PENDING FINANCE

1. General Description:

ID:CN-25036

Project resulting from this CN: N/A

Note: CNs are developed into project proposals following consultation with donor(s).

1.1 Project Title:

Development of a national system to verify the geographical origin of Mexican tropical timber through dendro-isotopic fingerprinting and genomic markers to combat illegal timber trade, deforestation and illegal logging

1.2 Submitting Country/ies:

Mexico

1.3 Specific Location & Country/ies/regions/areas benefitting from the project:

South-East Mexico: Yucatán Peninsula (states of Yucatán, Campeche, and Quintana Roo), Tabasco, and Chiapas

1.4 Endorsement from ITTO Focal Point:

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1.5 Intended Project Duration (in months):

18

1.6 Indicative Budget (in US$):

ITTO	267,960
Counterpart	580,000
Total	847,960

1.7 Programme Line Focus

Legal and Sustainable Supply Chains (LSSC)

1.8 Project Type

Analytical work/studies, Innovation

1.9 Proposal Summary:

The development of a national system to verify the geographical origin of Mexican tropical timber through dendro-isotopic fingerprinting and the generation of genomic markers to combat illegal logging, deforestation and illegal timber trade is one of the main objectives of the National Center for Timber Identification and Traceability (CNITM) of the Department of Wood, Cellulose, and Paper (DMCyP). This identification and traceability system uses genomic markers, dendrochronological techniques and stable isotope analysis of 13C and 15N. Currently, illegal trade in tropical timber in Mexico is a problem that needs to be urgently addressed to prevent the degradation of Mexican forests. Mexico lags far behind in establishing a national verification system that would allow for the traceability and geographical origin verification of native and imported tropical timber species traded in the country. As a result, it is very difficult to determine whether the logging of these species is legally authorized for commercial purposes. Furthermore, there are no dendro-isotopic methodologies for creating isoclimate or other types of landscapes that would make it possible to identify and trace commercially valuable timber, thus preventing the compilation of reference data on Mexican species. The development of information based on molecular characteristics and isotopic chemical composition is a good alternative for determining the geographical origin of high-commercial value timber. Next-generation sequencing (NGS) is a technology for rapidly analyzing large amounts of DNA data on a massive scale. It is also known as massively parallel sequencing (MPS) or high-throughput sequencing. The stable isotopic composition of any substance in nature is a property that is difficult to influence or falsify.

2. Proponent Information:

2.1 Executing Agency Information:

Name of Agency/Organization/Institution:

University of Guadalajara, Department of Wood, Cellulose and Paper, University Center for Exact Sciences and Engineering (DMCyP-CUCEI)

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2.2 Type of Organization:

University/Research Institute

2.3 Collaborating Agency/ies:

Name of Agency/Organization/Institution:

Mexican forestry enterprises • Social companies • Noh Bec Ejido, (Quintana Roo). • Petcacab Ejido, Quintana Roo). • Ejidos, communities and organizations in the country's South-East • Private sector companies • Private commercial forest plantation companies • Agropecuaria Santa Genoveva S.A.P.I. de C.V. (Campeche) • Timber company FICAMEX, Guadalajara, Jalisco. • Productos Forestales del Sureste y Centroamérica S.A. de C.V. • Timber Trade Chambers • Cámara Nacional de la Industria Maderera Delegación Occidente • Cámara Nacional de la Industria Maderera (CANAINMA) • Asociación Nacional de Fabricantes de Tableros de Madera, A.C. • Timber and timber product marketing companies • Research institutions • Instituto Transdisciplinar de Investigación y Servicios (ITRANS-CUCEI,) University of Guadalajara • Institur für Holzforschung, Thünen Institute – Universität Hamburg • The Wood Identification and Screening Center (WISC) College of Forestry, Oregon State University (OSU)

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2.4 Relevant experience of EA:

DMCyP has over 50 years of experience in the field of wood science and technology and has experienced researchers who are members of the National Researchers System. DMCyP has been in charge of major national and international interdisciplinary projects. It also has the National Center for Wood Identification and Traceability (CNITM), which has the required expertise, laboratories, infrastructure, and international links.

