contributing to national forest development.

## LIST OF ACRONYMS AND ABBREVIATIONS

<b>ACCA</b>	Asociación para la Conservación de la Cuenca Amazónica
<b>ADEX</b>	Asociación de exportadores ( <i>Exporters Association</i> )
<b>CITE Madera</b>	Centro de Innovación Tecnológica de la Madera (Center for Wood Technology Innovation)
<b>CITES</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora
<b>CNF</b>	Cámara Nacional Forestal ( <i>National Forestry Chamber</i> )
<b>FENAMAD</b>	Federación Nativa del Río Madre de Dios y Afluentes (Native Federation of the Madre de Dios River and its Affluents)
<b>GFMP</b>	General Forest Management Plan
<b>GOREMAD</b>	Gobierno Regional de Madre de Dios ( <i>Regional Government of Madre de Dios</i> )
<b>GRFFS-MDD</b>	Gerencia Regional Forestal y de Fauna Silvestre de Madre de Dios ( <i>Regional Forest and Wildlife Authority of Madre de Dios</i> )
<b>IBC</b>	Instituto del Bien Común (Institute for the Common Good)
<b>IGN</b>	Instituto Geográfico Nacional (National Geographic Institute)
<b>IIAP</b>	Instituto de Investigaciones de la Amazonía Peruana (Peruvian Amazon Research Institute)
<b>INEI</b>	Instituto Nacional de Estadística (National Institute of Statistics)
<b>INIA</b>	Instituto Nacional de Innovación Agraria (National Institute for Agrarian Innovation)
<b>INRENA</b>	Instituto Nacional de Recursos Naturales (National Institute for Natural Resources)
<b>ITTO</b>	International Tropical Timber Organization
<b>MEF</b>	Ministerio de Economía y Finanzas ( <i>Ministry of Economy and Finance</i> )
<b>MIDAGRI</b>	Ministerio de Desarrollo Agrario y Riego ( <i>Ministry of Agriculture and Irrigation</i> )
<b>MINAM</b>	Ministerio del Ambiente (Ministry of the Environment)
<b>NGO</b>	Non-governmental organization
<b>OSINFOR</b>	Organismo Supervisor de los Recursos Forestales y de Fauna Silvestre ( <i>Timber Forest Resources Supervisory Agency</i> )
<b>OP</b>	Operational Plan
<b>PCM</b>	Presidencia del Consejo de Ministros (Head of the Council of Ministers)
<b>SENAMHI</b>	Servicio Nacional de Meteorología e Hidrografía (National Meteorology and Hydrography Service)
<b>SERFOR</b>	Servicio Nacional Forestal y de Fauna Silvestre (National Forest and Wildlife Service)
<b>UGFFS</b>	Unidad de Gestión Forestal y de Fauna Silvestre ( <i>Forest and Wildlife Management Unit</i> )
<b>UNALM</b>	Universidad Nacional Agraria la Molina ( <i>National Agrarian University of La Molina</i> )
<b>UNAMAD</b>	Universidad Nacional Amazónica de Madre de Dios ( <i>National Amazon University of Madre de Dios</i> )

MAP OF PROJECT AREA



## PART 1. PROJECT CONTEXT

### 1.1 Origin

In 2002, the National Agrarian University of La Molina (*Universidad Nacional Agraria la Molina* - UNALM), as the CITES scientific authority in the country, made it a national objective to ensure that mahogany populations would not be further depleted and that, in the long term, big-leaf mahogany (*Swietenia macrophylla*), which is listed in CITES Appendix II, would once again become a free-trade species. To this end, UNALM has been developing a research and information gathering strategy for this species throughout the years, by using different sources of financing and by establishing partnerships with public and private agencies, such as ITTO, CITES and CNF. Cedar (*Cedrela* spp.) was subsequently included in this program as this species is listed in CITES Appendix III.

To date, UNALM has made significant progress in research related to the reproductive behaviour of both *Swietenia macrophylla* (mahogany) and *Cedrela* spp. (cedar). However, there is an urgent need to carry out further in-depth and specialized research so as to obtain more information on their phenology and their potential pollinators and dispersers as well as on the monitoring of plantation establishment and natural regeneration responses for both species.

Furthermore, it is important to point out that the results obtained from different UNALM studies have always been used as guidance for the development of policies and strategies aimed at the sustainability of timber species, including the formulation of non-detriment findings to establish annual quotas for mahogany exports.

In addition, given the high harvesting levels and the pressure exerted on high density tree species, also known as “hardwoods”, it is important to determine the status of shihuahuaco (*Dipteryx* spp.), as well as other associated species, because, due to the lack of baseline studies, it has not been possible to estimate the remaining forest mass of these species and to assess if the retained seed trees are sufficient to restore their original populations. It is therefore necessary to implement a study to determine the population status of these species, taking into account their natural regeneration behaviour and tree reproductive strategies.

Thus, the project covers the two CITES-listed timber species i.e. mahogany and all *Cedrela* species found in Peru, as well as species that are currently harvested in significant volumes such as shihuahuaco.

Moreover, since 2002, with the enforcement of the Forestry Law (Act No. 27308), the sector started to implement a forest concession model for commercial harvesting, which was subsequently strengthened and updated through Act No. 29763, promulgated in 2011. Under this model, in order to access the forest, concession holders are required to submit a General Forest Management Plan (GFMP) and an Operational Plan (OP) as planning and management tools. The guidelines for the formulation of these plans were adopted in 2003 and updated in 2016; they establish that silvicultural treatments and monitoring activities and interventions are considered to be “optional” and that priority must be given to the preservation of seed trees as the main restoration treatment. In addition, these guidelines state that because of the lack of information in relation to costs, benefits and impacts and the limited number of experiences in Peruvian Amazon forests, these activities are being progressively implemented and can be developed, as pilot projects, in forest concession areas. Similarly, forest monitoring activities can be carried out by groups of concession holders who share the same geographic environment, by establishing partnerships with specialized institutions such as universities and other agencies. Furthermore, the 2016 version establishes that the number of trees to be retained per species should be 20 per cent.

Therefore, despite the fact that Peru has taken the decision to prioritize these activities and has adopted the required legal instruments aimed at sustainable forest management, it is still necessary to establish a partnership between concession holders and the academic sector so as to implement research work that will provide information on silvicultural and monitoring activities for species of interest, in addition to providing an appropriate knowledge base and environment that will ensure the continuity of this type of research by making it part of the responsibilities of both concession holders and forest authorities.

This proposal is based on a methodological breakthrough developed with the support of the ITTO-CITES Programme (“Management of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.) seed stands in a forest concession for the conservation of the Tahuamanu Seed Stand”) where an evaluation and monitoring methodology was developed for the phenology and establishment of natural mahogany and cedar

regeneration. The project will use, adjust and validate field work activities based on experts' feedback, thus helping to obtain information on other important commercial species.

The experience acquired throughout the years of work on mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.), as well as other species that are being intensively used, has shown that selected and retained seed trees are not managed according to appropriate silvicultural plans, and there is a general lack of knowledge on how to treat them to ensure adequate natural regeneration. In this context, the study should also include shihuahuaco (*Dipteryx* spp.), with the possibility of introducing additional species that are associated with these four selected species, such as huayo sugar (*Hymenaea courbaril*), ishpingo (*Amburana cearensis*, *Amburana acreana*), and manchinga (*Brosimum alicastrum*), among others.

This proposal is based on the technical report prepared for the pre-project "Development of a full project proposal to generate tools to ensure the establishment of timber forest species through natural regeneration in the province of Tahuamanu, Peru", which, during a six-month implementation period, established an updated seed-tree database, obtained contributions from key forest authorities and users, and developed a methodological proposal to assess and monitor seed trees and regeneration, as well as considering silvicultural trials to identify natural and artificial regeneration responses when the project is implemented.

## 1.2 Relevance

### 1.2.1 Conformity with ITTO's objectives and priorities

This proposal seeks to continue the research line pursued by UNALM to generate knowledge on the phenology and seed-dispersal behaviour of CITES-listed species as well as other species of current commercial value, so as to ensure the sustainable supply of timber stocks, understand the reproductive strategies of target species, and encourage their establishment, thus promoting forest activities as a sustainable business for both forest concessions and native communities. To this end, the project is aimed at the achievement of the objectives set out in Article 1 of the International Tropical Timber Agreement (2006) as shown below:

ITTA Article 1 Objectives	Justification
c) Contributing to sustainable development and to poverty alleviation.	The project will generate technical tools to be adopted by local stakeholders, promoting sustainable forest management and hence attractive investment opportunities by ensuring the restoration of future populations and harvestable timber volumes of the target species.
f) Promoting and supporting research and development with a view to improving forest management and efficiency of wood utilization and the competitiveness of wood products relative to other materials, as well as increasing the capacity to conserve and enhance other forest values in timber producing tropical forests.	The silvicultural model to be developed for the restoration of the populations of harvested species will ensure the correct implementation of forest management plans and operational plans as well as the monitoring of the restoration of the populations of harvested forest species.
j) Encouraging members to support and develop tropical timber reforestation, as well as rehabilitation and restoration of degraded forest land, with due regard for the interests of local communities dependent on forest resources.	The results of the study will contribute to assessing the quantity and quality of timber tree seeds, which will facilitate the development of a silvicultural strategy to be used in the sustainable management of natural forests and the restoration of degraded areas.
m) Encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, and maintaining ecological balance, in the context of the tropical timber trade.	Project results will provide national policy-makers with technical and scientific tools to guide their decisions in the development of policies and strategies to ensure the sustainability of timber species under harvesting.
n) Strengthening the capacity of members to improve forest law enforcement and governance, and address illegal logging and related trade in tropical timber.	The development of silvicultural techniques and the understanding of the regeneration of forest species under harvesting will provide both national and local forest authorities with the necessary tools to make adjustments to update legal mechanisms towards sustainable forest management.

ITTA Article 1 Objectives	Justification
o) Encouraging information sharing for a better understanding of voluntary mechanisms such as, <i>inter alia</i> , certification, to promote sustainable management of tropical forests, and assisting members with their efforts in this area.	The understanding of phenological cycles and seed dispersal behaviour, as well as the establishment of natural regeneration of species and/or seed production for plantation programs will facilitate the transfer of lessons learned through a capacity-building program and the dissemination of results.
q) Promoting better understanding of the contribution of non-timber forest products and environmental services to the sustainable management of tropical forests with the aim of enhancing the capacity of members to develop strategies to strengthen such contributions in the context of sustainable forest management, and cooperating with relevant institutions and processes to this end.	Considering seeds as non-timber forest products, the proposed study will increase the knowledge on the phenology and the quantity and quality of seeds of target species, generating information on the best collection season and germination data to ensure the availability of quality seeds, which could have a potential market, including for other potential uses such as cosmetics and medicinal applications, among others.
r) Encouraging members to recognize the role of forest-dependent indigenous and local communities in achieving sustainable forest management and develop strategies to enhance the capacity of these communities to sustainably manage tropical timber producing forests.	The silvicultural models to be developed for the restoration of harvested timber species will also be applicable to the forests of native communities with forest management plans, thus ensuring adequate monitoring of seed trees.

This proposal is also consistent with the ITTO Strategic Action Plan as stated below:

ITTO Strategic Action	Justification
Strategic priority 1. Promote good governance and enabling policy frameworks for strengthening SFM and related trade and enhancing SFM financing and investment	The development of a silvicultural model for the management of seed trees, seed production and seed dispersal, as well as the establishment of regeneration, will significantly contribute to the implementation of regulatory frameworks with a scientific and technological basis, recognizing the costs involved in their implementation.
Strategic priority 3. Enhance the conservation and sustainable use of biodiversity in tropical timber producing forests	The project outcomes will help sustain an adequate, valid methodology to be applied in forest concessions and native communities with the sole objective of restoring logged-over natural populations or maintaining their current status, without affecting existing biotic relations with other fauna and flora species and generating a possible ecological balance in logged-over forests. In addition, the local communities will benefit from this balance as they will be able to use forest resources without impacting or reducing the quantity and quality of ecosystem services.
Strategic priority 6. Build and develop human resource capacity to implement SFM and increase trade in forest goods and services from sustainably managed forests	The technical and scientific documents based on the silvicultural models to be produced as project outputs will be an easy-to-understand source of knowledge, which will help develop capacities in seed area management and adequate seed treatments as well as natural regeneration establishment.

### 1.2.2 Relevance to submitting country's policies

The project proposal is consistent with each of the five policy areas and relevant guidelines set out in the National Forest and Wildlife Policy (NF&WP) as follows:

NF&WP Objectives	Justification
<p><b>Policy area 1.</b> Governance and institutional framework</p> <p><b>Guideline 1:</b> Strengthening inter-institutional management.</p> <p><b>Guideline 2:</b> Improving resource management and political, legal, administrative, technical, economic and financial conditions.</p>	<p>The silvicultural models to be developed by the project for the restoration of timber species populations will facilitate the updating of the regulatory framework to require the application of various treatments in a consistent and effective manner to be verified by the relevant authorities. This will provide a tool for the improvement of forest resource management with technical and scientific elements, which will facilitate the supervision of the implementation and monitoring of forest management and operational plans in forest concessions and native communities.</p>
<p><b>Policy area 2.</b> Sustainability</p> <p><b>Guideline 1:</b> Conservation, protection, maintenance, improved and sustainable management and forest plantations, based on an ecosystem approach</p> <p><b>Guideline 2:</b> Management for the conservation and sustainable utilization of forest ecosystems</p>	<p>The technical tools to be developed, applied and validated by the project will provide forest authorities and stakeholders with guidelines to ensure forest sustainability and promote the implementation of sustainable forest management over the largest area possible.</p> <p>This will help achieve the objective of removing mahogany and cedar species from CITES Appendices II and III, respectively.</p>
<p><b>Policy area 3.</b> Competitiveness</p> <p><b>Single guideline:</b> Increasing productivity levels and strengthening competitiveness based on social and environmental standards</p>	<p>Ensuring the restoration of species under harvesting gives additional value to forests, both in concession areas and on native community lands.</p> <p>Likewise, phenological knowledge is needed to determine the productive season and obtain mature seeds with potential to be used for plantations or to be managed for the establishment of natural regeneration.</p>
<p><b>Policy area 4.</b> Social inclusion and inter-cultural relations</p> <p><b>Guideline 1:</b> Conservation of forest resources and intercultural dialogue involving technical and scientific developments</p> <p><b>Guideline 2:</b> Development and consolidation of forest management, including community forestry, in all its sustainable practices and uses, as well as sustainable harvesting, including local populations</p>	<p>The silvicultural tools developed by the project will be disseminated at the local and community levels, providing training in a suitable language and using adequate teaching techniques so as to strengthen the capacities of young people, women and members of indigenous peoples and local communities, who will also benefit from forest sustainability as they will have a sufficient quantity and quality of resources available.</p> <p>Furthermore, ancestral knowledge will also be used in the implementation of the project so as to cover different perspectives and treatments to be applied in support of the forest.</p>
<p><b>Policy area 5.</b> Knowledge, science and technology</p> <p><b>Guideline 1:</b> Promoting research, innovation, training and technology transfer in the forestry field.</p>	<p>The strategic partnership between CNF, UNALM, UNAMAD, SERFOR, GRFFS-MDD, forest concessions and communities, other government organizations and the private sector will ensure the adequate transfer of knowledge, the strengthening of stakeholder capacities at various levels, the use of silvicultural activities to encourage and promote regeneration establishment and the continuation of research to eventually remove mahogany and cedar species from CITES appendices and ensure the establishment of other species' regeneration.</p>

NF&WP Objectives	Justification
<b>Guideline 2:</b> Implementing and guiding research for sustainable use and conservation benefits to produce goods and services, in processes to be integrated into the market.	

### 1.3 Target area

#### 1.3.1 Geographic location

The study is focused on the Amazon region of Peru, specifically in the Department of Madre de Dios, Province of Tahuamanu, where significant populations of seed trees of mahogany, cedar, shihuahuaco, estoraque and some other associated species have been identified in areas under harvesting in forest concessions and native communities.

There are 33 timber forest concessions and one native community operating in Tahuamanu. These are focused on the harvesting of different timber species under general forest management plans and operational plans, which require the retention of 20% of the seed trees of the different species from the entire harvestable population, as well as proper silvicultural management of each species to ensure their restoration.



Figure 1. Location map of study area

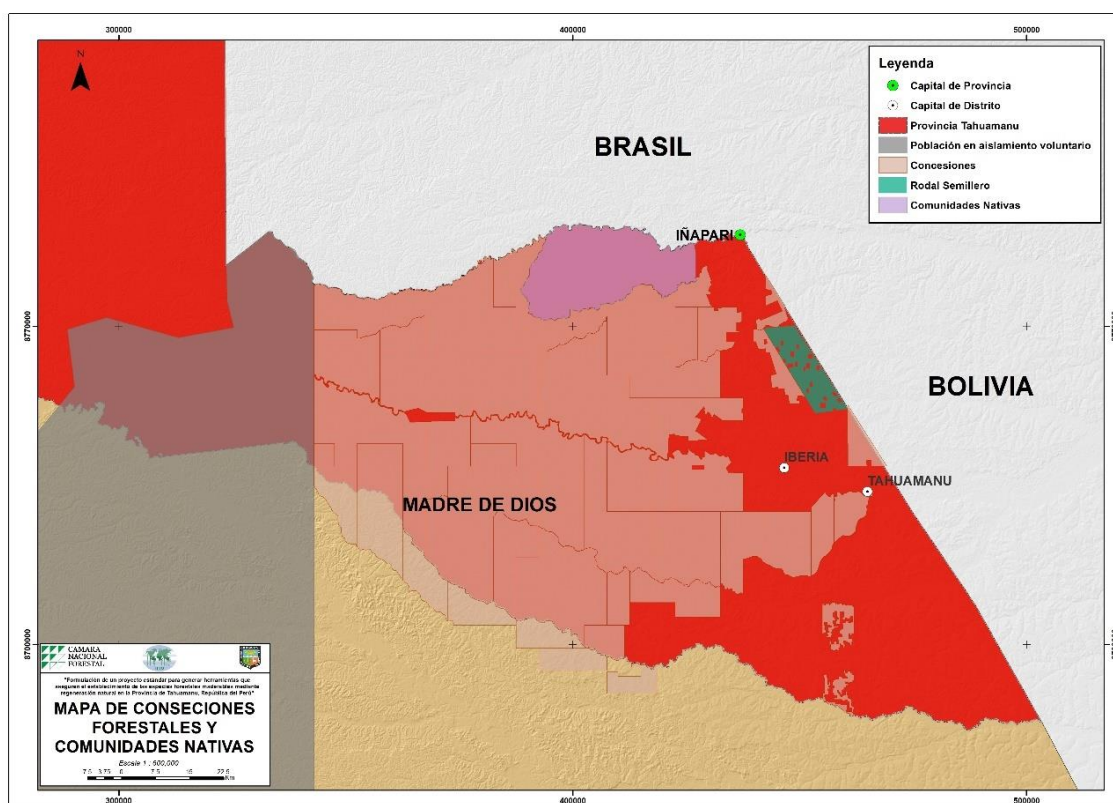
### 1.3.2 Economic, environmental, cultural and social aspects

The department of Madre de Dios has a population of 140,508 in an area of 85,301 km<sup>2</sup> divided into three provinces and 11 districts, as detailed in Table 1.

