



Food and Agriculture Organization
of the United Nations

Annex 12

Compliance with GCF Investment Criteria

For the GCF-FAO Project “GCF Results-Based Payments Mexico 2018-2019 aimed at Forest Conservation and Sustainable Livestock”

Annex 12. Compliance with GCF Investment Criteria

The proposed Mexico's RBP project complies with GCF's investment criteria.

1. Impact potential

1.1 Mitigation impact

The RBP contributes directly to Mexico's NDC 3.0 and its goal of achieving net-zero deforestation by 2030 by focusing on forest–agricultural frontier areas, where the expansion of agricultural and livestock activities is recognized as one of the primary drivers of deforestation and forest degradation. The proposed approach promotes sustainable livestock production and forest conservation through an integrated package of interventions including silvopastoral systems, productive reconversion, sustainable forest management, Payments for Environmental Services (PES), productive restoration, territorial development mechanisms, and strengthened MRV systems. By increasing productivity and improving livelihoods while reducing pressure for agricultural expansion into forested areas, the program seeks to decouple production growth from forest conversion.

This approach is fully aligned with Mexico's NDC 3.0, which recognizes the central role of the LULUCF sector both as the country's main carbon sink and as a source of emissions linked to land-use change, particularly forest conversion to agriculture and livestock. The proposed interventions are fully aligned with NDC 3.0 mitigation measures 7.1, 7.3, and 7.4, including the promotion of PES schemes (7.1.1), sustainable forest management and community participation (7.1.3), the establishment and consolidation of new carbon sinks through forest landscape restoration and sustainable productive systems (7.1.4 and 7.4), the strengthening of carbon sequestration capacities in forest ecosystems through sustainable management practices (7.3.1), and the promotion of agroforestry and silvopastoral systems through technical assistance programs (7.4.4).

Collectively, these actions contribute to reducing emissions from deforestation and forest degradation while increasing removals through the conservation, restoration, and sustainable management of forest ecosystems. They also support the conservation and enhancement of forest carbon stocks, the provision of ecosystem services, and the reduction of emissions associated with land-use change. Implementation will prioritize high-deforestation landscapes in Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, Quintana Roo, and Yucatán.

1.2 Adaptation impact

The RBP supports the implementation of Mexico's National Adaptation Plan and the adaptation component of NDC 3.0 by strengthening the resilience of forest ecosystems and forest-dependent communities to climate change. Through sustainable forest management, forest restoration, natural regeneration, silvopastoral systems, and the protection of ecosystem services, the program promotes nature-based solutions that enhance water regulation, maintain soil fertility, reduce the risk of floods, landslides, wildfires, and pest outbreaks, and increase the adaptive capacity of landscapes and rural populations. By channeling RBP proceeds into these interventions, the program contributes to increasing carbon removals, strengthening ecosystem resilience, reducing future deforestation risks in livestock-driven landscapes, and supporting the long-term sustainability of productive systems. The RBP further reinforces adaptation objectives by prioritizing vulnerable territories and promoting the inclusion of women, youth, Indigenous Peoples, Afro-Mexican communities, and other traditionally excluded groups, thereby strengthening local capacities, sustainable livelihoods, and community resilience to climate change.

2. Paradigm shift potential

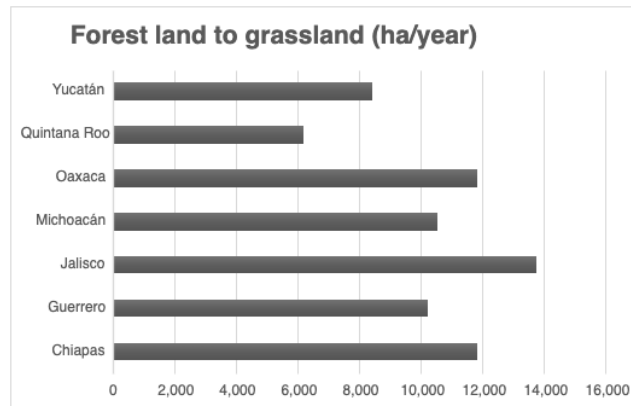
2.1 Transformational context and rationale

Forests are a national priority for the Government of Mexico, reflecting the country's long-standing tradition of forest management and the recognized role forests play in supporting environmental sustainability and rural livelihoods. However, deforestation and forest degradation remain among the main drivers of natural capital loss in the country. Reducing deforestation and conserving forests in Mexico requires a dual approach that both strengthens forest conservation and limits the expansion of the agricultural frontier. The latter largely linked to

the expansion of agricultural activities and the unsustainable use of natural resources, including those associated with livestock production.