3. Relevance:

3.1 Conformity with ITTO objectives (ITTA, 2006) and priorities (current SAP):

This project will contribute to the objectives of the International Tropical Timber Agreement (ITTA, 2006) as follows: •In accordance with Article 1.c., it will contribute to sustainable development and poverty alleviation by strengthening local economies. This is in line with Sustainable Development Goals (SDGs) 1 and 8. •In accordance with Article 1.f., it will promote and support research and development by increasing the capacity to conserve and enhance other forest values in tropical forests. This is in line with SDGs 13, 15, and 17. •In accordance with Article 1.m., it will support the development of public policies aimed at the conservation of tropical forests by sharing and disseminating research results. This is in line with SDGs 15 and 17. •In accordance with Article 1.r., it will recognize the role of forest-dependent indigenous and local communities in achieving sustainable forest utilization, and will strengthen their capacities. This is in line with SDGs 1, 2, 8, 10, and 17. With regard to the ITTO Strategic Action Plan (2022-2026), this proposal is consistent with the following priorities: Priority 2 on increasing the contribution of the tropical forest sector to national and local economies and resilient livelihoods, as it envisages strengthening the value chain in the solidarity-based consumer market; and Priority 3 on reducing tropical deforestation and forest degradation, enhancing the resilience of forest ecosystems to climate change, and conserving forest biodiversity and ecosystem services.

3.2 Relevance to the ITTO Programme Lines:

This project is directly related to programme line #1 on Legal and Sustainable Supply Chains (LSSC), which aims to improve the capacity of tropical timber supply chains to meet growing demand for sustainability and ensure that all products are legally sourced. It also includes technical capacity building. The project is also consistent with program line #3 on Forest Landscape Restoration and Resilient Livelihoods, which aims to increase the area of restored forest landscapes and enhance the supply of goods and services from planted and restored forests, thereby generating local employment opportunities and contributing to broader development objectives. The project seeks to strengthen local economies based on the conservation and sustainable use of tropical forests.

3.3 Relevance to the Sustainable Development Goals (SDGs) and the Global Forest Goals (GFGs) and other forest related global agenda:

The project will contribute to the achievement of the United Nations Sustainable Development Goals (SDGs) for 2030: SDG 1) No poverty, by strengthening the rural economy of indigenous Mayan communities; SDG 4) Quality education, by providing relevant information materials for rural and urban communities; SDG 5) Gender equality, by promoting the empowerment of women entrepreneurs; SDG 10) Reduced inequalities, by strengthening work alternatives where local rural knowledge is valued; SDG 11) Sustainable cities and communities, by reducing environmental impact and promoting sustainability to make human settlements affordable, accessible, and safe; SDG 12) Responsible consumption and production, by working on strategies to improve the value chain of goods and services; SDG 13) Climate action, by promoting forest conservation, which helps mitigate climate change; SDG 15) Life on land, by promoting the conservation and sustainable use of forests; SDG 17) Partnerships for the goals, by supporting collaboration between the academic sector, communities, and government agencies. This project addresses the proposals of the “Global Forest Goals” under the United Nations Strategic Plan by improving the benefits and livelihoods associated with the forest environment, mobilizing resources, and promoting cooperation across various sectors. All these actions also contribute to Mexico's commitments at COP26 in relation to climate change mitigation and adaptation.

3.4 Relevance to submitting country’s policies:

In early 2025, the Federal Government, through the Ministry of the Environment and Natural Resources (SEMARNAT), announced the principles that will guide the country's environmental policy, in line with the ecological and environmental humanitarianism project shaping the government's action agenda. Thus, the project is guided by the following principles: 1. Shared prosperity must reach present and future generations. 5. Preserve, restore, and protect natural heritage. 9. Promote innovative, sustainable, and domestically-oriented productive and industrial projects. Similarly, project actions are related to the “Sustainable Forestry Development for Well-being 2025” program, which aims to contribute to climate change mitigation and adaptation and to ensure that forest areas are incorporated into competitive and participatory sustainable forest management, thereby helping to guarantee the right to a healthy environment. In addition, the proposed activities are in line with the objective of the National Forestry Commission i.e. to develop, promote and encourage productive activities, protection, sustainable use, production and marketing, as well as production chains and value networks in forestry, in accordance with the General Law on Sustainable Forest Development.