**Table 1. Administrative division of the Department of Madre de Dios**

Province	Capital	Districts	Area (km <sup>2</sup> )	Population (2016)	Altitude (m.a.s.l.)
Tambopata	Puerto Maldonado	4	36 268.49	101 787	205
Manu	Salvación	4	27 835.17	24 572	527
Tahuamanu	Iñapari	3	21 196.88	14 149	245
<b>TOTAL</b>			<b>85 300.54</b>	<b>140 508</b>	

The province of Tahuamanu has a population of 14,149 and covers an area of 21,196 km<sup>2</sup>. The forest sector in the province of Tahuamanu is one of the most formalized sectors in the country and has the largest number of certified forests (547,399 ha), which represents 51.8% of the total number of certified forests in Peru. Furthermore, 31% of permanent production forests (PPFs) in Tahuamanu are under non-timber concessions, with Brazil nut being a major source of income. Similarly, the province of Tahuamanu has the largest number of processing plants in Madre de Dios, accounting for 53.7% of the total number of processing plants in the region.<sup>1</sup>

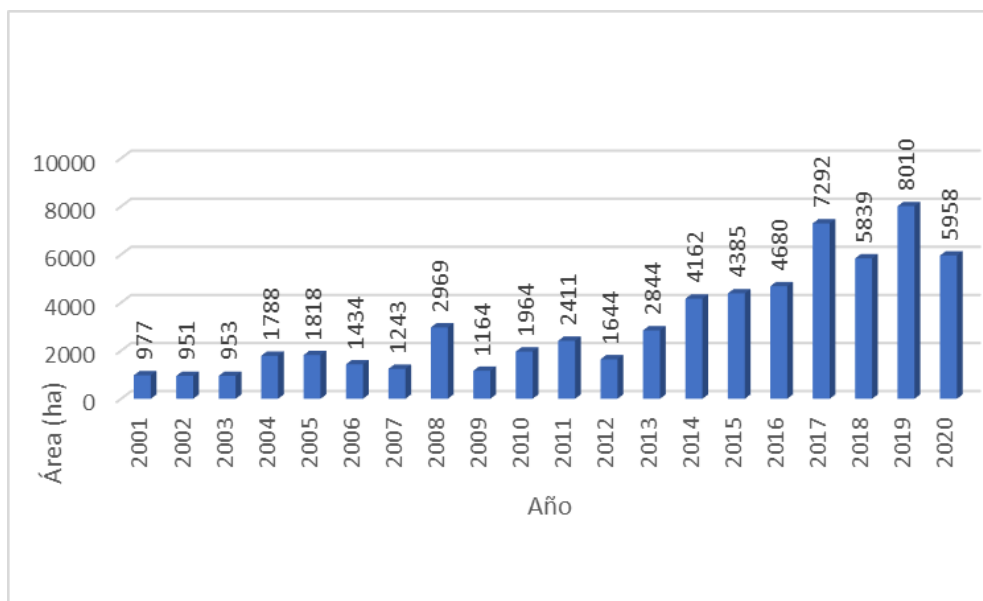


**Figure 2. Location of timber concessions and native communities in Tahuamanu**

<sup>1</sup> <https://www.actualidadambiental.pe/presentan-experiencia-en-implementacion-del-modelo-de-gestion-forestal-local-en-tahuamanu/>

In addition, Regional Ordinance No. 012-2021-RMDD/CR established the Tahuamanu Forestry and Wildlife Management Unit (UGFFS) in the Province of Tahuamanu, Department of Madre de Dios, which covers 1,040,846.83 ha, according to the official land demarcation, with its headquarters in the city of Iberia, capital of the district of Iberia.

In Madre de Dios there are several activities that are not forest-friendly, causing an annual loss of forest mass; similarly, the province of Tahuamanu also has different degrees of impacts caused by these non-forest-compatible activities.



**Figure 3. Forest loss rate in the Tahuamanu Province**

Source: Geobosque

Between 2001 and 2020, Madre de Dios had a cumulative forest loss of approximately 254,153 ha, and Tahuamanu alone had a cumulative loss of approximately 62,486 ha during the same period (Source: Geobosques).

According to figures from the Peruvian National Institute of Statistics and Information Technology (INEI), Madre de Dios accounted for 0.4% of the national Gross Value Added (GVA) in 2020, ranking last at the national level. The average annual GVA growth rate between 2011 and 2020 was -4.1%. The main economic activity was trade, with a 15.5 % share of departmental GVA, followed by the mining sector with 15.0 %; agriculture, livestock, hunting and forestry with 11.5 %, with a growth of 4.1% on average over the last 10 years; construction with 8.1 %; and public administration and defense with 8.0%, among the main activities.

In 2020, a total of 13,760 formal companies were registered, with 99.7% classified as MSMEs (Office of Economic Studies, Ministry of Production). Of the 850 manufacturing companies registered in the department, 96.2% are microenterprises, 3.3% are small enterprises, 0.4% are large enterprises, and 0.1% are medium-sized enterprises. Out of the total number of companies in the manufacturing sector, the province of Tambopata accounts for 87.2%, followed by the province of Manu with 7.9% and Tahuamanu with 4.9%. According to the International Standard Industrial Classification of All Economic Activities (ISIC), the main manufacturing economic activities in the department included metal products (217 companies), food and beverages (175 companies), furniture production and other industries (157 companies), and wood products (Ministry of Production) (97 companies).

In 2020, 96.0% of the Economically Active Population (EAP) in the department of Madre de Dios was employed and 4.0% was unemployed (*Perú en Cifras*, INEI 2020).

The dominant ecosystem in the target area is tropical moist forest, which covers almost the whole area of the Tambopata and Manú provinces.

The climate in Madre de Dios is tropical humid, with abundant rainfall and an average annual temperature in the city of Puerto Maldonado of 26°C, with maximum temperatures of 38°C between August and September and minimum temperatures of up to 8°C between May and August. There are two distinct seasons in the department: the dry season, between May and October; and the rainy season, between December and April.

Water resources are made up of a series of abundant rivers and streams that cross the department from west to east. These resources are important for the department because they are the main means of communication and transport ("*Caracterización del Departamento de Madre de Dios*", Central Reserve Bank of Peru, Cusco Branch 2022).

The private sector has limited experience in reforestation actions; national projects do not have adequate control; seeds are distributed and planted, and a budget is allocated for these two activities, while the follow-up and care is left up to farmers, without adequate supervision, so planted seedlings do not reach their full development. Individual interests prevail, mainly those of timber companies (Regional Government of Madre de Dios-GOREMAD).

Based on the above indicators, the project seeks to increase silvicultural knowledge to achieve sustainable forest management, which will improve the conditions of enterprises and communities, thus also improving the conditions of local populations. All of this will be achieved through a continuous production of quality forest products over time.

#### **1.4 Expected outcomes at project completion**

Upon project completion, there will be silvicultural models for the management of seed trees and their establishment in natural regeneration or in plantations, so as to restore harvested forest species populations to ensure the second and subsequent harvesting rotations, while seeking to maintain the economic and ecological value of forests.

The knowledge generated by the project to define silvicultural models will lay the foundations for future research according to the challenges that may arise over time.

The project envisages intensive dissemination to forest management and operational plan operators, with the participation of native community members, forest regents, forest policy-makers, and legal enforcement agents, among others.

The contribution to decision-makers and policymakers in the forest management field will have a scientific and technological basis to make the most appropriate decisions.

The scientific and technical knowledge generated by the project will provide adequate guidance for the management and monitoring of species, providing information on the benefits of future forests constituting the new forest mass with better timber quality.

As a result of the project, there will be information available to help in the formulation or adjustment of mechanisms to benefit the restoration of species populations; in addition, there will be a tool that will serve as an input for forest auditing, verification and supervision by relevant forest agencies, thus ensuring adequate monitoring of the implementation of forest management plans.

Finally, the project seeks to lay the first scientific-technical foundations to establish silvicultural models so that national and regional forest authorities and forest users can replicate these models and monitor their effectiveness in forest restoration.

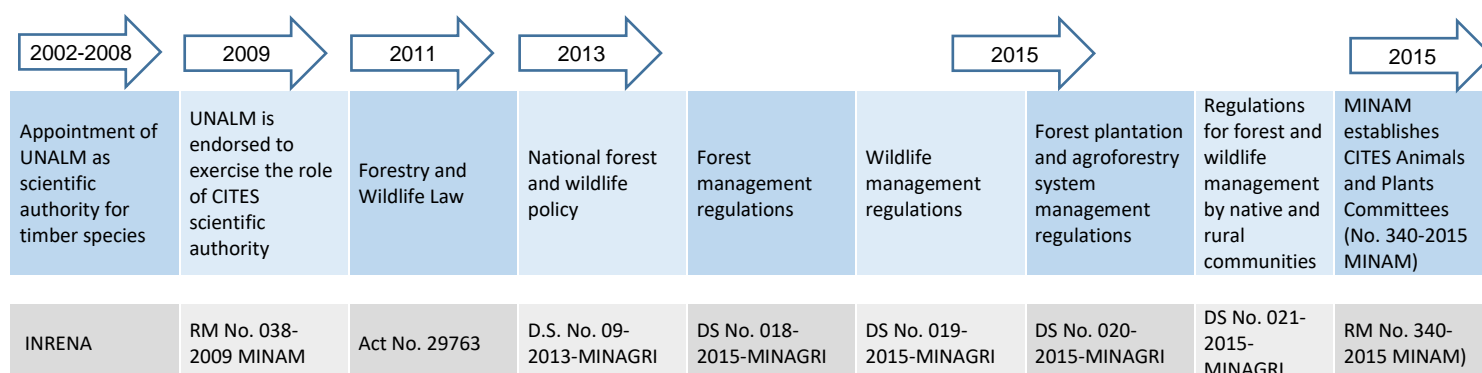
Seeds will be produced for forest plantation programs in various areas so that, after the selection of seed trees, high quality reproductive material may be produced both in forest concessions and in areas under forest permits.

## PART 2. PROJECT RATIONALE

### 2.1 Rationale

It is important to point out that throughout the last 20 years of implementation of the forest concession and permit model, most of the forest management plans are already starting or are about to start the second rotation of forest harvesting. However, very few people know to what extent high-value species have recovered and if they are in a condition to be harvested, because the only action taken was the retention of seed trees assuming that forests would recover based on their natural regeneration; in other words, very little has been done to take the necessary silvicultural actions to guarantee their reforestation. This proposal seeks to ensure the restoration of species populations through the design of seed-tree management models, based on the assessment of their pollination, dispersal, establishment and subsequent development patterns, in addition to generating reproductive materials to carry out forest plantation programs with quality inputs.

**Figure 4. CITES process timeline**

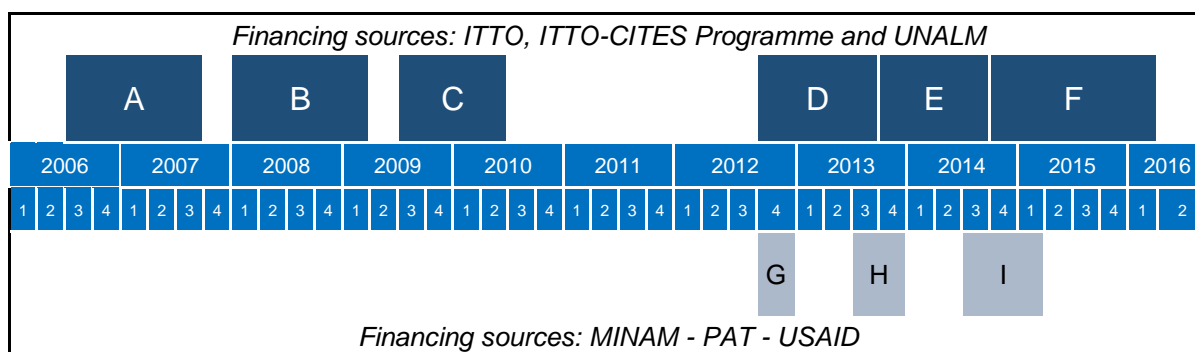


In 2002, the National Agrarian University of La Molina (UNALM), appointed as the CITES Scientific Authority for timber species, presented a work strategy with the objective of restoring trees of commercial species after harvesting and stressing the importance of seed trees:

- **First stage: immediately**  
This initial stage had to be carried out in a very short period of time as a response to international community demands; it was successfully completed and allowed for the preparation of non-detriment findings for the species.
- **Second stage: short term**  
To carry out studies of the population sizes of CITES-listed species; the methodology has been extended to other species. It was carried out with the support of ITTO and CITES, facilitating the preparation of non-detriment findings on a scientific and technical basis.
- **Third stage: medium term**  
This stage involves the development of silvicultural techniques that allow for adequate species restoration, beginning with the production of seeds and the management and monitoring of seed trees.
- **Fourth stage: long term**  
Species are restored or under a system that allows for their harvesting with rotations combining natural regeneration and potential plantations.

Of these four proposed stages, the first two have already been completed while the third stage is under implementation, although with delays despite the efforts of concessions and communities because it is essential to develop a system for the silvicultural management of seed trees to ensure the generation of reproductive materials to obtain adequate natural or artificial regeneration.

It is important to note the support that UNALM and CNF have received from ITTO to ensure forest management as the best way to use tropical forests and adequately restore species populations. In addition, one of the results of the pre-project was the systematization of interviews with forest concession holders and native community members, which indicated the lack of support from government agencies and especially the lack of research on silvicultural development in tropical forests.



**Figure 5. Studies carried out by UNALM and MINAM since 2006**

Where:

- A. Evaluation of commercial stocks and strategy for the sustainable management of bigleaf mahogany (*Swietenia macrophylla* King.) in Peru.
- B. Evaluation of commercial stocks and strategy for the sustainable management of bigleaf mahogany (*Swietenia macrophylla* King.) in Peru"- Extension to Cedar (*Cedrela* spp.)
- C. Design, validation and adjustment of the methodology for ongoing monitoring and evaluation of bigleaf mahogany and cedar sample plots in Peru.
- D. Assessment of regeneration of natural bigleaf mahogany and cedar populations in Peru - Madre de Dios
- E. Confirmatory assessment of forest inventories of mahogany and cedar species.
- F. Management of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.) seed stands in a forest concession for the conservation of the Tahuamanu Seed Stand in the province of Tahuamanu, Madre de Dios, Peru.
- G. Assessment of mahogany and cedar regeneration in Madre de Dios, Peru.
- H. Development of a cedar stock map and assessment of mahogany and cedar regeneration in Ucayali, Peru.
- I. Consultancy services to assess mahogany and cedar regeneration in the San Martin and Loreto regions.

This development proposal is focused on species restoration and the economics of management plans, considering the need to develop a silvicultural system for the populations of harvested species so as to ensure the adequate use of seed trees that today are merely retained without the application of any treatment in the hope that they will develop in the areas as required by forest users.

### 2.1.1 Institutional set-up and organizational issues

#### **National Forestry Chamber – CNF**

The CNF was established more than 30 years ago and it was officially recognized by the Ministry of Agriculture through Ministerial Resolution No. 00321-89-AG of 20 September 1989, as a private organization representing the timber sector before public institutions and agencies of the agricultural, industrial and export sectors. Its membership includes: the National Confederation of Micro and Small Enterprise Associations (*Confederación Nacional de Gremios de la Micro y Pequeña Empresa* -- CONAMYPE); Small and Medium Forest Producers and Industrialists Association of Peru (*Asociación Forestal de Pequeños y Medianos Productores y Empresarios del Perú* -- AFORPYME); Timber Producers Association of the Department of Ucayali (*Asociación de Madereros del Departamento de Ucayali* -- AMDU); Timber Logging and Reforestation Association of the Ucayali Region (*Asociación de Extractores Madereros y Reforestadores de la Región de Ucayali* -- AEMRU); Peruvian Environmental Network (*Red Ambiental Peruana* -- RAP); Association for Integrated Research and Development (*Asociación para la Investigación y el Desarrollo Integral* -- AIDER); Peruvian Foundation for the Conservation of Nature (*Fundación Peruana para la Conservación de la Naturaleza* -- PRO NATURALEZA); Peruvian Society of Engineers (*Colegio de Ingenieros del Perú* -- CIP); Peruvian Association of Forest Engineers (*Asociación Peruana de Ingenieros Forestales* -- APIF); National Agrarian University of La Molina (*Universidad Nacional Agraria La Molina* -- UNALM); Civil Association for Forest Development (*Asociación Civil para el Desarrollo Forestal* -- FORESTAS); AIDSEP Regional Organization, Ucayali – ORAU; the Consultancy Firm PERUFOREST S.A.; and the company *Bosque, Agua, Cultura y Vida SRL*.

The National Forestry Chamber will be the executing agency of this project. The CNF represents the private sector and serves as a platform for the interaction of its members and representative organizations of timber producers in the main regions of the project's area of action. The role of the CNF, as a non-profit civil association, is consistent with its institutional objective of promoting the sustainable development of the forest sector, harmonizing conservation principles with scientific, technological and socioeconomic development. Its objectives are:

- Promoting the sustainable use of forest resources, harmonizing the principles of conservation with technology and economic and social development.
- Coordinating national forest activities and acting as the main interlocutor of the private forest sector before public and private institutions and agencies.
- Proposing and achieving efficient and stable forest policies to encourage forest management, industry, trade and the promotion of exports.
- Building up and disseminating an adequate image of the forest activity at the national level consistent with the magnitude of the resource and its territorial significance.
- Providing feedback/making statements on issues of national interest.
- Designing and implementing research, training and development projects related to forestry.

The CNF, as the executing agency, will be responsible for the institutional communication and coordination of the project. At the beginning of project implementation, a communication plan will be developed and the CNF will designate a professional who will coordinate its implementation. Communication and outreach activities will be carried out both externally, prioritizing the project's target beneficiaries and other stakeholders linked to forest activities, and internally, among the members of the institution and its staff. Project activities, as well as project outputs, topics of interest, opinions, etc. will be disseminated through the Internet, the institutional web portal, emails, as well as through the use of social media networks, such as Facebook and WhatsApp, among others, which will ensure a fluid, fast, powerful and low cost communication process. Video conference platforms will also be used.