Livestock production in Mexico depends heavily on forest ecosystems. According to forest monitoring data, approximately 70 percent of deforestation is associated with cattle ranching, as forest areas are converted into grasslands that are primarily used as grazing lands for livestock and, to a lesser extent, for agricultural activities, particularly in dry and sub-humid forest regions. This process highlights the critical role of forests in supporting forage production and underscores the strong interdependence between forest resources and livestock systems.

Figure 1. Forest land surface converted to grassland in selected states



Source: Data from SNMF, CONAFOR. Period 2001-2023, except Guerrero period 2001-2018.

Cattle ranching is one of the structural components of the Mexican agri-food sector due to its economic, territorial, and social importance. Livestock production contributes between 38 and 42 percent of agricultural GDP, with bovine production (meat and milk) representing the largest share. This dual contribution explains the central role of cattle systems in rural public policy, agro-industrial investment, and trade dynamics.

However, this economic importance contrasts with a high degree of productive heterogeneity, characterized by regional differences in productivity, technological adoption, access to markets, and producer organization. More than 800,000 producers participate in the sector, and over 70 percent of production units manage herds of fewer than 50 head, particularly within dual-purpose systems in tropical regions. These producers rely heavily on family labor, have limited access to formal credit, and often depend on local intermediaries for commercialization. While the sector contributes significantly to rural livelihoods and national food security, many producers face constraints in reaching the market volumes required to access more formal and profitable value chains. At the same time, the prevailing production model remains environmentally unsustainable and insufficiently adapted to climate risks.

Cattle ranching in Mexico has a clearly differentiated territorial distribution. Tropical and subtropical regions concentrate a significant proportion of cattle herds, particularly under extensive and semi-extensive systems, while temperate and semi-arid regions concentrate more specialized and intensive systems.

Figure 2. Distribution of cattle population (number of heads) in Mexico



Source: INEGI, Agricultural and Livestock Census 2022.

The RBP Proposal will focus on priority landscapes in forest–livestock transition zones in dry and sub-humid forests in the states of Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, Quintana Roo, and Yucatán. Regarding livestock production these states are highly relevant. Jalisco and Chiapas rank as Mexico's second and sixth-largest cattle producer, respectively. Meanwhile, Yucatán and Quintana Roo are emerging as potential dairy production hubs.

Table 1. Livestock Inventory and Distribution in the Selected States

State	Number of cattle heads
Chiapas	1,614,489
Guerrero	982,487
Jalisco	2,116,017
Michoacan	1,238,893
Oaxaca	905,526
Quintana Roo	86,153
Yucatán	381,535

Source: INEGI, Agricultural and Livestock Census 2022.

In the Project's intervention states, different types of livestock production systems coexist. In dry and semi-dry forest regions, rainfed agricultural systems (mainly maize and seasonal fodder) are closely linked to cattle ranching through the shared use of land, crop-pasture rotations, the use of crop residues as animal feed, and forest grazing, which provides complementary income throughout the year. These systems are typically managed by family-based small- and medium-scale producers with low levels of capitalization, extensive grazing practices, and a dual orientation toward milk and meat production. This explains the close spatial and functional integration of rainfed agriculture and livestock production within rural landscapes.

In most states, livestock production is predominantly based on extensive grazing systems, with rates exceeding 60 percent in states such as Chiapas. In contrast, more technified systems—such as controlled grazing, confined, or semi-confined production—remain limited, although they show some relevance in states such as Yucatán, Quintana Roo, Oaxaca, Jalisco, and Michoacán.

Across southeastern and south-central Mexico (including Campeche, Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, Quintana Roo, Tabasco, Veracruz, and Yucatán), cattle management is largely characterized by extensive grazing and low levels of production control. This predominance reflects low efficiency in forage utilization, leading to higher risks of overgrazing, soil degradation, and reduced capacity to manage greenhouse gas (GHG) emissions.

In tropical and subtropical regions—particularly in Chiapas—pressure on natural ecosystems is further intensified by the expansion of pasturelands into forested areas and secondary vegetation, contributing to increased deforestation and biodiversity loss.

Another key factor is the small and dispersed production scale, especially in ejido contexts, where each producer handles few animals and does not reach enough volume to directly access formal markets or transformation processes. Without collective organization or collection schemes, the most viable option is still to sell the animal at the foot of the ranch. Producers in the intervention states are mostly small and medium-sized, with a diverse nuance of capitalization and access to technical services. Despite this, producers contribute a significant proportion of the milk and calves produced, being key to regional supply and the national meat chain.