4. Project synopsis:

4.1 Objectives (reflecting reference to elements within all ITTO Guidelines as applicable):

The objective of the project is to develop a national system for verifying the geographical origin of Mexican tropical timber through dendro-isotopic fingerprinting and genomic markers to combat illegal timber trade, deforestation and illegal logging. It also aims to improve the capabilities of supply chains for sustainably sourced tropical timber. Therefore, the project is aligned with the ITTO Environmental and Social Management Guidelines, specifically Principle 1: Environmental Sustainability: the project will mainly benefit local forest-dependent communities, as it is expected to reduce damage to ecosystem services and economic losses caused by deforestation and illegal timber trade. Principle 2 Social sustainability: the project will help key stakeholders, including social enterprises (ejidos, communities, producer associations, etc.), to improve forest-based socioeconomic opportunities and benefits, preserving cultural heritage, transparency, legal trade, and sustainable use of forests in the supply chain, as well as reducing rates of deforestation and illegal timber logging and trade. Principle 4 Good governance: Good governance will be promoted through interaction between key stakeholders involved in the project. Principle 5 Security of tenure to forest land and access to forest resources: the project considers ejidos, communities, and producer associations as owners or landholders of forests and seeks to ensure sustainable forest use. The project is also in line with the ITTO Guidelines on Gender Equality and Empowering Women, seeking to promote the integration and capacities of women, ensuring equal opportunities and empowerment through forest conservation and sustainable use actions.

4.2 Key problem(s) to be addressed:

Combating illegal timber trade, deforestation and illegal logging in Mexico requires the implementation of scientific tools and methodologies for traceability in accordance with international standards for origin identification, as well as a comprehensive approach that combines ecosystem protection, the strengthening of environmental policies, and active civil society engagement. This requires the development of modern methods to identify timber sources. This is a serious problem in Mexico, affecting various ecosystems and communities. Every year, thousands of hectares of forests and rainforests are destroyed, often illegally, for purposes such as agriculture, livestock farming, and timber extraction, with the marketing of timber resources as the central focus. These activities not only threaten biodiversity, but also contribute to climate change by releasing large amounts of carbon dioxide. In addition, indigenous and local communities, which depend on these resources for their livelihoods, are severely affected. Even though there are laws and efforts to curb illegal logging, lack of enforcement and corruption hinder their effective implementation.

4.3 Main stakeholders and beneficiaries:

Primary stakeholders: - Centro Nacional de Identificación y Trazabilidad de la Madera (CNITM), CUCEI, Universidad de Guadalajara - Ejidos and Mayan indigenous communities owning forest lands - Sawmills – Timber yards – Tropical timber consumers - Public Prosecutor's Offices for Forest Inspection and Monitoring in the country’s South-East - International timber trading companies - Residents in the project's area of influence. Secondary stakeholders: - Federal government agencies -Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) (CITES Scientific Authority in Mexico). -Dirección General de Vida Silvestre (DGVS)- SEMARNAT (CITES Management Authority in Mexico). - Procuraduría Federal de Protección al Ambiente (PROFEPA) (CITES Law enforcement agency). - Dirección de Gestión Forestal, de Suelos y Ordenamiento Ecológico (DGGFSOE)-SEMARNAT. -Agencia Nacional de Aduanas de México (ANAM). - Comisión Nacional Forestal (CONAFOR). – State government agencies - National Timber Industry Chamber – Various NGOs. Tertiary stakeholders: - Universities and research centers related to the forest, timber and natural resource sectors - CITES - International Tropical Timber Organization (ITTO).