The expertise of the CNF as an executing agency stems from the fact that it is a non-profit forestry association, representative of the forest sector and composed of a number of forest-related institutions, such as forest production associations, environmental and development NGOs, academia and organizations of forest engineers and indigenous communities, among others. It promotes sustainable forest development in the country and participates in various spaces and fora where technical and political issues of national importance are discussed. The CNF has executed a series of projects, in the areas of both forest management and forest industries, including six ITTO-sponsored projects and one support activity for the 5th Latin American Forestry Congress, organized by the CNF, in close cooperation with the National Forest Authorities (SERFOR and the Natural Resources Institute), all of which have culminated satisfactorily, mainly benefiting national stakeholders in forest production activities (Annex 1).

### ***National Agrarian University of La Molina – UNALM***

The mission of the National Agrarian University of La Molina is to provide high quality professional, humanistic, scientific and technological training in the agricultural, forestry, livestock, fisheries, food and economic sectors, generating knowledge and developing skills through basic and applied research for innovation, extension and social projection within a framework of ongoing improvement, ethical principles, and social and environmental accountability, to contribute to sustainable development in the country (see Annex 1).

## 2.1.2 Stakeholder analysis

**Table 2. Project stakeholder analysis**

Stakeholder group	Characteristics	Problems, needs, interests	Strengths	Involvement in the project
<b>Primary stakeholders</b>				
Native communities: Belgica native community and others	<p>Communities engaged in forest harvesting under forest management systems.</p> <p>They work through third parties that provide forest management services and establish infrastructure.</p> <p><b>Seeking a development model for sustainable forest management that is suitable for forestry production and forest restoration and helps improve the living standards of the local population.</b></p> <p><b>Promoting the participation of women in decision-making and their involvement in the production of high-quality seeds.</b></p>	<p>Limited knowledge of silvicultural management and timber product markets.</p> <p>Limited knowledge and interest in the management of seed trees for production recovery.</p> <p>Manpower with few qualifications or devoted to other activities.</p> <p><b>Lack of knowledge about the ecological environment and lack of appropriate technologies, resulting in low productivity and low income levels for the local population.</b></p>	<p>Interest in increasing timber production in accordance with the requirements of the general forest management plans and operational plans, improving the regeneration of high-value species.</p> <p>Willingness to improve competitiveness and the implementation of silvicultural plans to make better use of seed trees.</p> <p><b>Availability of forests with high potential species. The rational harvesting of native forests presents interesting prospects.</b></p> <p><b>Overcoming the lack of knowledge on the use of species and establishing management plans for the harvesting of large areas would provide optimal conditions for the development of forestry industries.</b></p>	<p>Primary project stakeholders.</p> <p>Primary source of information.</p> <p>Silvicultural trials will be applied to identify the necessary models.</p> <p>Awareness-raising and training on the benefits of silvicultural management.</p> <p>Providing access to the forest and the use of infrastructure by the project's technical staff.</p>

Forest concessions: Consolidado Maderacre, Maderyja, Consolidado Otorongo – Chullachaqui, Catahua and others	They control extensive areas of forest and are timber loggers. In some cases, they have their own logging/harvesting machinery. They are responsible for implementing forest management plans and forest operational plans. They know about production methods in the forest but only a few are involved in silvicultural actions for the restoration of harvested species.	Lack of knowledge in seed production cycles, monitoring of natural regeneration establishment and no certainty that the same productivity will be achieved in the second cutting cycle.	Interested in increasing the number of individuals that can be harvested in the second rotation and in knowing how to manage seed trees in natural and artificial propagation of species.	Primary stakeholders as forest producers through natural forest management. Primary source of information. The project will build capacities based on their experience and will strengthen forest and silvicultural management. Providing access to the forest and the use of infrastructure by the project's technical staff.
<b>Secondary stakeholders</b>				
National Forest Authority (SERFOR)	Regulatory and policy-guiding agency in the forestry field. Provides technical support to the regional forest authority.	It requires further studies and research in order to develop standards and guidelines for forest management.	Establishment of legal provisions for the regulation and monitoring of forest activities.	Support in the implementation of the project.
Regional Forest Authority (GRFFS MDD)	Agency responsible for law enforcement at the regional level.	High labour turnover and workload. Need greater capacity for adequate implementation of standards and guidelines.	Knowledge of local context and conditions.	Local coordination for project activities.
National public organizations requiring knowledge such as Universities (UNAMAD, UNALM), technological institutes, Peruvian Amazon Research Institute (IIAP).	They have research departments and laboratories such as the Alwyn Gentry Herbarium (UNAMAD), as well as forest engineering, biology and technology faculties, among other units linked to the development of forest species production and restoration.	Limited budget for forest research on topics such as the use of seed trees in the natural or artificial regeneration of species harvested from Amazon forests.	Highly trained professionals in different fields of expertise. With adequate funding, they could set up programs that include studies on natural or artificial regeneration of timber species in managed forests with silvicultural development.	Secondary and reference information source to establish project methodologies. They can support the development of forest management and operational plans under the application of silvicultural techniques. Strategic collaborators in specific project topics.
<b>Tertiary stakeholders</b>				
Private organizations: ADEX, Chambers of Commerce, National Industry Society	Institutions involved in the development of export enterprises. Interested in increasing and maintaining timber production with limited support to the forest sector.	To obtain information on export demand for forest products	Experience and knowledge about the requirements of international markets	Secondary information source. The project will organize actions with these institutions to ensure forest production under forest and silvicultural management.

Regional and local NGOs working in support of forest development	They actively participate in the implementation of development plans. They contribute to the development of regional forest activities; however, they have limited knowledge of forest management plans, operational plans and especially silvicultural treatments for the restoration of forests and harvested species.	Insufficient financial resources.	Experience in development activities and financial management	Direct participation in project activities aimed at capacity building among stakeholders. The project will promote collaborative work and the development of synergies with these organizations.
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The project's primary stakeholders include the forest concessions and native communities with forests under approved forest management plans and operational plans under implementation; secondary stakeholders are the forest authorities, both at the national and regional levels, as well as the academic sector. Other project stakeholders, defined as tertiary stakeholders, are non-governmental agencies, state projects and private organizations.

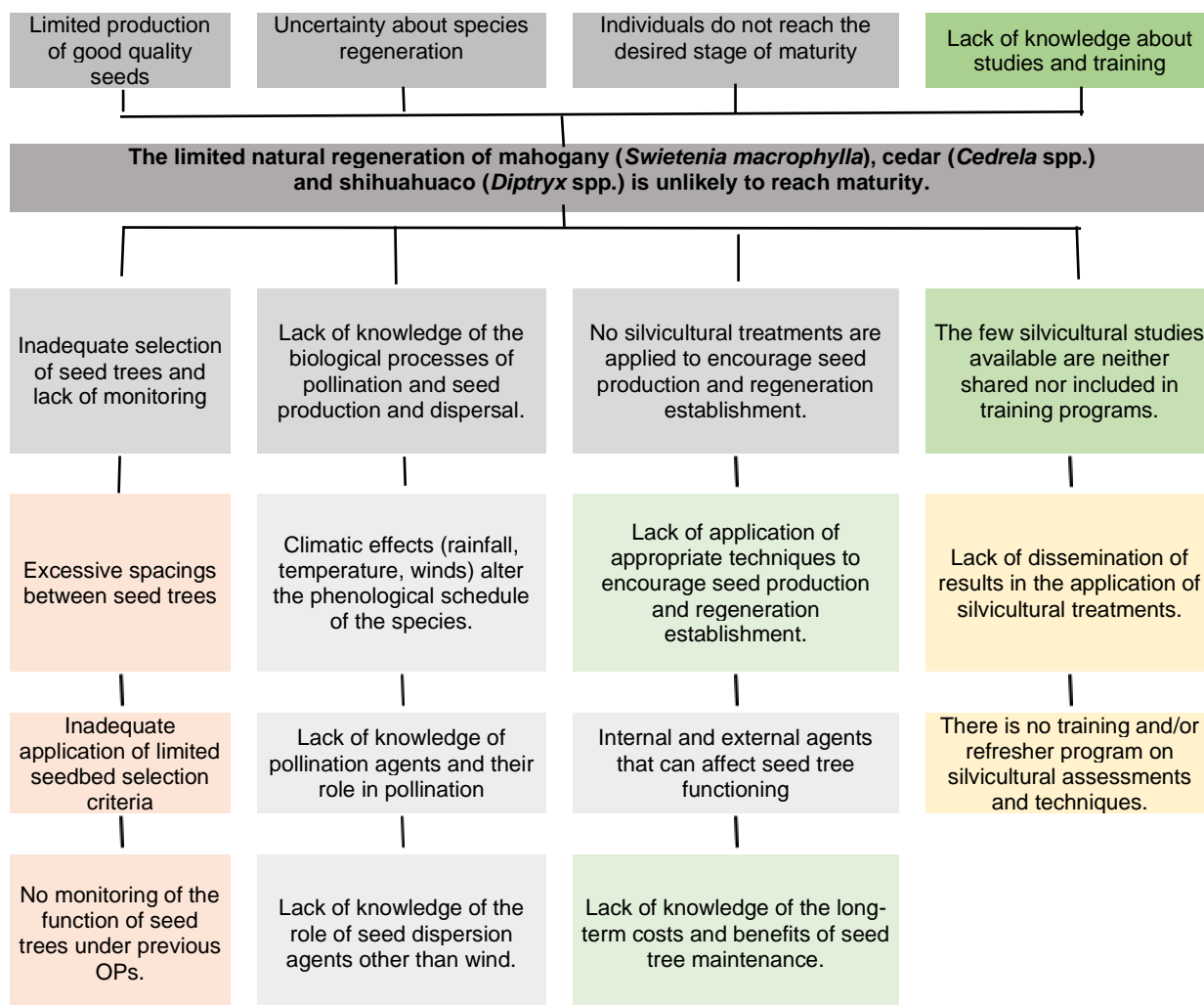
### 2.1.3 Problem analysis

Peru has extensive natural forests, with the second largest Amazon forest area in South America which covers a total of 69,020,330 ha, and these forests are characterized by high diversity of forest species and by high volumes of potentially harvestable species whose timber can be processed and marketed; however, forest concessions and native communities have not developed sufficient silvicultural skills.

Against this background, the key problem identified by the project is the limited natural regeneration of mahogany (*Swietenia macrophylla*), cedar (*Cedrela* spp.) and shihuahuaco (*Dipteryx* spp.), which are unlikely to develop and reach adequate maturity to ensure the restoration of these species populations and the generation of economic returns over time, without diminishing the ecological and environmental functions of forests.

Four causes leading to the key problem have been identified and are detailed in Table 3.

**Table 3. Problem Tree**



To solve the key problem, the project will ensure that the forest concessions and native communities that are harvesting timber species and leaving their seed trees behind as indicated in the guidelines for the formulation of management and operational plans, apply silvicultural models according to site-specific conditions. The project will work directly with concession holders and native communities to improve the skills of the personnel in charge of forest operations.

## 2.1.4 Logical Framework Matrix

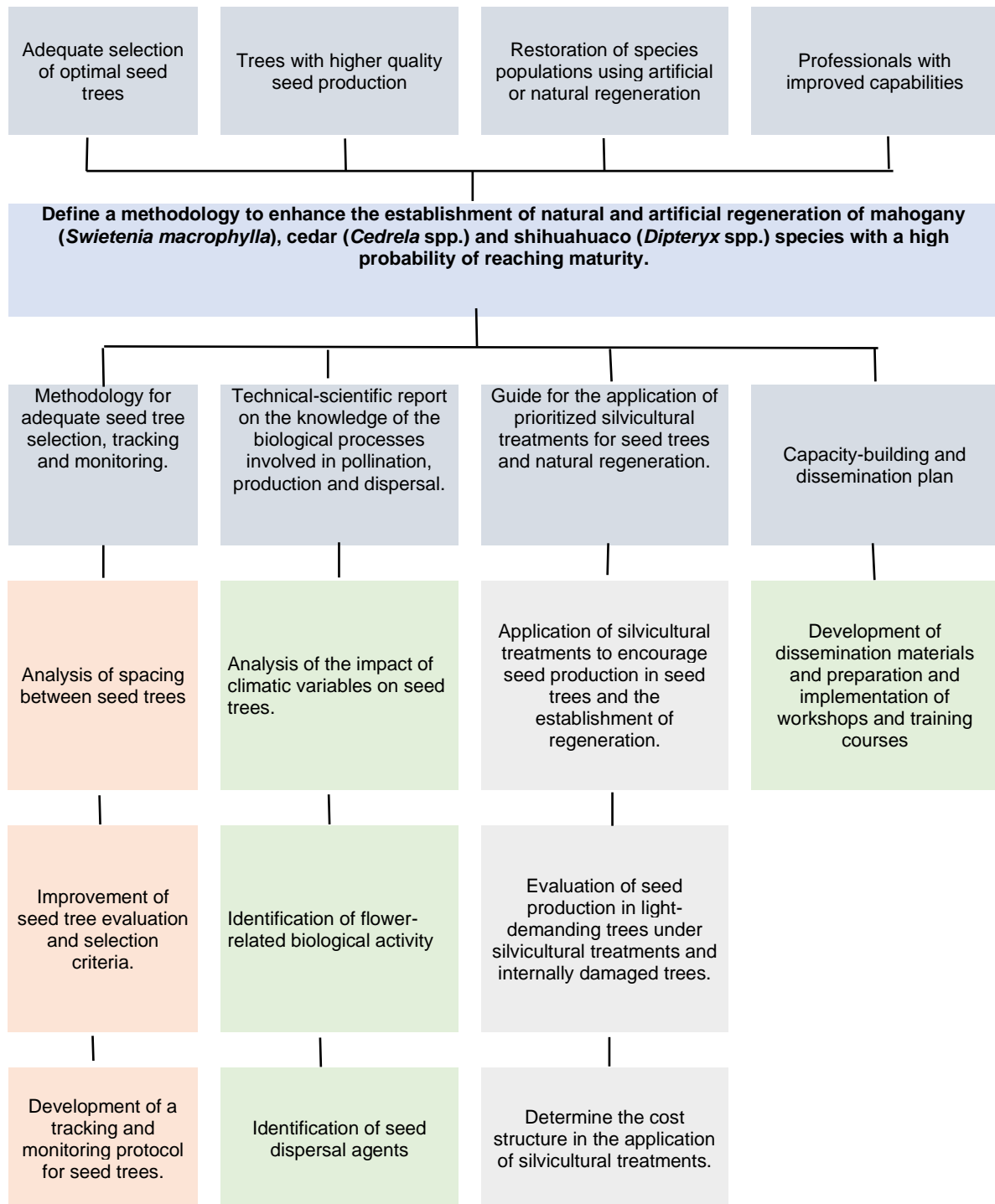
Table 4. Logical framework matrix t

Intervention strategy	Measurable indicators	Means of verification	Key assumptions
<p><b>Development objective</b></p> <p>Apply a procedure to encourage seed production, which will lead to the restoration of natural and artificial regeneration of target species so that these can reach the desired maturity in terms of quality and quantity in areas under forest management.</p> <p><b>Contribute to the development of a silvicultural model for the production of seeds of species subject to forest harvesting, ensuring their maturity in sufficient quality and quantity to guarantee the establishment of natural and artificial regeneration in areas under forest management.</b></p>	<p>Adequate restoration of species populations through establishment methods with natural and artificial regeneration. At the end of the project, there will be <b>three</b> silvicultural models tested and disseminated.</p> <p><b>Technical recommendations for forestry authorities (at the national and regional levels) using project results to formulate forest management guidelines to be applied by concession holders and native communities.</b></p>	<p>Authorized operators' reports on the implementation of operational plans</p>	<p>Authorities recognize, disseminate and officialize the use of silvicultural methods and monitoring of seed trees and regeneration. Operators adopt and implement the silvicultural recommendations in the management areas.</p>
<p><b>Specific objective</b></p> <p>Define a methodology to enhance the establishment of natural and artificial regeneration of mahogany (<i>Swietenia macrophylla</i>), cedar (<i>Cedrela</i> spp.) and shihuahuaco (<i>Dipteryx</i> spp.) species with a high probability of reaching maturity.</p> <p><b>Define the criteria and techniques to select the best seed trees and ensure the production of high-quality mature seeds in good quantities to guarantee high-quality natural and artificial regeneration of mahogany (<i>Swietenia macrophylla</i>), cedar (<i>Cedrela</i> spp.) and shihuahuaco (<i>Dipteryx</i> spp.) species.</b></p>	<p><b>Three</b> validated methodologies that facilitate the selection and application of silvicultural treatments to increase seed production and ensure the restoration of species populations.</p> <p><b>By the end of the project there will be: three silvicultural models tested and disseminated. Additionally, a model will have been generated for each of the species under study according to their characteristics and local conditions with the silvicultural techniques required to establish the maturity of seeds and their behaviour in natural and artificial regeneration.</b></p>	<p>Technical documents on seed tree selection, treatment application and regeneration establishment.</p>	<p>Authorized operators adopt and apply the procedures established for seed tree selection, seed tree monitoring, application of silvicultural treatments and regeneration establishment.</p>

Intervention strategy	Measurable indicators	Means of verification	Key assumptions
<b>Outputs</b>			
1. Methodology for adequate seed tree selection, tracking and monitoring.	Four validated methods to evaluate, classify, select and monitor seed trees to ensure proper functioning.	A methodological guide for adequate seed tree assessment, classification, selection, tracking and monitoring.	It is possible to monitor two phenological periods for the same species. There are no climatic anomalies in the sampling area and assessment period.
2. Knowledge of the biological processes involved in pollination, production and dispersal.	Knowledge of the biological and climatic processes involved in the phenology of each species.	Technical-scientific report on the knowledge of the biological processes involved in pollination, production and dispersal.	Timely issuance of research permit including collection. Authorizations for entry, stay and assessment in the permits.
3. Silvicultural treatments for seed trees and natural regeneration.	Identification of four technically feasible treatments to encourage seed production and regeneration establishment.	Guide for the application of prioritized silvicultural treatments for seed trees and natural regeneration.	Identification and exclusion of areas that have third parties performing non-compliant activities that would put personnel at risk.
4. Capacity building	50 forest stakeholders adequately trained in silvicultural techniques to manage seed trees and natural regeneration.	Report of training activities	Continued involvement of local academic institutions in Madre de Dios.
Activity 1.1 Analysis of spacing between seed trees	An updated database	UNALM-FCF Database Commercial Surveys	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 1.2 Improvement of seed tree evaluation and selection criteria.	<b>150</b> seed trees assessed for the <b>3</b> species under study	Technical field reports Botanical identification certificates Soil characterization analysis Results analysis report	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 1.3 Development of a tracking and monitoring protocol for seed trees.	A guide for seed tree tracking and monitoring	Technical field reports Seed germination analysis report Results analysis report	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas

<b>Intervention strategy</b>	<b>Measurable indicators</b>	<b>Means of verification</b>	<b>Key assumptions</b>
Activity 2.1 Analysis of the impact of climatic variables on seed trees.	An analysis of the climate-phenology relationship	Climate data report Technical analysis report	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 2.2 Identification of flower-related biological activity	A description of biological activity related to flowers and inflorescences.	Technical field report Pollinator identification report Technical analysis report	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 2.3 Identification of seed dispersal agents	A list of seed dispersal agents in assessed trees.	Technical field report Report on dispersal agents and seed destruction agents Technical analysis report	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 3.1 Application of silvicultural treatments to encourage seed production in seed trees and the establishment of regeneration.	A silvicultural model that can be applied to seed trees and that promotes the establishment of regeneration.	Report of test results	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 3.2 Evaluation of seed production in light-demanding trees under silvicultural treatments and internally damaged trees.	A silvicultural model that can be applied to trees with unfavorable conditions.	Report of test results	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 3.3 Determine the cost structure in the application of silvicultural treatments.	A cost structure for the application of silvicultural models.	Economic report on application of silvicultural models	Availability of access and overnight accommodation facilities in the sampling sites located within authorized areas
Activity 4.1 Development of dissemination materials and preparation and implementation of workshops and training courses	50 people trained	Training report	Continued involvement of local academic institutions in Madre de Dios.