However, many small livestock producers, particularly those of a family nature and located in areas of high and very high marginalization (which may coincide with buffer zones of protected natural areas), are considered high-risk subjects by private banks and, in many cases, also by development banks. This situation has led various federal programs to seek to encourage access to credit by reducing interest rates or percentage points, without this ultimately resolving the structural barriers to financial inclusion. In practice, low and variable incomes, the absence of collateral, the lack of formalized property titles, and negative credit bureau records (often derived from the use of personal consumer loans in commercial institutions) severely limit the credit eligibility of these producers. This problem is especially recurrent among dual-purpose cattle ranchers, with small production units and high dependence on family work.

Although dual-purpose systems contribute to economic resilience and food security, studies have identified persistent limitations related to productivity, soil management, and environmental sustainability. These challenges have motivated the promotion of silvopastoral and regenerative livestock systems as pathways to improve the sustainability and productivity of dual-purpose production systems.

2.2 Proposed model for scaling-up and replication

The challenges described above highlight the need for an integrated approach that simultaneously addresses forest conservation, sustainable livestock production, and rural livelihoods. Conserving natural forests and optimizing their management requires the application of complementary instruments, including Payments for Environmental Services (PES) and sustainable forest management. At the same time, reducing pressure on forests in livestock-dominated landscapes requires creating conditions that enable producers to adopt more sustainable production systems and limit the expansion of the agricultural frontier.

Considering this context, Mexico will reinvest the RBP proceeds to support the conservation and sustainable management of forests through PES and to promote the transition toward silvopastoral systems as a productive restoration strategy to reduce pressure on forests, limit agricultural expansion, and strengthen sustainable livelihoods (Figure 3). Through these complementary interventions, the RBP project seeks to catalyze a shift from extensive deforestation-linked cattle production toward scalable, low-emission, and climate-resilient livestock–forest landscapes.

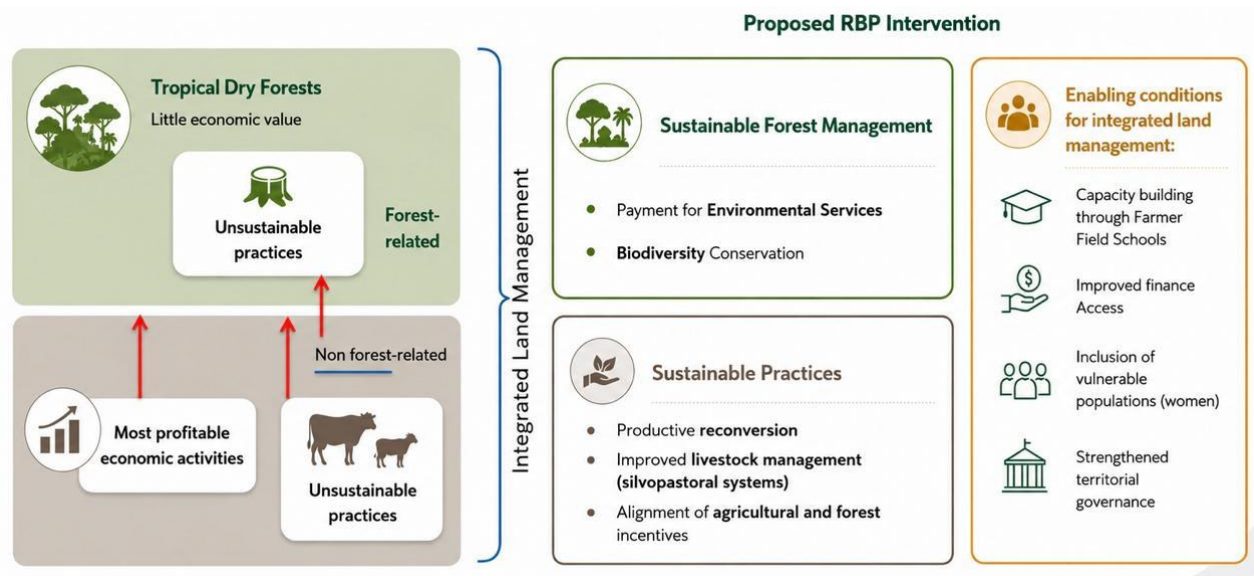
This will be achieved by promoting an integrated model aimed at strengthening the economic value of forests through productive activities that generate local income while conserving biodiversity and ecosystem services. At its core, the proposal promotes a model that combines forest conservation—supported through Payments for Environmental Services (PES)—with the development of silvopastoral systems (SSP), as productive restoration mechanism, and women-led productive projects in forest frontier areas and implemented with technical support from territorial agents (local public institutions or civil society organizations) and capacity-building opportunities through Farmer Field Schools, with the aim of strengthening sustainable livelihoods for forest-dependent peoples and communities.