4.4 Key activities:

Output 1. Development of national verification system for Mexican tropical timber. Activities A1.1. Preparation of growth chronologies for the species under study. A1.2. Collection of historical climate data for the different regions to help generate climate reconstructions by correlating annual growth with temperature and precipitation. A1.3. Isotopic characterization of 13C and 15N, percentages that will be correlated with the chronologies by species and study region. A1.4 Extraction of nucleic acids to generate genomic reference markers by mass sequencing, by species and study region. Output 2. Interactive map of iso-landscapes according to the regions and species under study. A2.1. Development of maps by region, with information on the dendro-isotopic footprint and its reference genomic marker for each species under study. A2.2. Production of an illustrated guide with technical data sheets for each species and findings. Output 3. Development of a website to serve as a reference for project results. A3.1. Campaign to disseminate results in academic research institutions and relevant government agencies.

4.5 Expected outcomes and impacts, including innovation/transformation:

Expected outcomes: 1. Development of a national system to verify the geographical origin of Mexican tropical timber using dendro-isotopic fingerprinting and genomic markers to combat illegal timber trade, deforestation and illegal logging. 2. Strengthening the National Centre for Timber Identification and Traceability (CNITM) of the Department of Timber, Cellulose, and Paper (DMCyP) at the University of Guadalajara's Centre for Exact Sciences and Engineering. 3. Promoting the establishment of a legality culture to encourage and verify legal trade in native and imported tropical timber. 4. Reducing illegal logging and the environmental and economic problems caused by it. 5. Improving supply chain conditions and the living standards of people in these areas. 6. Conservation of tropical forests in Mexico.

4.7 Any other information deemed necessary/important:

The implementation of this project is very important for Mexico because it would help to implement a national strategy through the development of a national system for verifying the geographical origin of Mexican tropical timber using dendro-isotopic fingerprinting and genomic markers to combat illegal timber trade, deforestation and illegal logging. In addition, it would facilitate the development and consolidation of the National Center for Timber Identification and Traceability (CNITM) of the Department of Wood, Cellulose, and Paper (DMCyP) of the University Center for Exact Sciences and Engineering at the University of Guadalajara. Currently, there is no other institution in Mexico responsible for this important work, which is a national emergency that must be promptly addressed. The CNITM has highly qualified personnel, infrastructure, and highly specialized laboratories equipped with cutting-edge technology, placing it in a unique position. In addition, the CNITM has had very sound and long-standing academic collaboration with institutions in Germany and the United States, which are world leaders in this field. ITRANS, CUCEI, U de G, collaborator and strategic partner in this project, has a new state-of-the-art NextSeq 1000 from Illumina, which provides next-generation sequencing (NGS) technology for rapid and massive analysis of large amounts of DNA, which will be a plus for the successful implementation of this project. Mexico does not have a national system for verifying the geographical origin of Mexican tropical timber through dendro-isotopic fingerprinting and genomic markers to combat illegal timber trade, deforestation and illegal logging. It is therefore necessary to develop and standardize a methodology that will make it possible to determine the geographical origin and traceability of tropical timber of commercial value.

4.8 Risk mitigation measures:

The project will take sound measures in response to dollar fluctuations caused by changes in the international economy.

5. Indicative Budget (in US$):

Indicative Budget (in US$):

Description	ITTO	Counterpart	Total
Personnel	40,000	150,000	190,000
Sub-contracts	25,000	0	25,000
Travel and DSA	40,000	0	40,000
Capital Items	40,000	400,000	440,000
Consumables	25,000	10,000	35,000
Publication / Dissemination	10,000	0	10,000
Miscellaneous	20,000	20,000	40,000
Total	200,000	580,000	780,000

ITTO Project Monitoring & Review	20,000	-	20,000
Annual/Final Audit	8,000	-	8,000
ITTO Programme Support	24,960	-	24,960
ITTO Ex-post Evaluation	15,000	-	15,000
GRAND TOTAL	267,960	580,000	847,960