**Table 5. Solutions Tree**



## 2.2 Objectives

### 2.2.1 Development objective

Apply a procedure to encourage seed production, which will lead to the restoration of natural and artificial regeneration of target species so that these can reach the desired maturity in terms of quality and quantity in areas under forest management.

**Contribute to the development of a silvicultural model for the production of seeds of species subject to forest harvesting, ensuring their maturity in sufficient quality and quantity to guarantee the establishment of natural and artificial regeneration in areas under forest management.**

### 2.2.2 Specific objective

Define a methodology to enhance the establishment of natural and artificial regeneration of mahogany (*Swietenia macrophylla*), cedar (*Cedrela* spp.) and shihuahuaco (*Dipteryx* spp.) species with a high probability of reaching maturity.

**Define the criteria and techniques to select the best seed trees and ensure the production of high-quality mature seeds in good quantities to guarantee high-quality natural and artificial regeneration of mahogany (*Swietenia macrophylla*), cedar (*Cedrela* spp.) and shihuahuaco (*Dipteryx* spp.) species.**

## **PART 3. DESCRIPTION OF PROJECT INTERVENTIONS**

### **3.1 Outputs and Activities**

#### **3.1.1 Outputs**

##### **Output 1.- Methodology for adequate seed tree selection, tracking and monitoring.**

A set of criteria will be established to evaluate the quality of seed trees by species, and the parameters to be applied to seed trees will be identified and adjusted according to the results obtained in the field assessments. At the end of the project, there will be four validated silvicultural methods to evaluate, classify, select and monitor seed trees to guarantee their adequate functioning.

The project proposes to establish a set of criteria to evaluate the quality of seed trees by species, based on the collection of silvicultural experiences, both nationally and internationally, to be applied in the evaluation process of seed trees during the first stage of field work. This set of criteria will be used to establish a preliminary method that will be tested through field work. Based on the initial results obtained in field evaluations during the first year, these criteria will be adjusted so that, through a trial-and-error process, a methodology for the selection, monitoring and follow-up of seed trees will be developed according to forest management conditions in the province of Tahuamanu (considering climatic and biological aspects). It is expected that at the end of the project, the country's forest authorities will have four validated silvicultural methods to evaluate, classify, select and monitor seed trees, which will contribute to achieving the objectives of forest management of timber forest concessions and forest permit holders in native communities.

##### **Output 2.- Knowledge of the biological processes involved in pollination, production and dispersal.**

Out of the assessed seed trees, a sample of different diameters, height and crown shape will be selected to determine the behaviour of each individual tree (by species), which will lead to the knowledge of the biological behaviour of seed trees of the 3 selected species at the end of the project.

In addition, basic climatic data will be collected to ascertain the relationship between climate and the flowering, pollination and dispersal processes.

The project proposes to carry out actions that will provide information on the pollination process of the 3 species under study, as well as the production and dispersal of seeds. To this end, from the seed trees evaluated during the activities under Output 1, a subsample will be selected for each species, with different characteristics in diameter, height and crown shape. The activities to achieve this output include the gathering of data by observation and collection, with compilation of experiences at the national and international levels, which will be carried out for a period of at least 2 years, with the purpose of generating reliable information that clearly reflects the phenology of each species.

In addition, in order to establish a correlation between these biological processes and climate, basic climatic data (temperature, wind direction, rainfall) will be collected. Thus, at the end of the project, it will be possible to answer the following questions: Who are the pollinators of these species? What recommendations should be made to encourage pollination? What is the quantity of seeds that can be produced by the seedlings of the species under study? What are the mechanisms of seed dispersal and what actions should be taken to improve the process? This will provide biological knowledge and information on the behaviour of seed trees of the 3 selected species, thus contributing to the scientific and academic sectors, as well as providing management tools for forest authorities.

##### **Output 3.- Silvicultural treatments for seed trees and natural regeneration.**

Several types of trials will be applied according to the means of dispersal of each of the selected species, following up on each tree evaluation group. At the end of the project, 3 technically viable treatments will be identified to encourage seed production and natural regeneration establishment.

Based on the knowledge acquired in the activities for outputs 1 and 2, the project proposes to carry out several types of silvicultural treatment trials on seed trees and seed production, in adequate quality and quantity, considering the dispersal methods of each of the target species, dispersal agents, and climatic factors, among others. To this end, a sub-sample of each species will be taken, and trial-error

actions will be carried out (based on national and international experiences, complemented with the field information collected). This output will be produced in the second part of the project, generating valuable information for the proper management of tropical forests in this region of the country.

At the end of the project, three technically viable treatments will be identified to encourage seed production and the establishment of natural regeneration, and an economic analysis of these treatments will be carried out in order to establish a technical and economic balance. It is expected that by the end of the project, the country's forest authorities will have four validated silvicultural treatments that will contribute to the fulfillment of the forest management goals of timber forest concessions and forest permit holders in native communities.

#### **Output 4.- Capacity building**

During the implementation of the project, technical personnel from each of the concessions and native communities involved will participate as a way of training. In addition, presentations and courses on seed-tree management will be given on a regular basis as progress is made. At the end of the project there will be adequately trained technical personnel, and the results obtained will be applied by both concessions and communities, correctly managing seed trees and establishing regeneration through their forest management and operational plans.

With all the experience gained from the activities carried out under outputs 1, 2 and 3, and in order to have a multiplier effect of the knowledge acquired, the project proposes capacity building for the technical personnel of each concession and native community involved, as a form of training for these technical staff. With trained field personnel, it will be much easier to internalize the technical criteria and methodologies proposed by the project, thus guaranteeing the continued application of reliable forest management techniques. In addition, presentations and courses on seed tree management will be given regularly as progress is made. At the end of the project, there will be adequately trained technical personnel, and the results obtained will be applied by concession holders and communities, correctly managing seed trees and establishing regeneration, thus guaranteeing compliance with the forest management goals of timber forest concessions and forest permit holders in native communities.

#### **3.1.2 Activities**

##### ***For Output 1: Methodology for adequate seed tree selection, tracking and monitoring***

##### **Activity 1.1 Analysis of spacing between seed trees**

Based on the information obtained in each forest inventory to prepare forest management plans and operational plans, as well as data from OSINFOR's SIGO, SERFOR, the regional forestry authority and the UNALM-CITES-ITTO project, there will be updated data available on seed trees in the study area, which will serve as the basis for evaluation and monitoring.

The spacing between seed trees is very important because of the activity of pollinators and the way the flowers are fertilized; after harvesting, the spacing between seed trees can become very large and seed production can be reduced. This activity comprises several tasks, including the collection of information on the location of seed trees in the region to update the existing database, which requires a certain amount of equipment and computer programs for the spacing analysis to be carried out by project researchers, as well as the technical monitoring and supervision to be conducted by national experts.

##### **Activity 1.2 Improvement of seed tree evaluation and selection criteria**

Pre-established evaluation criteria will be applied to 200 trees (in total for the 4 species) to make the necessary adjustments to the final evaluation criteria, which involves the botanical identification of selected individuals, as well as the collection of soil samples. This will lead to the identification of requirements for each species and the implementation of soil analyses in the established groups, and seed-tree monitoring will provide information on periodic growth and ages of trees.

### **Activity 1.3 Development of a tracking and monitoring protocol for seed trees**

Selected seed trees will be tested and monitored; these activities will involve monitoring seed dispersal and production in the field, as well as fruit collection for laboratory analysis on seed germination. Based on the results of these activities, a seed-tree tracking and monitoring guide will be prepared.

### ***For Output 2: Knowledge of the biological processes involved in pollination, production and dispersal***

#### **Activity 2.1 Analysis of the impact of climatic variables on seed trees**

Based on the climatic data, such as pp, T, RH, winds and others, to be collected in stations installed in at least two sites near target groups and the observation of phenology, the relationship or influence of climate on the production of fruits and seeds will be determined, thus facilitating the assessment of reproductive material.

#### **Activity 2.2 Identification of flower-related biological activity**

Determining the flower-related biological activity will allow for the identification of potential pollinators through the installation of camera traps and physical traps to ensure the capture and identification of insects.

#### **Activity 2.3 Identification of seed dispersal agents**

Seeds are dispersed by different mechanisms that need to be identified in order to assess where new seedlings may be established. This also implies knowing the biological agents that feed on fruits and seeds, which are part of the destruction process, reducing the possibilities of regeneration establishment. On this basis, a list of seed dispersal agents in assessed trees will be obtained.

### ***For Output 3: Silvicultural treatments for seed trees and natural regeneration***

#### **Activity 3.1 Application of silvicultural treatments to encourage seed production in seed trees and the establishment of regeneration**

Different silvicultural techniques will be applied to enable seed trees to produce a sufficient number of seeds and achieve an adequate regeneration of harvested species, as well as a surplus for artificial regeneration.

**The different stages of seed trees will be monitored and evaluated on an ongoing basis, which involves assessing budding periods, flowering periods, beginning of fruit-bearing cycles, fruit and seed maturation, and seed dispersal.**

#### **Activity 3.2 Evaluation of seed production in light-demanding trees under silvicultural treatments and internally damaged trees**

Through phenological monitoring and the application of silvicultural treatments, seed production will be determined, in quality and quantity, in internally damaged trees and trees with high competition due to lack of lighting. At the end of the project, there will be a silvicultural model applicable to trees with unfavourable conditions.

**With regard to the silvicultural method to be used, information will be compiled from national and international experiences to generate a methodological basis to complement the methodological achievements of projects carried out by the National Agrarian University of La Molina, under the UNALM-ITTO-CITES agreement.**

#### **Activity 3.3 Determine the cost structure in the application of silvicultural treatments**

A structure of fixed and variable costs will be established for all silvicultural treatments validated after the trials. This will provide information to authorized operators on the levels of investment required for these treatments.

## ***For Output 4: Capacity building***

### **Activity 4.1 Development of dissemination materials and preparation and implementation of workshops and training courses**

Based on the partial and final results of evaluation and monitoring activities, dissemination materials, guides and publications will be prepared to share these results. In addition, ongoing training will be provided to at least 50 concession and community workers to apply the models developed during the implementation of the project.

**Forest concessions generally hire workers to carry out the various tasks required to implement their general forest management and operational plans, while in the communities these tasks are carried out by community members; in both cases, the people who carry out this work need to be adequately trained to better understand the proposed methodologies. Likewise, workers should adopt the methodological procedures and become fully familiar with them as part of their work.**

### **3.2 Implementation approaches and methods**

The project will be implemented in cooperation with stakeholders and beneficiaries who are directly or indirectly interested in the restoration of harvested species populations. The project will use a participatory approach (including both men and women) to achieve its proposed objective, as it will promote participation in the implementation of activities through a shared vision aimed at raising the level of competitiveness of producers and enhancing the sustainable use of forest resources in the region. The implementation of the project will focus on restoring the production of timber from managed forests through the adequate application of silvicultural treatments and strengthening forest management in accordance with the following intervention strategies:

- Collection of information on forest management plans and operational plans. Information on seed trees will be sought from different regional and national institutions and local stakeholders.
- Capacity building for efficient forest management. In a participatory manner with men and women in charge of forest management units, problems limiting efficiency in the application of appropriate silvicultural techniques will be identified. The project will establish solutions to these problems.
- Gender equity approach. This is a crosscutting issue impacting all project activities; therefore, the equal participation of men and women will be checked and promoted in all activities to be carried out throughout the project implementation period.

**With regard to gender equity, it is important to point out that women will participate as part of the research team (office and field levels). Similarly, during the training process, an equitable participation between men and women will also be ensured, giving women the opportunity to be incorporated into forest management tasks.**

**In addition, the SERFOR document on capacity building will be taken into account:**

- **Inter-cultural approach:** it considers that the management of the forest and its resources should be developed within a framework of recognition, respect and appreciation of the presence and interaction of different cultures, under their cosmovision, allowing for the possibility of generating shared cultural expressions, which may be acquired through dialogue and an attitude of mutual respect. Traditional knowledge in the management and use of forest and wildlife resources and biodiversity shall be recognized (Forestry and Wildlife Law 2012).
- **Rights-based approach:** it starts by recognizing people as individuals with rights and not as objects to be taken care of, i.e. as people with the capacity to defend and demand their legally recognized rights. It also recognizes that they are citizens with duties who participate in the social world, fostering a democratic life. This approach promotes the consolidation of democracy, contributing to the promotion of individual freedoms, the collective rights of all peoples and their participation in public affairs; strengthening coexistence and transparency in educational institutions; reducing situations of inequity; and seeking the peaceful resolution of conflicts (MINEDU, 2017).

- **Gender approach:** it is a way of looking at reality by identifying the roles and tasks performed by both men and women in society, as well as the asymmetries, power relations and inequalities that occur between them. It makes it possible to understand and explain the causes of these asymmetries and inequalities, and to formulate measures (policies, mechanisms, affirmative actions, standards, etc.) that contribute to overcoming social gender gaps (National Forest and Wildlife Policy, 2013).
- **Territorial approach:** this approach constitutes a systemic, integrated vision of a given territory in the short, medium and long terms, which corresponds to the holistic vision of the forest in the indigenous cosmovision, enabling intercultural dialogue as a central aspect of forest management. In other words, it involves land planning considering its economic potential and attention to social, cultural and environmental issues, for which it integrates spaces, stakeholders, and production of goods and services, as well as public policies for intervention.

### 3.3 Work plan

**Table 6. Work Plan**

ACTIVITIES		RESPONSIBLE PARTY	YEAR 1 / QUARTER				YEAR 2 / QUARTER				YEAR 2 / QUARTER				YEAR 4
			1	2	3	4	1	2	3	4	1	2	3	4	1
OUTPUT 1: Inadequate selection of seed trees and lack of monitoring															
Activity 1.1	Analysis of spacing between seed trees	Director Forest Coordinator I Forest Coordinator II GIS Expert													
Activity 1.2	Improvement of seed tree evaluation and selection criteria	Director Forest Coordinator I Forest Coordinator II GIS Expert													
Activity 1.3	Development of a tracking and monitoring protocol for seed trees	Director Forest Coordinator I Forest Coordinator II													
OUTPUT 2: Lack of knowledge of the biological processes of pollination and seed production and dispersal															
Activity 2.1	Analysis of the impact of climatic variables on seed trees	Director Forest Coordinator I Forest Coordinator II													
Activity 2.2	Identification of flower-related biological activity	Director Forest Coordinator I Forest Coordinator II													
Activity 2.3	Identification of seed dispersal agents	Director Forest Coordinator I GIS Expert Forest Coordinator II													
OUTPUT 3: Lack of silvicultural treatments to encourage seed production and regeneration establishment															
Activity 3.1	Application of silvicultural treatments to encourage seed production in seed trees and the establishment of regeneration	Director Forest Coordinator I Forest Coordinator II													
Activity 3.2	Evaluation of seed production in light-demanding trees under silvicultural treatments and internally damaged trees	Director Forest Coordinator I GIS Expert Forest Coordinator II													
Activity 3.3	Determine the cost structure in the application of silvicultural treatments	Director Forest Coordinator I Forest Coordinator II													
OUTPUT 4: Capacity building															
Activity 4.1	Development of dissemination materials and preparation and implementation of workshops and training courses	Director Forest Coordinator I Forest Coordinator II													
OUTPUT 5: Project management															
Activity 5.1	Project implementation, evaluation, follow-up and monitoring	Director Forest Coordinator I Forest Coordinator II													

### 3.4 Budget

#### 3.4.1 Master budget

**Table 7. Master Budget Schedule (*REVISED*)**

Activity / Description	Budget Item	Year 1	Year 2	Year 3	Unit	Unit cost (US\$)	Total cost (US\$)	Year 1	Year 2	Year 3	Ex. Agency (US\$)
<b>Activity 1.1 Analysis of spacing between seed trees</b>											
National experts	11	16	3	3	Man/day	1471	31125	16410	0	0	14715
Other personnel	12	7	6	6	Man/day	467	7600	700	0	0	6900
DSA	31	0	0	0	Man/day	65	0	0	0	0	0
National travel	32	0	0	0	Ticket	180	0	0	0	0	0
Local transport	33	0	0	0	Trip	50	0	0	0	0	0
Premises/facilities	41	1	1	1	Month	1500	6450	0	0	0	6450
Capital equipment	44	3	0	0	Equipment	3167	6500	6500	0	0	0
Capital equipment	44										
Furniture	45	21	0	0	Piece of furniture	213	3450	0	0	0	3450
Spare parts	52	1	0	0	Miscellaneous	150	150	150	0	0	0
Basic services/Utilities	53	10	10	10	Service / Month	80	2340	0	0	0	2340
Office supplies / materials	54	18	0	0	Item	30	540	540	0	0	0
Miscellaneous	61	5	0	0	License / Program	2783	9400	2080	680	640	6000
Contingencies	63	1	0	0	Event	1000	1452	1397	10	45	0
<b>Activity 1.2 Improvement of seed tree evaluation and selection criteria</b>											
National experts	11	9	3	2	Man/day	1471	44195	30880	3180	0	10135
Other personnel	12	16	2	2	Man/month	700	18445	15320	1400	0	1725
DSA	31	9	0	0	Man/day	65	585	585	0	0	0
National travel	32	3	0	0	Ticket	180	540	540	0	0	0
Local transport	33	3	0	0	Trip	50	150	150	0	0	0
Premises/facilities	41	5	5	5	Month	4172	93303	0	0	0	93303
Capital equipment	44	28	0	0	Equipment	541	8400	8400	0	0	0
Raw materials	51	3050	0	0	Miscellaneous	499	37266	37266	0	0	0
Spare parts	52				Miscellaneous						
Miscellaneous	61	833	14	14	Miscellaneous	433	136350	57350	0	0	79000
Contingencies	63	2	0	0	Miscellaneous	1000	2646	1846	450	350	0
<b>Activity 1.3 Development of a tracking and monitoring protocol for seed trees</b>											
National experts	11	9	9	8	Man/day	1471	40445	6650	7030	5620	21145
Other personnel	12	6	10	6	Man/day	680	19575	5000	8940	5060	575
DSA	31	24	0	0	Man/day	65	1560	1560	0	0	0
National travel	32	8	0	0	Ticket	180	1440	1440	0	0	0
Local transport	33	8	0	0	Trip	50	400	400	0	0	0
Premises/facilities	41	13	13	13	Month	4172	274809	0	0	0	274809
Field equipment	44	31	0	0	Equipment	475	11800	0	0	0	11800
Raw materials	51	1060	2131	1431	Miscellaneous	337	44934	15690	18828	10416	0
Spare parts	52	6	0	0	Miscellaneous	100	600	600	0	0	0
Miscellaneous	61	347	580	503	Miscellaneous	214	93208	15783	49470	27956	0
Contingencies	63	1	2	3	Miscellaneous	1000	6192	1199	2435	2558	0
<b>Activity 2.1 Analysis of the impact of climatic variables on seed trees</b>											
National experts	11	7	10	10	Man/month	1471	42520	4400	8580	8110	21430
Other personnel	12	6	10	7	Man/month	680	20130	4840	8940	5200	1150
DSA	31	24	0	0	Man/day	65	1560	1560	0	0	0
National travel	32	8	0	0	Ticket	180	1440	1440	0	0	0
Local transport	33	8	0	0	Trip	50	400	400	0	0	0
Premises/facilities	41	2	2	2	Month	1500	11100	0	0	0	11100
Equipment	44	1	0	0	Equipment	6000	6000	6000	0	0	0
Raw materials	51	277	509	290	Miscellaneous	504	22284	9315	8928	4041	0
Spare parts	52	0	0	0	Miscellaneous	100	0	0	0	0	0
Miscellaneous	61	378	698	522	Miscellaneous	608	126905	5063	14850	9492	97500
Contingencies	63	1	1	1	Miscellaneous	1000	3169	1097	1008	1063	0
<b>Activity 2.2 Identification of flower-related biological activity</b>											
National experts	11	7	9	9	Man/month	1471	39345	4610	7880	7540	19315
Other personnel	12	7	12	7	Man/month	680	22165	5475	9780	5760	1150
DSA	31	24	0	0	Man/day	65	1560	1560	0	0	0
National travel	32	8	0	0	Ticket	180	1440	1440	0	0	0
Local transport	33	8	0	0	Trip	50	400	400	0	0	0
Premises/facilities	41	3	3	3	Month	1500	11250	0	0	0	11250
Equipment	44	10	0	0	Equipment	900	9000	9000	0	0	0
Raw materials	51	234	383	218	Miscellaneous	1002	24583	13000	8046	3537	0
Spare parts	52	0	6	0	Miscellaneous	100	600	0	600	0	0
Miscellaneous	61	5	8	8	Miscellaneous	1900	26300	8100	9200	9000	0
Contingencies	63	1	1	0	Miscellaneous	1000	1875	986	524	365	0

Activity / Description	Budget Item	Year 1	Year 2	Year 3	Unit	Unit cost (US\$)	Total cost (US\$)	Year 1	Year 2	Year 3	Ex. Agency (US\$)
<b>Activity 2.3 Identification of seed dispersal agents</b>											
National experts	11	7	10	9	Man/month	1471	39210	4530	7970	6980	19730
Other personnel	12	6	12	7	Man/month	680	21585	4895	9780	5760	1150
DSA	31	0	24	0	Man/day	65	1560	0	1560	0	0
National travel	32	0	8	0	Ticket	180	1440	0	1440	0	0
Local transport	33	0	8	0	Trip	50	400	0	400	0	0
Premises/facilities	41	3	3	3	Month	1500	12750	0	0	0	12750
Raw materials	51	225	378	216	Miscellaneous	7	5733	1575	2646	1512	0
Spare parts	52	0	0	0	Miscellaneous	100	0	0	0	0	0
Miscellaneous	61	6	8	10	Miscellaneous	817	23425	6125	7800	9500	0
Contingencies	63	0	1	0	Miscellaneous	1000	1295	321	506	468	0
<b>Activity 3.1 Application of silvicultural treatments for the establishment of regeneration</b>											
National experts	11	6	10	9	Man/month	1471	38505	3440	8360	7470	19235
Other personnel	12	6	14	9	Man/month	680	26085	5195	12480	7260	1150
DSA	31	0	24	0	Man/day	65	1560	0	1560	0	0
National travel	32	0	8	0	Ticket	180	1440	0	1440	0	0
Local transport	33	0	8	0	Trip	50	400	0	400	0	0
Premises/facilities	41	3	3	3	Month	1500	12000	0	0	0	12000
Equipment	44	1	0	0	Equipment	1500	1500	1500	0	0	0
Raw materials	51	135	378	81	Miscellaneous	7	4158	945	2646	567	0
Spare parts	52	0	6	0	Miscellaneous	100	600	0	600	0	0
Miscellaneous	61	1	2	2	Miscellaneous	250	1063	238	450	375	0
Contingencies	63	0	0	0	Miscellaneous	1000	1060	358	410	291	0
<b>Activity 3.2 Evaluation of seed production in light-demanding trees under silvicultural treatments and internally damaged trees</b>											
National experts	11	7	10	9	Man/month	1471	40025	4060	8780	7330	19855
Other personnel	12	6	14	9	Man/month	680	26015	5195	12480	7190	1150
DSA	31	0	0	24	Man/day	65	1560	0	0	1560	0
National travel	32	0	0	8	Ticket	180	1440	0	0	1440	0
Local transport	33	0	0	8	Trip	50	400	0	0	400	0
Premises/facilities	41	3	3	3	Month	1500	14400	0	0	0	14400
Raw materials	51	135	371	216	Miscellaneous	7	5056	945	2599	1512	0
Spare parts	52	0	0	6	Miscellaneous	100	550	0	0	550	0
Miscellaneous	61	1	2	2	Miscellaneous	250	1063	238	450	375	0
Contingencies	63	0	0	0	Miscellaneous	1000	1068	259	459	349	0
<b>Activity 3.3 Determine the cost-benefit ratio in the application of silvicultural treatments</b>											
National experts	11	1	1	2	Man/month	1550	6750	0	800	2370	3580
Other personnel	12	0	0	0	Man/month	700	70	0	0	70	0
Premises/facilities	41	0	0	0	Month	1500	1800	0	0	0	1800
Spare parts	52	0	0	0	Miscellaneous	100	0	0	0	0	0
Basic services/Utilities	53	10	10	10	Service / Month	80	2340	0	0	0	2340
Office supplies / materials	54	18	26	26	Miscellaneous	30	1540	540	500	500	0
Miscellaneous	61	2	1	2	Miscellaneous	700	3500	1400	700	1400	0
Contingencies	63	0	0	0	Miscellaneous	1000	232	13	37	183	0
<b>Activity 4.1 Development of dissemination materials and preparation and implementation of workshops and training courses</b>											
National experts	11	5	4	8	Man/month	1471	26840	2570	1740	7390	15140
Other personnel	12	0	0	0	Man/month	700	0	0	0	0	0
DSA	31	0	0	39	Man/day	65	2535	0	0	2535	0
National travel	32	0	0	13	Ticket	180	2340	0	0	2340	0
Local transport	33	0	0	25	Trip	40	1010	0	0	1010	0
Premises/facilities	41	1	1	1	Month	1500	6600	0	0	0	6600
Capital equipment	44	1	0	0	Equipment	1500	1500	1500	0	0	0
Raw materials	51	0	0	188	Persona / dia	504	9068	0	0	9068	0
Spare parts	52	0	0	6	Miscellaneous	100	600	0	0	600	0
Basic services/Utilities	53	10	10	10	Service / Month	80	2340	0	0	0	2340
Office supplies / materials	54	18	18	0	Miscellaneous	30	1080	540	540	0	0
Miscellaneous	61	3	4	106	Miscellaneous	1543	33600	10450	900	21050	1200
Contingencies	63	0	0	3	Miscellaneous	1000	2805	224	10	2572	0

Activity / Description	Budget Item	Year 1	Year 2	Year 3	Unit	Unit cost (US\$)	Total cost (US\$)	Year 1	Year 2	Year 3	Ex. Agency (US\$)
<b>Activity 5.1 Project implementation, evaluation, follow-up and monitoring</b>											
National experts	11	5	4	5	Man/month	1550	20840	3250	2480	2990	12120
Other personnel	12	0	0	0	Man/month	700	0	0	0	0	0
DSA	31	0	0	30	Man/day	65	1950	0	0	1950	0
National travel	32	0	0	10	Ticket	180	1800	0	0	1800	0
Local transport	33	0	0	22	Trip	40	860	0	0	860	0
Premises/facilities	41	1	1	1	Month	1500	6450	0	0	0	6450
Equipment	44	5	0	0	Equipment	1083	3500	3500	0	0	0
Basic services/Utilities	53	10	10	10	Service / Month	80	2340	0	0	0	2340
Office supplies / materials	54	0	18	36	Miscellaneous	30	1620	0	540	1080	0
Miscellaneous	61	12	12	8	Miscellaneous	100	3200	1200	1200	800	0
Auditing	62	0	0	0	Miscellaneous	900	0	0	0	0	0
Management costs	71	12	12	12	Man/month	1500	54000	18000	18000	18000	0

### 3.4.2 Consolidated budget by component

**Table 8. Consolidated project budget by component (US\$)**  
(REVISED)

Budget component	Total	Year 1	Year 2	Year 3
<b>10 PERSONNEL</b>	<b>531470</b>	<b>195420</b>	<b>181700</b>	<b>154350</b>
11.1 Project Director	57600	19200	19200	19200
11.2 Forest Coordinator 1 (G)	50400	16800	16800	16800
11.3 Forest Coordinator 2	50400	16800	16800	16800
11.4 GIS Expert	12000	7000	2000	3000
11.5 UNALM Coordinator	61200	20400	20400	20400
11.6 UNAMAD Coordinator	61200	20400	20400	20400
11.7 Forestry consultant	54000	18000	18000	18000
11.8 Dendrochronology expert	10000	10000	0	0
11.9 Botanical identification expert	13000	11000	2000	0
12.1 Assistants	17500	2800	8400	6300
12.2 Brigade leaders	60000	18000	27000	15000
12.3 Field assistants	4320	4320	0	0
12.4 Field botanist	60000	18000	27000	15000
12.5 GIS Assistant - UNALM	11700	7200	1800	2700
12.6 Cleaning and maintenance personnel	3250	2000	500	750
12.7 Dendrochronology assistant	4900	3500	1400	0
12.8 Botanical identification assistant	0	0	0	0
<b>30 DUTY TRAVEL</b>	<b>32170</b>	<b>11475</b>	<b>6800</b>	<b>13895</b>
31.1 Coordinator / Expert / Assistant	14430	5265	3120	6045
32.1 Coordinator / Expert / Assistant	13320	4860	2880	5580
33.1 Coordinator / Expert / Assistant	3700	1350	800	1550
33.2 Course professionals / regents	720	0	0	720
<b>40 CAPITAL ITEMS</b>	<b>502562</b>	<b>201854</b>	<b>150504</b>	<b>150204</b>
41.1 Headquarters	72200	24000	24200	24000
41.2 Regional premises	36100	12000	12100	12000
41.3 Forest use fee	342612	114204	114204	114204
44.1 Capital equipment	0	0	0	0
44.1.1 GPS	3400	3400	0	0
44.1.10 Support equipment	500	500	0	0
44.1.10 Weather station	6000	6000	0	0
44.1.11 High resolution camera traps	9000	9000	0	0
44.1.12 Automatic photometers	1500	1500	0	0
44.1.2 Diameter tape	1700	1700	0	0
44.1.3 Analog clinometer hypsometer	1500	1500	0	0
44.1.4 Analog compass	1500	1500	0	0
44.1.5 Digital camera	2000	2000	0	0
44.1.6 Satellite phone	3800	3800	0	0
44.1.7 Binoculars	1000	1000	0	0
44.1.8 Camera with telephoto lens	3000	3000	0	0

Budget component	Total	Year 1	Year 2	Year 3
44.1.9 Pressler auger (electric)	1800	1800	0	0
44.2 Computer equipment	0	0	0	0
44.2.1 Desktop computer (CPU & monitor)	4000	4000	0	0
44.2.2 High-end computer (Processing of images)	0	0	0	0
44.2.3 Laptop (High capacity)	0	0	0	0
44.2.3 Multifunctional printer (Scanner - printer - photocopier A3)	2500	2500	0	0
44.2.4 Laptop (Basic)	3000	3000	0	0
44.2.5 External Hard Drive	500	500	0	0
44.3 Other	0	0	0	0
44.3.1 Cellular devices	0	0	0	0
44.3.1 Projector	1500	1500	0	0
44.3.2 Television set	0	0	0	0
45.1 Desks	1250	1250	0	0
45.2 Tables	500	500	0	0
45.3 Chairs	500	500	0	0
45.4 Cabinets	1200	1200	0	0
<b>50 CONSUMABLE ITEMS</b>	<b>170921</b>	<b>84826</b>	<b>49593</b>	<b>36503</b>
51.1 Food	53818	25830	17593	10395
51.2 Field materials	61808	29250	18000	14558
51.2.1 Tree climbing and safety equipment	4000	4000	0	0
51.3 Miscellaneous materials	11256	11256	0	0
51.4 Field and safety apparel	0	0	0	0
51.5 Medicines and antiophidics	1500	1500	0	0
51.6 Fuel and lubricants	20700	6900	8100	5700
52.1 Sundry	3700	1350	1200	1150
53.1 Water supply	2160	720	720	720
53.2 Electricity	4320	1440	1440	1440
53.3 Telephone / Internet	2880	960	960	960
54.1 Stationery (A3 / A4)	680	120	280	280
54.2 Ink / toner	2000	600	700	700
54.3 Desk supplies	2100	900	600	600
<b>60 MISCELLANEOUS</b>	<b>479806</b>	<b>181526</b>	<b>152149</b>	<b>146132</b>
61.1 Transport rental services	172373	57000	64500	50873
61.11 Training services, implementation and installation of tree climbing equipment	3500	3500	0	0
61.12 Entomological identification service	34800	8400	14400	12000
61.13 Wildlife identification service	10000	2000	2000	6000
61.14 Equipment maintenance	3500	1400	700	1400
61.15 Costs of the course of evaluation, monitoring and treatment application	20000	10000	0	10000
61.16 Costs of organization and implementation of dissemination workshops	1800	450	900	450
61.17 Proofreading / editing / printing services	3500	0	0	3500
61.18 Payment of publication fees	100	0	0	100
61.19 Miscellaneous office expenses	3200	1200	1200	800
61.2 Satellite communication services	7598	3120	3120	1358

<b>Budget component</b>	<b>Total</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
61.21 Maintenance and repairs	2000	680	680	640
61.22 Computer licenses (GIS)	6000	6000	0	0
61.22 Auditorium - meeting room rental services	1200	300	600	300
61.23 Office automation licenses	1400	1400	0	0
61.3 Field support services	83817	42000	23400	18417
61.4 RPA (Drone) rental services	0	0	0	0
61.5 Dendrology Laboratory Service (Herbarium)	34000	10000	12000	12000
61.6 Wood anatomy laboratory service (dendrochronology)	45000	21000	12000	12000
61.7 High-risk insurance/ Health and pension (SCTR)	6825	2175	2400	2250
61.8 Seed laboratory services (seed analysis)	17400	3200	8400	5800
61.9 Climate data analysis service	0	0	0	0
62.1 Bank and financial charges	0	0	0	0
63.1 Contingencies	21794	7701	5849	8244
<b>70 NATIONAL MANAGEMENT COSTS</b>	<b>54000</b>	<b>18000</b>	<b>18000</b>	<b>18000</b>
71.1 Accounting and cash expenses	54000	18000	18000	18000
<b>80 PROJECT MONITORING &amp; ADMINISTRATION</b>	<b>140683</b>	<b>53607</b>	<b>50811</b>	<b>36265</b>
81.1 ITTO monitoring and review	12000	6000	0	6000
82.1 ITTO mid-term evaluation	15000	0	15000	0
83.1 ITTO programme support costs (12% of items 10–82 above)	113683	47607	35811	30265
<b>100 TOTAL (US\$)</b>	<b>1911612</b>	<b>746708</b>	<b>609556</b>	<b>555348</b>

### 3.4.3 ITTO budget by component

Table 9. ITTO budget by component for revised project\* (in US\$)

Budget item/Description	Total	Year 1	Year 2	Year 3	Amount reduction	Comments
<b>10 PERSONNEL</b>	<b>340120</b>	<b>127420</b>	<b>120600</b>	<b>92100</b>		
11.1 Project Director	57600	19200	19200	19200	3600	Monthly salary amounts are reduced by USD100, with salaries of \$1,600 and \$1,400 respectively.
11.2 Forest Coordinator 1 (G)	50400	16800	16800	16800	3600	
11.3 Forest Coordinator 2	50400	16800	16800	16800	3600	
11.4 GIS Expert	12000	7000	2000	3000		
11.5 UNALM Coordinator	0			0		
11.6 UNAMAD Coordinator	0			0		
11.7 Forestry consultant	0			0		
11.8 Dendrochronology expert	10000	10000	0	0	4000	Spending reduced to one year in budget
11.9 Botanical identification expert	13000	11000	2000	0	13000	Reduced to one specialist
12.1 Assistants	17500	2800	8400	6300	6300	One assistant has been removed
12.2 Brigade leaders	60000	18000	27000	15000	30000	One field brigade is reduced
12.3 Field assistants	4320	4320	0	0		
12.4 Field botanist	60000	18000	27000	15000	30000	One field brigade is reduced
12.5 GIS Assistant - UNALM	0					
12.6 Cleaning and maintenance personnel	0					
12.7 Dendrochronology assistant	4900	3500	1400	0		
12.8 Botanical identification assistant	0	0	0	0	9100	Field assistants are not considered
<b>30 DUTY TRAVEL</b>	<b>32170</b>	<b>11475</b>	<b>6800</b>	<b>13895</b>		
31.1 Coordinator / Expert / Assistant	14430	5265	3120	6045		
32.1 Coordinator / Expert / Assistant	13320	4860	2880	5580		
33.1 Coordinator / Expert / Assistant	3700	1350	800	1550		
33.2 Course professionals / regents	720	0	0	720		
<b>40 CAPITAL ITEMS</b>	<b>36400</b>	<b>36400</b>	<b>0</b>	<b>0</b>		
41.1 Headquarters	0					
41.2 Regional premises	0					
41.3 Forest use fee	0					
44.1 Capital equipment	0	0	0	0		
44.1.1 GPS	1600	1600	0	0	800	Reduced to acquisition of 2 GPS units
44.1.10 Support equipment	300	300	0	0		
44.1.10 Weather station	6000	6000	0	0	6000	Reduced to acquisition of one station

Budget item/Description	Total	Year 1	Year 2	Year 3	Amount reduction	Comments
44.1.11 High resolution camera traps	9000	9000	0	0	9000	Reduced to acquisition of half the cameras, increased efforts in brigade monitoring
44.1.12 Automatic photometers	1500	1500	0	0		
44.1.2 Diameter tape	800	800	0	0	400	Reduced for two brigades: acquisition of 14 tapes
44.1.3 Analog clinometer hypsometer	600	600	0	0	600	Reduced to acquisition of two units
44.1.4 Analog compass	600	600	0	0	600	Reduced to acquisition of two units
44.1.5 Digital camera	800	800	0	0	800	Reduced to acquisition of two units
44.1.6 Satellite phone	1900	1900	0	0	950	Reduced to acquisition of two units
44.1.7 Binoculars	600	600	0	0		
44.1.8 Camera with telephoto lens	0	0	0	0	4500	Not considered in the budget
44.1.9 Pressler auger (electric)	1200	1200	0	0	600	Reduced to acquisition of 4 units
44.2 Computer equipment	0	0	0	0		
44.2.1 Desktop computer (CPU & monitor)	4000	4000	0	0		
44.2.2 High-end computer (Processing of images)	0	0	0	0		
44.2.3 Laptop (High capacity)	0	0	0	0	6000	The acquisition of 3 laptops in this budget item is no longer considered
44.2.3 Multifunctional printer (Scanner - printer - photocopier A3)	2500	2500	0	0		
44.2.4 Laptop (Basic)	3000	3000	0	0	2000	Reduced to acquisition of 3 units
44.2.5 External Hard Drive	500	500	0	0	1500	Reduced to acquisition of 2 units
44.3 Other	0	0	0	0		
44.3.1 Cellular devices	0	0	0	0	3000	The acquisition of 3 units in this budget item is no longer considered
44.3.1 Projector	1500	1500	0	0		
44.3.2 Television set	0	0	0	0	1500	The acquisition of a TV set is no longer considered
45.1 Desks	0					
45.2 Tables	0					
45.3 Chairs	0					
45.4 Cabinets	0					

Budget item/Description	Total	Year 1	Year 2	Year 3	Amount reduction	Comments
<b>50 CONSUMABLE ITEMS</b>	<b>161561</b>	<b>81706</b>	<b>46473</b>	<b>33383</b>		
51.1 Food	53817.75	25830	17592.75	10395	26507.25	Scaled down by one-third by reducing one brigade
51.2 Field materials	61807.5	29250	18000	14557.5	30442.5	Scaled down by one-third by reducing one brigade
51.2.1 Tree climbing and safety equipment	4000	4000	0	0	6000	Reduced from 5 to 2 units
51.3 Miscellaneous materials	11256	11256	0	0	5544	Scaled down by one-third by reducing one brigade
51.4 Field and safety apparel	0	0	0	0	10800	The purchase of this item is no longer considered
51.5 Medicines and antiophidics	1500	1500	0	0		
51.6 Fuel and lubricants	20700	6900	8100	5700		Maintained due to current high costs
52.1 Sundry	3700	1350	1200	1150	1850	Taken out of last year's budget
53.1 Water supply	0					
53.2 Electricity	0					
53.3 Telephone / Internet service	0					
54.1 Stationery (A3 / A4)	680	120	280	280		
54.2 Ink / toner	2000	600	700	700		
54.3 Desk supplies	2100	900	600	600		
<b>60 MISCELLANEOUS</b>	<b>296106</b>	<b>115726</b>	<b>91549</b>	<b>88832</b>		
61.1 Transport rental services	74872.5	28500	28500	17872.5	36877.5	Scaled down by one-third by reducing one brigade
61.11 Training services, implementation and installation of tree climbing equipment	3500	3500	0	0		
61.12 Entomological identification service	34800	8400	14400	12000	33600	Reduction of one specialist
61.13 Wildlife identification service	10000	2000	2000	6000	25000	Reduction of two specialists
61.14 Equipment maintenance	3500	1400	700	1400		
61.15 Costs of the course of evaluation, monitoring and treatment application	20000	10000	0	10000	10000	Reduction of number of participants
61.16 Costs of organization and implementation of dissemination workshops	1800	450	900	450		
61.17 Proofreading / editing / printing services	3500	0	0	3500	1500	Reduction of number of copies
61.18 Payment of publication fees	100	0	0	100		
61.19 Miscellaneous office expenses	3200	1200	1200	800		
61.2 Satellite communication services	7598	3120	3120	1358	3742	Reduced costs of a satellite equipment service
61.21 Maintenance and repairs	2000	680	680	640		
61.22 Computer licenses (GIS)	0					
61.22 Auditorium - meeting room rental services	0					
61.23 Office automation licenses	1400	1400	0	0		

Budget item/Description	Total	Year 1	Year 2	Year 3	Amount reduction	Comments
61.3 Field support services	83817	42000	23400	18417	41283	Reduction of a brigade's assistants
61.4 RPA (Drone) rental services	0	0	0	0	45000	Not to be considered in the ITTO budget; additional funding source to be sought.
61.5 Dendrology Laboratory Service (Herbarium)	0					
61.6 Wood anatomy laboratory service (dendrochronology)	0					
61.7 High-risk insurance/ Health and pension (SCTR)	6825	2175	2400	2250		
61.8 Seed laboratory services (seed analysis)	17400	3200	8400	5800	5800	Reduced by one-quarter by excluding one species from the study
61.9 Climate data analysis service	0	0	0	0	12000	This specialist will not be included; the analysis will be carried out by the coordinators
62.1 Bank and financial charges	0	0	0	0		
63.1 Contingencies	21793.6875	7700.65	5848.8	8244.2375	72451	Reduced to 5% - covering items 59 to 62.1
<b>70 NATIONAL MANAGEMENT COSTS</b>	<b>54000</b>	<b>18000</b>	<b>18000</b>	<b>18000</b>		
71.1 Accounting and cash expenses	54000	18000	18000	18000	18000	Administrative expenses have been reduced to 1,500 soles per month
<b>80 PROJECT MONITORING &amp; ADMINISTRATION</b>	<b>140683</b>	<b>53607</b>	<b>50811</b>	<b>36265</b>		
81.1 ITTO monitoring and review	12000	6000	0	6000		
82.1 ITTO mid-term evaluation	15000	0	15000	0		
83.1 ITTO programme support costs (12% of items 10–82 above)	1136823	47607	35811	30265	72386	The ITTO percentage has been revised from 8% to 12% of the subtotal
<b>100 TOTAL</b>	<b>1061040</b>	<b>444334</b>	<b>334232</b>	<b>282474</b>	<b>600233</b>	

**\*Note: the budget has been reduced by removing Estoraque species from the evaluation and adjusting the costs of brigades, field work and equipment accordingly.**

### 3.4.4 Executing agency budget by component

**Table 10. Executing agency Budget by component (in US\$)**

Budget Component	Total	Year 1	Year 2	Year 3
<b>10 PERSONNEL</b>	<b>191350</b>	<b>68000</b>	<b>61100</b>	<b>62250</b>
11.1 Project Director	0			
11.2 Forest Coordinator 1 (G)	0			
11.3 Forest Coordinator 2	0			
11.4 GIS Expert	0			
11.5 UNALM Coordinator	61200	20400	20400	20400
11.6 UNAMAD Coordinator	61200	20400	20400	20400
11.7 Forestry consultant	54000	18000	18000	18000
11.8 Dendrochronology expert	0			
11.9 Botanical identification expert	0			
12.1 Assistants	0			
12.2 Brigade leaders	0			
12.3 Field assistants	0			
12.4 Field botanist	0			
12.5 GIS Assistant - UNALM	11700	7200	1800	2700
12.6 Cleaning and maintenance personnel	3250	2000	500	750
12.7 Dendrochronology assistant	0			
12.8 Botanical identification assistant	0			
<b>30 DUTY TRAVEL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
31.1 Coordinator / Expert / Assistant	0			
32.1 Coordinator / Expert / Assistant	0			
33.1 Coordinator / Expert / Assistant	0			
33.2 Course professionals / regents	0			
<b>40 CAPITAL ITEMS</b>	<b>466162</b>	<b>165454</b>	<b>150504</b>	<b>150204</b>
41.1 Headquarters	72200	24000	24200	24000
41.2 Regional premises	36100	12000	12100	12000
41.3 Forest use fee	342612	114204	114204	114204
44.1 Capital equipment	0			
44.1.1 GPS	1800	1800	0	0
44.1.10 Support equipment	200	200	0	0
44.1.10 Weather station	0			
44.1.11 High resolution camera traps	0			
44.1.12 Automatic photometers	0			
44.1.2 Diameter tape	900	900	0	0
44.1.3 Analog clinometer hypsometer	900	900	0	0
44.1.4 Analog compass	900	900	0	0
44.1.5 Digital camera	1200	1200	0	0
44.1.6 Satellite phone	1900	1900	0	0
44.1.7 Binoculars	400	400	0	0
44.1.8 Camera with telephoto lens	3000	3000	0	0
44.1.9 Pressler auger (electric)	600	600	0	0
44.2 Computer equipment	0			
44.2.1 Desktop computer (CPU & monitor)	0			
44.2.2 High-end computer (Processing of images)	0			
44.2.3 Laptop (High capacity)	0			
44.2.3 Multifunctional printer (Scanner - printer - photocopier A3)	0			
44.2.4 Laptop (Basic)	0			
44.2.5 External Hard Drive	0			
44.3 Other	0			
44.3.1 Cellular devices	0			
44.3.1 Projector	0			
44.3.2 Television set	0			
45.1 Desks	1250	1250	0	0
45.2 Tables	500	500	0	0
45.3 Chairs	500	500	0	0

Budget Component	Total	Year 1	Year 2	Year 3
45.4 Cabinets	1200	1200	0	0
<b>50 CONSUMABLE ITEMS</b>	<b>9360</b>	<b>3120</b>	<b>3120</b>	<b>3120</b>
51.1 Food	0			
51.2 Field materials	0			
51.2.1 Tree climbing and safety equipment	0			
51.3 Miscellaneous materials	0			
51.4 Field and safety apparel	0			
51.5 Medicines and antiophidics	0			
51.6 Fuel and lubricants	0			
52.1 Sundry	0			
53.1 Water supply	2160	720	720	720
53.2 Electricity	4320	1440	1440	1440
53.3 Telephone / Internet	2880	960	960	960
54.1 Stationery (A3 / A4)	0			
54.2 Ink / toner	0			
54.3 Desk supplies	0			
<b>60 MISCELLANEOUS</b>	<b>183700</b>	<b>65800</b>	<b>60600</b>	<b>57300</b>
61.1 Transport rental services	97500	28500	36000	33000
61.11 Training services, implementation and installation of tree climbing equipment	0			
61.12 Entomological identification service	0			
61.13 Wildlife identification service	0			
61.14 Equipment maintenance	0			
61.15 Costs of the course of evaluation, monitoring and treatment application	0			
61.16 Costs of organization and implementation of dissemination workshops	0			
61.17 Proofreading / editing / printing services	0			
61.18 Payment of publication fees	0			
61.19 Miscellaneous office expenses	0			
61.2 Satellite communication services	0			
61.21 Maintenance and repairs	0			
61.22 Computer licenses (GIS)	6000	6000	0	0
61.22 Auditorium - meeting room rental services	1200	300	600	300
61.23 Office automation licenses	0			
61.3 Field support services	0			
61.4 RPA (Drone) rental services	0			
61.5 Dendrology Laboratory Service (Herbarium)	34000	10000	12000	12000
61.6 Wood anatomy laboratory service (dendrochronology)	45000	21000	12000	12000
61.7 High-risk insurance/ Health and pension (SCTR)	0			
61.8 Seed laboratory services (seed analysis)	0			
61.9 Climate data analysis service	0			
62.1 Bank and financial charges	0			
63.1 Contingencies	0			
<b>70 NATIONAL MANAGEMENT COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
71.1 Accounting and cash expenses	0			
<b>80 PROJECT MONITORING &amp; ADMINISTRATION</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
81.1 ITTO monitoring and review	0			
82.1 ITTO mid-term evaluation	0			
83.1 ITTO programme support costs (12% of items 10–82 above)	0			
<b>100 TOTAL (US\$)</b>	<b>850572</b>	<b>302374</b>	<b>275324</b>	<b>272874</b>

### **3.5 Assumptions, risks and sustainability**

#### **3.5.1 Assumptions and risks**

The main assumptions that will guarantee the success of the project include the following:

- Development objective: ongoing compliance with laws and agreements on the implementation of management plans and operational plans, with restoration of harvested species populations through the application of silvicultural models as proposed; stakeholders maintain their interest and support the implementation of the project; and willingness of forest concessions and native communities to continue promoting positive change to achieve the sustainable development of target species by maintaining their economic and ecological value.
- Specific objective: forest concessions and native communities maintain their openness, are willing to share information and actively participate in project activities by providing the necessary areas for the installation of plots, contributing to monitoring actions even after project completion, and facilitating the collection of necessary information in their plots until the next harvesting cycle.
- Outputs: the assumptions related to forest concessions and native communities include: the application of silvicultural techniques to improve and enhance the role of seed trees as well as to improve productivity with a view to increasing the number of harvestable trees in the second rotation. In addition, forest concessions and native communities should be willing to interact and share information, as well as being actively involved in training workshops and courses and in dialogue spaces; while in relation to forest authorities, the assumption is an ongoing interest in promoting mechanisms to improve the legislation and support the implementation of silvicultural treatments.

The main risks that could affect the implementation of the project and the mitigation measures that would need to be implemented would be as follows:

- Development objective: the most important risk would be that users of permanent production forests do not show willingness to comply with forest legislation and show indifference to demonstrate that silvicultural methods can be applied to improve forest productivity from an economic and ecological viewpoint. The countermeasures that the project would take would be to carry out awareness campaigns to change attitudes and to work with users who abide by the current forest legislation and show interest in applying traceability mechanisms in the implementation of management plans.
- Specific objective: one of the risks to consider is that some of the concession holders and native communities could be reluctant to provide their areas for the establishment of silvicultural plots and share information. If this situation were to arise, other sources such as forest authorities would be used, in addition to increasing awareness-raising actions.
- Outputs: the most important risks are that permanent production forest users show little interest in improving the restoration of natural forests under harvesting, receiving training and supporting project actions. A risk involving forest authorities would be that they do not continue providing the necessary support to concession holders and communities. To mitigate these potential risks, the project would implement awareness-raising campaigns addressed to forest authorities, permanent production forest users and decision and policy makers, and would design promotion mechanisms for users.

#### **3.5.2 Sustainability**

Forest concessions and native communities in the project's area of influence are highly involved and committed to working for the sustainable development of Amazon forests. Project objectives and activities are aimed at improving the technical and silvicultural efficiency of forest management and operational plans to contribute to the development of the Amazon region in general. Thus, project sustainability will be ensured by having highly sensitized permanent production forest users who will ensure the ongoing sustainability of project outputs and forest productivity. The methodology for knowledge transfer will be continued by the CNF, UNALM and UNAMAD by supporting project beneficiaries in the practical implementation of the knowledge acquired through training, workshops and technical assistance.

Furthermore, the CNF and UNALM will continue to participate in the opinion forum called "Executive Roundtable for Forest Sector Development" under the leadership of the Ministry of Economics and Finance (*Ministerio de Economía y Finanzas* – MEF), which aims to identify, promote and propose actions to boost the forest sector and to enable and promote the competitiveness of this sector to contribute to economic and ecological growth, as well as ensuring that all relevant technical views are taken into account.

## PART 4. IMPLEMENTATION ARRANGEMENTS

### 4.1 Organization structure and stakeholder involvement mechanisms

#### 4.1.1 Executing agency and partners

The National Forestry Chamber (*Cámara Nacional Forestal* – CNF), in conjunction with the National Agrarian University of La Molina, will be responsible for the implementation of the project through a steering committee made up of representatives of forest-sector government agencies, forest concessions and native communities implementing forest management and operational plans, and the National University of Madre de Dios (*Universidad Nacional de Madre de Dios* – UNAMAD). To this end, the participation of various forest-related organizations will be ensured, including public agencies and NGOs, among others. All of these interested parties will be involved in work meetings, training, and technical assistance and support, with a view to improving the restoration of logged-over forests.

The main objectives of the National Forestry Chamber are to promote the sustainable use of forest resources, harmonizing the principles of conservation with technology and economic and social development, and to achieve efficient and sound forest policies to encourage the development of forest management on a silvicultural basis for the restoration of harvested species populations in support of the industry, trade and the promotion of exports. The CNF has been working with forest stakeholders for more than 30 years. Past experiences implemented by the CNF in cooperation with ITTO and the National Forest Authority (SERFOR, formerly INRENA) include completed ITTO Projects PD 23/00 Rev.4 (F) “Promotion and transfer of knowledge on sustainable forest management models to timber producers”, PD 621/11 Rev.3 (M) “Traceability of timber produced by forest concessions and native communities in Madre de Dios and Ucayali”, PD 540/09 Rev.2 (I) “Support to improve the productivity of the Peruvian timber industry for the production of higher value-added products”, and PD 421/06 (F) “Strengthening of the Production Chain for Timber from Forest Concessions and Other Forests under Management”, among others.

The National Agrarian University of La Molina (*Universidad Nacional Agraria La Molina* – UNALM) has been working for the development of the forestry sector for 58 years, establishing a number of research actions in the areas of ecology, silviculture, the best use of tropical timber and introduction of new species into the market. It was also the designated Scientific Authority for timber species from 2002 to 2015, to comply with the mandate of the commitments of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In 2002, UNALM submitted a long-term work plan to remove mahogany and cedar species from CITES listings, which meant working on the restoration of their populations; thus, with the support of ITTO and later under the ITTO-CITES Programme, studies of cedar and mahogany populations were implemented through UNALM-ITTO Project PD 251/03 Rev. 3 (F). Studies were later continued under the project “Management of seed stands of mahogany (*Swietenia macrophylla* King.) and cedar (*Cedrela* spp.) in a forest concession for the conservation of the Tahuamanu seed stand in the province of Tahuamanu, Madre de Dios, Peru”, supported by the CITES-ITTO Programme in 2015, which provided the basis for this project proposal. In brief, UNALM has had a 20-year partnership with ITTO implementing studies in support of endangered species.

#### 4.1.2 Project management team

The project management team will be appointed by the executing agency and will be made up of a project director, two technical coordinators (I and II), a professional field assistant and a monitoring officer. The Lima office will be the main headquarters and will be located on the premises of the CNF. The Project Director and the Project Coordinators will be based in UNALM, Lima, and will travel regularly to the Madre de Dios region; the professional assistant will be based in the premises of UNAMAD, in Puerto Maldonado. The coordinator will provide administrative, accounting and technical support from the Lima office.

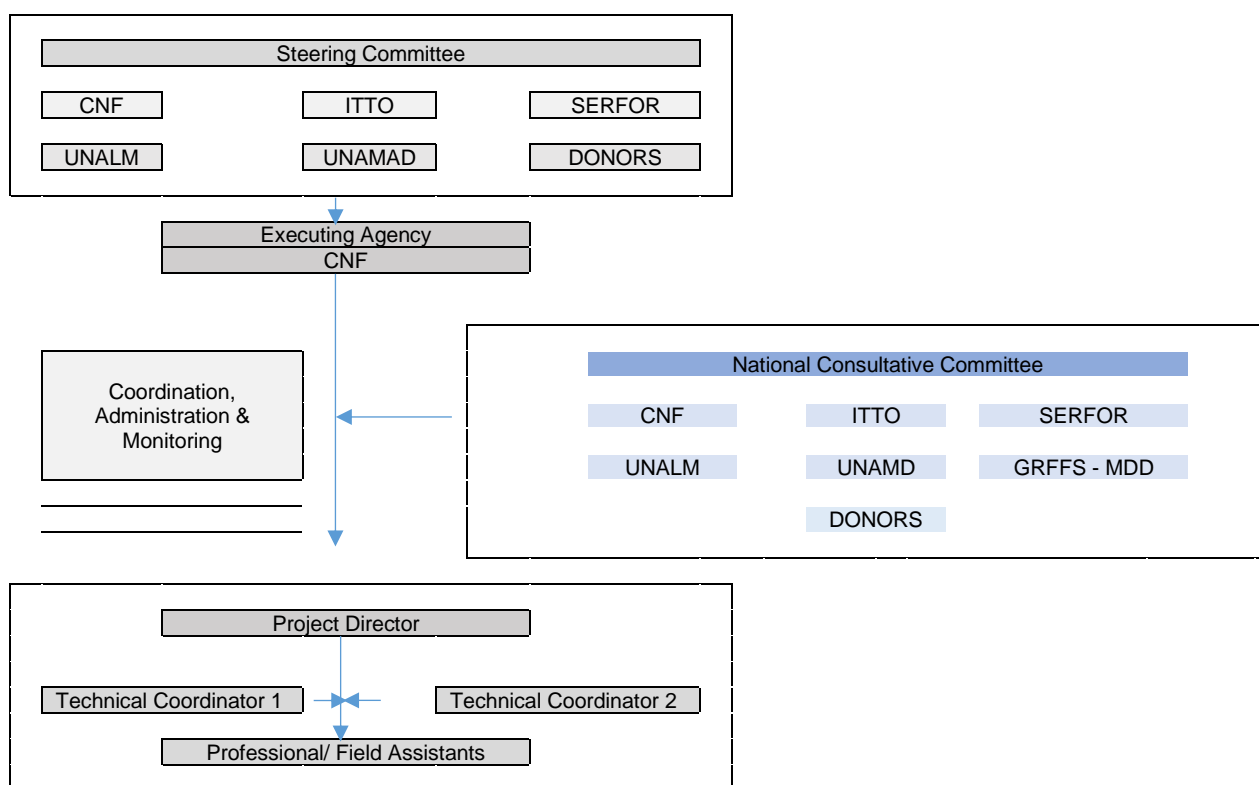
A Steering Committee will be established at the highest level of the project organizational structure. This Committee will be responsible for supervising and monitoring the project, ensuring that project expenditures are kept within the approved budget and making any necessary adjustments, and reviewing the implementation of activities, among other responsibilities. The Committee will be made up of a representative of each of the institutions participating in the project i.e. the National Forestry Chamber (CNF) as chair of the Committee, the International Tropical Timber Organization (ITTO), the National Forest and Wildlife Service (*Servicio Nacional Forestal y de Fauna Silvestre* – SERFOR), the National Agrarian University of La Molina (*Universidad Nacional Agraria La Molina* – UNALM) and the National University of Madre de Dios (*Universidad*

Nacional de Madre de Dios – UNAMAD), **as well as donor representatives**. The Project Director will act only as the Secretary of this Committee.

#### 4.1.3 Stakeholder involvement mechanisms

A consultative committee will be established in the city of Puerto Maldonado, Madre de Dios, as a consultation platform to guide project actions. This committee will be made up of representatives of project beneficiaries (concessions and native communities), SERFOR, the Regional Forest and Wildlife Authority of Madre de Dios (GRFFS/MDD) and the National University of Madre de Dios (UNAMAD), **as well as donor representatives** and guest participants that may be invited by the Committee.

The purpose of the Consultative Committee is to provide information on project implementation to all interested parties and ensure their participation, in addition to offering a platform for stakeholders to contribute to the project. The Consultative Committee may request and receive information and provide guidance, but it will not have an official duty under the project. Its recommendations will be submitted to the chair of the Project Steering Committee. The project organizational chart is shown below:



**Figure 6. Project organizational chart\***

**\*Note: including donors.**

#### 4.2 Reporting, review, monitoring and evaluation

The following reports will be submitted:

- Inception report (upon project approval)
- Yearly plan of operation (together with the inception report)
- Technical report (every six months during project implementation)
- Financial reports (on an annual basis and upon project completion)
- Project completion report (upon project completion)

A basic monitoring system will be applied that will involve internal monitoring procedures as described below.

Internal monitoring: The system will ensure the successful implementation of the Project including adjustments of the work plan and/or YPO and the implementation of defined corrective actions. Internal monitoring will include the following subjects:

- Follow up of commitments resulting from the agreement between ITTO and the Executing Agency;
- Progress and proper execution of work;
- Timely delivery and quality of outputs;
- Progress report on the extent to which the specific objective has been achieved;
- Social, economic and environmental impacts and the effect of mitigating measures;
- Final audit at project completion.

#### **4.3 Dissemination and mainstreaming of project learning**

##### **4.3.1 Dissemination of project results**

Project results will be reported to beneficiaries through various events, including courses, workshops, field visits, technical meetings, conferences, congresses and congress presentations, as well as documents in printed and digital formats to be published by the project and other information to be posted on existing electronic platforms such as the websites of CNF and SERFOR, the Regional Government of Madre de Dios (GOREMAD), the National Agrarian University of La Molina (UNALM) and the National University of Madre de Dios (UNAMAD) so as to ensure widespread dissemination at the national and international levels. In addition, the project's professional staff will be available to users, both in person and online, for additional enquiries and consultations.

##### **A. Preparation of dissemination materials:**

**Initially, methodological guides will be prepared, which will serve as technical guidelines for project implementation and as technical inputs for the professionals of forest concessions and native communities.**

**Subsequently, to disseminate preliminary project outcomes, newsletters will be developed to show progress and achievements.**

**Finally, a book on project results and final outputs will be published, following national library standards.**

##### **B. Face-to-face events**

**For the dissemination of project outcomes, the first stage will be carried out through workshops with the participation of professionals responsible for the management of concessions and native communities, in order to develop new skills but also to obtain feedback from their own experience. These workshops will also include the participation of forest authorities, such as SERFOR and the Forest Management Division of the Madre de Dios Regional Government (GOREMAD), as well as other institutions involved in the forest sector.**

**In a second stage, starting from the second year of the project, workshops will be held to show the partial results and achievements of the project, with the same goals and stakeholders as the first year's workshop. This may eventually lead to the updating of the project's work plan.**

**In a third stage, the final outputs of the project will be presented, with the participation of different institutions directly and/or indirectly involved in the implementation of the project. This will be a technical meeting to be held in the city of Puerto Maldonado, Madre de Dios.**

### **C. Virtual media**

Using the CNF's official web platform, all documents produced by the project will be posted in electronic format. Likewise, in order to ensure wider dissemination, useful links will be posted on the official websites of SERFOR, the National Agrarian University of La Molina (UNALM) and the National University of Madre de Dios (UNAMAD).

The social networks of the aforementioned institutions will be used to disseminate the progress, achievements and results of the project, as well as announcements of workshops and meetings.

#### **4.3.2 Mainstreaming of project learning**

Project results will be transferred to beneficiaries through events such as courses, workshops, field visits, technical meetings, conferences, congresses and presentations in different types of gatherings, as well as printed and electronic documents generated by the project and other information to be posted on existing electronic platforms such as the websites of CNF and SERFOR, the Regional Government of Madre de Dios (GOREMDD), the National Agrarian University of La Molina (UNALM) and the National University of Madre de Dios (UNAMAD), thus ensuring widespread dissemination at the national and international levels. In addition, the project's professional staff will be available to users, both in person and online, for additional enquiries.

**For the mainstreaming of project progress and results, the following levels will be considered:**

- **Experience-sharing level – to be carried out through field internships, aimed at technicians and forest policymakers of public institutions (SERFOR, GOREMAD Forest Management Division, OSINFOR), and representatives of private institutions: concessionaires, native communities and other stakeholders in the forestry field.**
- **Project learning level – through universities, with the aim of improving the training of professionals, demonstrating the project's silvicultural methodological results, and supplementing the training of forest technicians and field assistants (community members). Additionally, during the implementation of the project, an exchange of experiences will also be organized, including the sharing of practices used by the local population and field workers who are well aware of the characteristics and functioning of forests.**

## ANNEXES

### ANNEX 1. Profile of the executing agency

#### NATIONAL FORESTRY CHAMBER

Address: Ramón Dagnino No. 369. Jesús María, Lima 11, Peru.

Telephone: (511) 430-46-05

E-mail: [cnf@cnf.org.pe](mailto:cnf@cnf.org.pe)

Website: [www.cnf.org.pe](http://www.cnf.org.pe)

The National Forestry Chamber (Cámara Nacional Forestal – CNF) is a non-profit civil association established on 16 August 1989 after a consensus-building process between the most representative institutions at the national level in the fields of forest production and conservation as well as forest and conservation professionals.

The objectives of the CNF are as follows:

- Promoting the sustainable use of forest resources, harmonizing the principles of conservation with technology and economic and social development;
- Coordinating national forest activities, and acting as the main interlocutor of the private forest sector before public and private institutions and agencies;
- Proposing and achieving efficient and sound forest policies to encourage forest management, industry, trade and the promotion of exports;
- Protecting the national forest production;
- Building up and disseminating an adequate image of the forest activity at the national level consistent with the magnitude of the resource and its territorial significance;
- Providing feedback/making statements on issues of national interest;
- Designing and implementing research, training and development projects related to forestry.

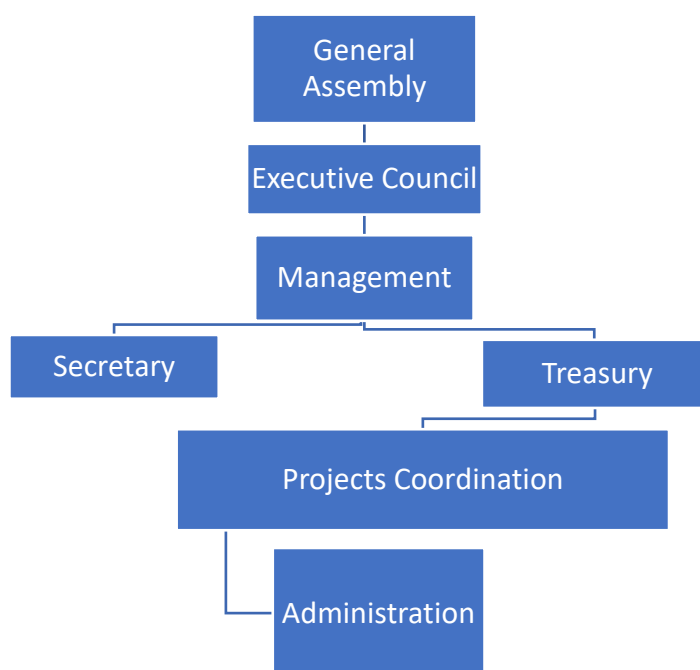


Figure 7. CNF organizational chart

The National Forestry Chamber is headquartered in the city of Lima, where it has an office that is conveniently equipped for ongoing communication via the internet and mobile telephones with its two coordination offices in the cities of Pucallpa and Puerto Maldonado.

**List of studies carried out by CNF over the last few years**

<b>Period</b>	<b>Title</b>	<b>Funding source</b>	<b>Total cost in US\$</b>
Jul – Feb 2022	Commissioned study on “Identification and development of business opportunities for nature-based solutions and sustainable use of biodiversity in the “varillales” ( <i>white sand forests</i> ) and successional forests of Loreto”	USAID Prevent Project – Combating Environmental Crimes	\$ 25,982
Apr – Jun 2021	Process towards the new Peruvian forest policy	WWF - PERU	\$ 8,437
Mar – Sep 2021	Small Project: “Process towards the new Peruvian forest policy”	International Tropical Timber Organization - ITTO	\$ 10,000
Nov 2020 – Aug 2021	“Design of a pilot project to identify and articulate public procurement of legal timber in Ucayali”	WWF - PERU	\$ 13,220.83
Jun – Dec 2019	“Baseline of legal timber supply in Peru, including technical, social and commercial aspects”	USAID PRO -BOSQUES	\$ 79,191
Jul – Nov 2019	“Implementation of surveys and systematization of results of the study and improving timber legality in Peru”	PROFONANPE	\$ 34,481
Oct 2017 – Jan 2018	“Shiringa production chain to strengthen competitiveness”	Programme for Inclusive and Competitiveness Sustainable Forest Development in the Peruvian Amazon Region – SERFOR - CAF	\$ 43,582

**List of ITTO projects implemented by CNF**

<b>Period</b>	<b>Project Title</b>	<b>Total cost (US\$)</b>	<b>CNF Contrib. (US\$)</b>	<b>ITTO Contrib. (US\$)</b>
Oct. 2013 – Mar. 2016	PD 621/11 Rev.3 (M) “Traceability of timber produced by forest concessions and native communities in Madre de Dios and Ucayali”	627,157	278,125	349,032
Oct. 2012 – Mar. 2015	PD 540/09 Rev.2 (I) “Support to improve the productivity of the Peruvian timber industry for the production of higher value-added products”	873,440	425,078	448,362
Mar. – Nov. 2011	Support for the implementation of the 5th Latin American Forestry Congress	166,129	116,129	50,000
Nov. 2007 – May- 2010	PD 421/06 Rev.2 (F) “Strengthening of the production chain for timber from forest concessions and other forests under management”.	986,225	405.693	580.532
Oct. 2004 – Mar. 2007	PD 23/00 Rev.4 (F) “Promotion and Transfer of Knowledge on Sustainable Forest Management Models to Timber Producers”	812,777	392.565	420.212
Mar. 1992 – Nov. 1993	PD 37/88 Rev.3 (I) “Industrial utilization of new forest species in Peru” - Phase II	841,750	380,500	461,250
Apr. 1990 – Mar. 1992	PD 37/88 Rev.3 (I) “Industrial utilization of new forest species in Peru” - Phase I	829,250	380,500	448,750

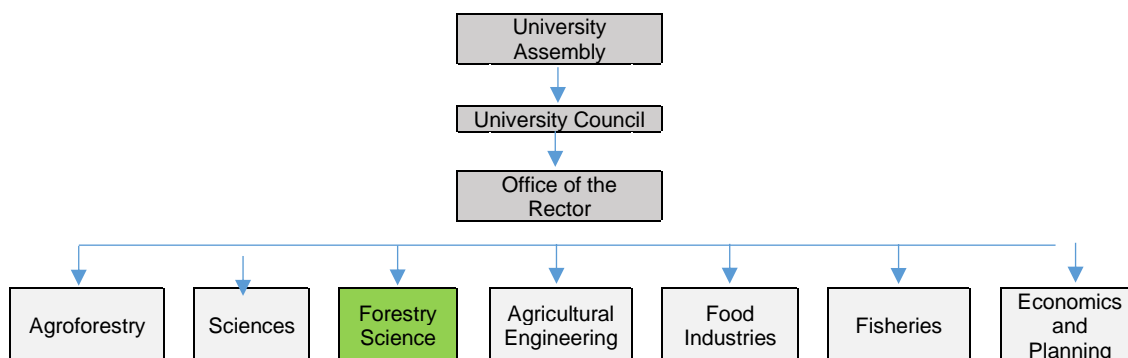
## NATIONAL AGRARIAN UNIVERSITY OF LA MOLINA – UNALM

The National Agrarian University of La Molina was established on 22 July 1902 as an education institution specialized in agricultural and veterinary sciences. In 1961, the following faculties began to function as academic institutions: Agronomy, Zootechnics, Agricultural Engineering and Sciences as well as the School of Economics and Planning and the Postgraduate School. The Faculties of Forestry Sciences, Fisheries and Food Industries became operational in 1963, 1966 and 1969, respectively.

The University Assembly is the highest governing body and, as a collegiate entity, it represents the academic community and is responsible for issuing the general policies of the University. The University Council is UNALM's highest body of management, coordination and academic and administrative operation. The faculty is the fundamental unit of organization and management, as well as human, academic and professional training, involving teaching-learning processes; research, development and innovation activities (R+D+I); and university extension and social projection projects, in coordination with their respective systems.

The Rector is the spokesperson and legal representative of UNALM. He/she is in charge of the guidance, conduction, and management of the institution's government, and together with the Academic and Research Vice-Rectors, is responsible for the use of the institution's resources, notwithstanding the applicable civil, criminal or administrative liability. The faculties are directed by a Dean, who is the governing authority that represents the faculty, presides over the sessions of the Faculty Council and executes its agreements.

**Figure 8. Simplified organizational chart of UNALM**



**List of ITTO projects implemented by UNALM**

<b>Period</b>	<b>Project Title</b>	<b>Total cost (US\$)</b>	<b>UNALM Contrib. (US\$)</b>	<b>ITTO Contrib. (US\$)</b>
Mar. 2006 – Oct. 2007	UNALM-ITTO Project PD 251/03 Rev. 3 (F): “Evaluation of commercial stocks and strategy for the sustainable management of mahogany ( <i>Swietenia macrophylla</i> ) in Peru” (ITTO)	527 978	176 978	351 000
Nov. 2007 – Mar. 2009	UNALM-ITTO Project PD 251/03 Rev. 3 (F): “Evaluation of commercial stocks and strategy for the sustainable management of bigleaf mahogany ( <i>Swietenia macrophylla</i> ) in Peru- Extension to Cedar ( <i>Cedrela</i> spp.)” (ITTO- CITES)	551 829	176 978	374 851
Aug. 2009 – Jul. 2010	Design, validation and adjustment of the methodology for ongoing monitoring and evaluation of bigleaf mahogany and cedar sample plots in Peru (ITTO-CITES)	220 719	90 993	129 729
Nov. 2012 – Oct. 2013	Assessment of regeneration of natural bigleaf mahogany and cedar populations in Peru - Madre de Dios (ITTO-CITES)	199 790	71 500	128 290
Nov. 2013 – Jul. 2014	UNALM-CITES-ITTO Project “Confirmatory assessment of forest inventories of mahogany and cedar species” (ITTO-CITES)	245 280	111 700	133 580
Aug. 2014 – Jan. 2016	UNALM-CITES-ITTO “Management of mahogany ( <i>Swietenia macrophylla</i> King.) and cedar ( <i>Cedrela</i> spp.) seed stands in a forest concession for the conservation of the Tahuamanu Seed Stand in the Province of Tahuamanu, Madre de Dios, Peru”	449 436	250 000	199 436

## **ANNEX 2. Terms of reference of personnel provided by the executing agency**

### ***Terms of reference for the project coordinator – UNALM***

#### **Qualifications**

- Registered forest engineer
- A minimum of 10 years of experience in forest assessments, forest inventories and/or forest management
- Experience in the coordination of studies, research work and/or consultancies in the forestry field
- Experience in geographic information systems and the use of RPA technology
- Experience in capacity building in the forestry field
- Publications on forestry issues

#### **Duties**

- Participate in the consultative committee
- Facilitate project planning, monitoring and evaluation
- Establish coordination mechanisms with the project collaborating agencies
- Represent UNALM in consultative and steering committee meetings

### ***Terms of reference for the project coordinator – UNAMAD***

#### **Qualifications**

- Registered forest engineer or biologist or professional in a related field
- A minimum of 10 years of experience in forest assessment activities
- Experience in the coordination of studies, research work and/or consultancies in the forestry field
- Experience in capacity building in the forestry field
- Publications on forestry issues

#### **Duties**

- Participate in the consultative committee
- Facilitate project planning, monitoring and evaluation
- Establish coordination mechanisms with the project collaborating agencies
- Represent UNAMAD in consultative and steering committee meetings

## **ANNEX 3. Terms of reference of key personnel funded by ITTO**

### ***Terms of reference for the Project Director***

#### **Qualifications**

- Registered forest engineer
- A minimum of 15 years of professional experience
- Experience in the formulation, implementation and management of forest projects, working with forest concessions and native communities
- Verbal and written communication skills
- Experience and leadership skills for the coordination of international cooperation projects
- Experience in research in the areas of forest ecology, silviculture and forest management. Publications on timber species population studies. Preparation of Non-detriment Findings (NDF) for timber species, document reports and/or technical analyses for species listed in CITES Appendices.

#### **Duties**

- Manage the technical aspects of the project and the implementation of activities
- Manage and supervise the technical team for project implementation
- Design and supervise work plans for the achievement of project objectives
- Work on an ongoing basis in coordination with the UNALM coordinator, UNAMAD coordinator, and Forest Coordinators I and II
- Prepare project reports

### ***Terms of reference for Forest Coordinator I***

#### **Qualifications**

- Professional in forest engineering, forestry science, natural resources, forest ecology and/or biology
- General experience: a minimum of fifteen (15) years in public and/or private agencies
- Specific experience:
  - a. Five (5) years as coordinator in forest assessment, forestry, forest conservation and/or forest management studies
  - b. Five (5) years in work related to timber species listed in CITES Appendices
  - c. Five (5) years in geographic information systems
- Preferably with a master's degree in natural resource management or forest management or conservation
- Publications on forestry issues

#### **Duties**

- Coordinate the technical activities of the project
- Coordinate with CITES Management and Scientific Authorities
- Organize work meetings with different stakeholders supporting the project
- Coordinate with the Project Director and Forest Coordinator II
- Participate in the development of the field methodology
- Participate in the preparation of project documents
- Participate in meetings with the project consultative committee
- Participate in technical and/or internal meetings of the project team

### ***Terms of reference for Forest Coordinator II***

#### **Qualifications**

- Professional in forest engineering, forestry science, natural resources, forest ecology and/or biology
- General experience: a minimum of ten (10) years in public and/or private agencies
- Specific experience:
  - a. Five (5) years as coordinator, director, leader or officer in charge of forest assessment, forestry, forest conservation, forest management and/or forest inventory studies
  - b. Five (5) years in work related to projects and/or services for timber species listed in CITES Appendices
- Expertise: specialization in forest assessments, forest management, forest stewardship, forest inventories and/or geographic information systems
- Publications on forestry issues

#### **Duties**

- Coordinate the collection of information or data from other studies
- Coordinate field activities
- Participate in the development of the field methodology
- Participate in the preparation of project documents
- Supervise the systematization of data and information
- Participate in technical meetings with the Project Director, Forest Coordinator I and GIS expert
- Participate in project consultative committee meetings

### ***Terms of reference for the Geographic Information Systems Expert***

#### **Qualifications**

- Forest engineer or geographer
- A minimum of 3 years of experience in forest projects or studies.
- A minimum of 5 years of experience in work related to geographic information systems, with accredited pilot certification for RPA vehicles
- Knowledge in the use and management of geographic information system programs

#### **Duties**

- Responsible for the development of the project's forest mapping.
- Update the UNALM database.
- Assist in the preparation of project documents.
- Assist in the implementation of project activities.

## ANNEX 4. List of concessions and communities

Holder	Area (ha)	Permit / Contract
Comunidad Nativa Bélgica	53 563.57	17-TAH/P-MAD-A-078-2011
Agroindustrial Victoria S.A.C.**	6 365.5	17-TAH/C-J-038-02
Consolidado Forestal Otorongo S.A.C.***	13 794.74	17-TAH/C-J-017-02
Empresa Forestal Portillo S.A.C.	5 472.35	17-TAH/C-J-018-02
Grupo Campesino Fernández El Muerto N° 007-2-I****	5 932.17	17-TAH/C-J-041-02
Forestal Rio Huáscar S.R.L.	25 533.41	17-TAH/C-J-022-02
Forestal Otorongo S.A.C***	23 266.13	17-TAH/C-J-044-02
Inversiones Chullacchaquis S.R.L****	33 795.72	17-TAH/C-J-040-02
Empresa Inversiones Yacare S.R.L.****	14 292.9	17-TAH/C-J-045-02
Nilda Espinoza Lopez	8 355.24	17-TAH/C-J-050-02
Nilda Espinoza Lopez	2 786.85	17-TAH/C-J-050-02
Maderacre S.A.C.*	49 377.89	17-TAH/C-J-001-02
Amatec (Exp.A)*	20 950.34	17-TAH/C-J-035-02
Cocama E.I.R.L.*	13 877.6	17-TAH/C-J-036-02
Aserradero Espinoza S.A*.	35 154.91	17-TAH/C-J-026-02
Cocama E.I.R.L. (Exp.A) *	26 232.72	17-TAH/C-J-024-02
Cocama E.I.R.L. (Exp.B) *	5 863.79	17-TAH/C-J-025-02
Maderera Canales Tahuamanu S.A.C**.	18 190.51	17-TAH/C-J-012-02
Maderera Canales Tahuamanu S.A.C.**	28 314.58	17-TAH/C-J-013-02
Inversiones Forestales Chullachaqui Sociedad Anónima Cerrada-Inforc S.A.C****.	47 756.54	17-TAH/C-J-028-02
Maderera Industrial Isabelita S.A.C	43 809.25	17-TAH/C-J-019-02
Empresa Agrícola Las Gramas S.A.C.*	46 913.99	17-TAH/C-J-033-02
Maderya S.A.C.	49 549.49	17-TAH/C-J-004-02
Forestal Otorongo S.A.C***	17 420.93	17-TAH/C-J-042-02
Forestal Otorongo S.A.C***	13 417.11	17-TAH/C-J-043-02
Empresa Maderera Croacia S.A.C.	5 738.38	17-TAH/C-J-020-03
Empresa Ecoforestal Camanejo's S.A.C.	7 210.81	17-TAH/C-J-021-03
Corporación Forestal Tres Fronteras S.R.L.	14 621.31	17-TAH/C-J-048-02
Corporación Forestal Tres Fronteras S.R.L.	5 272.33	17-TAH/C-J-048-02
Forestal Monago S.R.L.***	7 433.08	17-TAH/C-J-009-03
Empresa Forestal David S.A.C.***	5 904.71	17-TAH/C-J-003-03
Maderera Laura S.R.L.	8 295.27	17-TAH/C-J-006-03
Empresa Forestal Pumaquiro S.A.C.	4 769.94	17-TAH/C-J-017-03
Forestal Shay Jame S.A.C.	6 918.33	17-TAH/C-J-001-03
Macario Huamán Huamán E.I.R.L.	7 103.73	17-TAH/C-J-005-03
Empresa Forestal Capirona S.A.C.	5 000.00	17-TAH/C-J-019-03
Empresa Forestal Pavayacu I S.A.C.	9 842.51	17-TAH/C-J-029-03
Maderera Extracción, Transformación Y Comercialización Iberia S.A.C.-Emetci*	22 128.27	17-TAH/C-J-054-02
Maderera Extracción, Transformación Y Comercialización Iberia S.A.C.-Emetci	13 222.67	17-TAH/C-J-053-02

\* Companies forming a consolidated entity, grouped by the number of asterisks.

Source: Prepared by the authors

## ANNEX 5. Response to the ITTO Expert Panel's assessment of PD 929/22 (F)

COMMENT	RESPONSE
<u>Expert Panel's Recommendation</u>	The scope of the evaluation has been reduced to 3 species i.e. the 2 species that are already listed in CITES Appendices plus one additional species that some countries have proposed to list in CITES: mahogany ( <i>Swietenia macrophylla</i> ), cedar ( <i>Cedrela</i> spp.) and shihuahuaco ( <i>Dipteryx</i> spp.).
R1. Clearly elaborate the economic, social, and environmental situation of the study area in Section 1.3.2 (Social, Cultural, Economic and Environmental aspects). And indicate how these may affect the project, either negatively or positively	Information on the economic, social and environmental aspects of the study area has been incorporated. See pages 13 and 14.
R2. Further elaborate on the engagement of indigenous communities, as well as the status and role of women in communities in Section 2.1.2 (Stakeholder analysis)	The engagement of the indigenous communities is described in greater detail, both in terms of their characteristics and their problems, detailing their problems, needs, interests and potential. Likewise, an explanation has been included on how women will participate in the implementation of the project. See Table 2 on pages 18-20.
R3. Improve Section 2.1.3 (Problem analysis) by constructing the problem tree to show levels of relationships / interconnectedness by means of arrows or simple branching establishing a flow	The presentation of Table 3 has been improved by showing flow connectors (page 21).
R4. Review the presentation of the indicators for the development and specific objectives in Section 2.1.4 (Logical frame matrix), Section 2.2.1 (Development objective and indicators) and Section 2.2.2 (Specific objective and indicators)	The presentation of the development and specific objectives as well as the indicators has been improved, as can be seen in Table No. 4 (page 22) and in sections 2.2.1 and 2.2.2 on page 26.
R5. For Activity 1.1 (Analysis of spacing between seed trees) of Output 1, explain the rationale for this activity for which budget is allocated	The information has been supplemented with the following paragraph: <i>The spacing between seed trees is very important because of the activity of pollinators and the way the flowers are fertilized; after harvesting, the spacing between seed trees can become very large and seed production can be reduced. This activity comprises several tasks, including the collection of information on the location of seed trees in the region to update the existing database, which requires a certain amount of equipment and computer programs for the spacing analysis to be carried out by project researchers, as well as the technical monitoring and supervision to be conducted by national experts. See page 28.</i>
R6. Improve the presentation of the outputs in Section 3.1.1 by further elaborating the measurement of their achievements in quantity, quality, time and space	More details have been provided on the planning of activities to ensure the achievement of the four outputs proposed in the project. See pages 27 and 28.
R7. Improve the presentation of Activity 3.1 (phenology studies) by elaborating an idea of what exactly will be investigated (e.g., timing of flowering, budding, pollinator visit/timing, etc.). Elaborate what type of silvicultural methods are available for intervention (Activity 3.2). More elaborate on the target of concession/ community workers in Activity 4.1	<i>The presentation of this section has been improved by adding the following paragraphs:</i>  <i>Activity 3.1 Application of silvicultural treatments to encourage seed production in seed trees and the establishment of regeneration</i>  <i>The different stages of seed trees will be monitored and evaluated on an ongoing basis, which involves assessing budding periods, flowering periods, beginning of fruit-bearing cycles, fruit and seed maturation, and seed dispersal.</i>  <i>Activity 3.2 Evaluation of seed production in light-demanding trees under silvicultural treatments and internally damaged trees</i>  <i>With regard to the silvicultural method to be used, information will be compiled from national and international experiences to generate a methodological basis to complement the methodological achievements of projects carried out by the National Agrarian University of La Molina, under the UNALM-ITTO-CITES agreement.</i>  <i>Activity 4.1 Development of dissemination materials and preparation and implementation of workshops and training courses</i>  <i>Forest concessions generally hire workers to carry out the various tasks required to implement their general forest management and operational plans, while in the communities these tasks are carried</i>

	<p><i>out by community members; in both cases, the people who carry out this work need to be adequately trained to better understand the proposed methodologies. Likewise, workers should adopt the methodological procedures and become fully familiar with them as part of their work.</i></p> <p>See page 29.</p>
R8. Improve Section 3.2 (implementation approached and methods) by describing in more details the effective and concrete participation processes and approaches, especially with respect to women	Section 3.2 has been supplemented with additional information from documents published by government institutions. See pages 30 and 31.
R9. Improve Section 3.3 (Work plan) by indicating each activity under each of Outputs 1-4	The output headings have been clarified in Table 6 of the project work plan. Page 32.
R10. In the membership of the PSC meeting in Section 4.1.2 (Project management team), representatives of the project's donors should be included. In Figure 6 (Project organization chart), Section 4.1.3 (Stakeholder involvement mechanisms), the donor representative must be included among the membership of the PSC as well	Donor representatives were included in the project management team, and the organizational chart has been revised accordingly. See pages 46 and 47.
R11. Improve Section 4.3.1 (Dissemination of project results) and Section 4.3.2 (Mainstreaming project learning) by outlining the proposed plan for each occasion	<p>These sections have been developed in accordance with the ITTO manual for project formulation. The following sub-headings have been incorporated into the Dissemination section:</p> <ul style="list-style-type: none"> <li>A. <i>Preparation of dissemination materials:</i></li> <li>B. <i>Face-to-face events</i></li> <li>C. <i>Virtual media</i></li> </ul> <p><i>For the mainstreaming of project progress and results, the following levels will be considered:</i></p> <ul style="list-style-type: none"> <li>• <i>Experience-sharing level – to be carried out through field internships, aimed at technicians and forest policymakers of public institutions (SERFOR, GOREMAD Forest Management Division, OSINFOR), and representatives of private institutions: concessionaires, native communities and other stakeholders in the forestry field.</i></li> <li>• <i>Project learning level – through universities, with the aim of improving the training of professionals, demonstrating the project's silvicultural methodological results, and supplementing the training of forest technicians and field assistants (community members). Additionally, during the implementation of the project, an exchange of experiences will also be organized, including the sharing of practices used by the local population and field workers who are well aware of the characteristics and functioning of forests.</i></li> </ul> <p>See pages 47 and 48.</p>
R12. Review and amend the ITTO budget in line with the above overall assessment and specific recommendations and also in the following way: a) In Table 3.4.3 (ITTO budget by component), review the unit prices for equipment ranging from laptops to cameras. These must be revised downwards. The number of personnel involved in the project is quite high, which inflate the budget as a whole. The budget for Director and technical team is on the higher side (\$169, 200) as it looks like they will have a "salary", this needs to be reviewed. Field assistants and brigade leaders attract a whopping \$180,000 in the ITTO budget, the number should be reviewed downwards.	<p>The recommendation of the Expert Panel has been addressed, adjusting the project to include the evaluation of 3 species: Cedar and Mahogany (CITES) and Shihuahuaco. Furthermore, since one species has been removed from the evaluation, a field brigade has also been reduced. The fees of the Director and Coordinators have also been revised downwards. However, it is important to point out that these professionals will work full time and will receive a salary (Director - US\$1600 per month; coordinators - US\$1400 per month), which is an average salary as compared to the current income of professionals in the country.</p> <p>All budget tables under section 3.4 of the project document, including the proposed master budget and the tables for the overall project budget and the ITTO budget, have been revised accordingly. See pages 33-42</p>

<p>Drone rental (\$45,000), accounting and cash expenses (\$72,000), contingencies (\$94, 245) must all be reviewed downwards as they all inflate the budget. In addition, some high-budget components should be clarified. These include food (\$80,325), field material (\$92.250), transport rental services (\$111,750), and field support services (\$125,100)</p> <p>b) Recalculate the ITTO Programme Support Costs (budget sub-item 83) so as to conform with standard rate of 12% of the total ITTO project costs (on budget items 10 to 82), and</p> <p>c) Adjust all budget tables, taking into account the correct amount regarding the budget sub-item 83.</p>	<p>The national contribution has not been modified, and the national commitment remains unchanged.</p>
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