Although sustainable production models such as silvopastoral systems have demonstrated environmental and economic benefits, their adoption remains constrained by limited access to technical assistance, financing, productive assets, and implementation support. The costs associated with the transition from conventional production systems are often higher than those of traditional practices, particularly for small and medium-scale

producers. These barriers are compounded by limited access to credit, lack of collateral, weak organizational capacity, and insufficient financial instruments adapted to the characteristics of rural producers and forest landscapes.

The RBP proceeds will therefore be reinvested in a transformative program that seeks to conserve forests, limit the expansion of the agricultural frontier, and support the transition toward sustainable and low-emission livestock systems. The program will combine incentives for forest conservation with investments in productive restoration through silvopastoral systems, while strengthening the enabling conditions required for long-term adoption and scaling.

Figure 3. Proposed RBP intervention model



Particular emphasis will be placed on strengthening local capacities through territorial technical assistance, Farmer Field Schools, and strengthening monitoring systems. The program will also support access to finance through the operationalization of green and sustainable financial mechanisms adapted to the needs of small and medium-scale producers. In addition, gender-responsive measures will be integrated as a cross-cutting element of the intervention, promoting the inclusion of women, youth, and other groups that have historically faced barriers to accessing resources, incentives, financing, and participation in decision-making processes related to land use and natural resource management.

Through this combination of forest conservation, productive transformation, capacity building, financial inclusion, and social inclusion measures, the RBP program seeks to strengthen sustainable livelihoods while reducing the drivers of deforestation and forest degradation in priority forest-livestock landscapes.

The central elements that integrate Mexico's RBP proposal are described in detail in the following sections.

Silvopastoral systems as productive restoration mechanisms

Silvopastoral systems integrate livestock, pastures, and trees within a multi-strata structure that enhances both production and ecological functions. By combining woody, herbaceous, and animal components in a single production unit, these systems improve forage availability while delivering key ecosystem services such as carbon sequestration, nutrient cycling, microclimate regulation, water management, and biodiversity conservation. This approach transforms conventional livestock systems into productive forest interfaces, as increasing tree and shrub integration enhances ecological functionality and climate resilience. Effective implementation relies on proper management of grazing, stocking rates, water availability, and vegetation, with producers playing a central role in regulating system interactions.

There are various types of silvopastoral systems, each responds to the specific needs of the producer and the environmental and productive conditions of the territory. The Appendix A.1 provides an overview of most common silvopastoral systems used in Mexico.

The RBP project will promote demonstrative and bankable models of productive reconversion through the establishment of silvopastoral and agrosilvopastoral systems, regenerative grazing practices, improved fodder production, restoration of degraded pasturelands. These interventions will support producers to increase productivity and resilience while reducing pressure to clear forests. The establishment of silvopastoral and agrosilvopastoral systems (SSP), as well as regenerative livestock practices, have been shown to deliver higher yields at lower production costs, while contributing to increasing the adaptive capacity of the agricultural sector and the restoration of forest ecosystems.

The proposed model represents a paradigm shift from project-based and geographically isolated silvopastoral initiatives toward their institutionalization within CONAFOR's programs and incentives, particularly in areas facing high pressure from agricultural frontier expansion. Rather than creating new approaches from scratch, the model will build on more than two decades of successful silvopastoral experiences in Mexico, incorporating lessons learned from initiatives such as Sustainable Development in Biological Corridors, the Mexico-REDD+ Alliance, BioPaSOS, PRODUCE Foundation in Michoacan, Deforestation-Free Meat in Free-Range Systems, and Ecogan/RITER in Chiapas. These experiences have demonstrated that silvopastoral systems can reduce livestock-driven deforestation, restore degraded pastures, improve productivity and climate resilience, strengthen local capacities, and generate incentives for deforestation-free production. By systematically integrating these proven approaches into CONAFOR's operational framework, the project will enable the implementation of targeted interventions that address the underlying drivers of land-use change while promoting sustainable livestock production, biodiversity conservation, and low-emission rural development at scale.

An additional transformative feature of the proposed model is the strengthening of women's participation in sustainable rural development through a standalone output which focuses on promoting women's participation and leadership in sustainable landscape management strengthened through productive and income-generating initiatives. Specifically, financial support will be delivered through the project to promote entrepreneurship and strengthen project ideas led by women and young people, adding value to forest raw materials (e.g. carpentry, charcoal production, cosmetics, medicinal plants, handicrafts using fibres and palm, nurseries, ornamental plants and resin). Through the design and publication of specific operating rules for women-led productive projects, followed by their implementation, the project will promote greater economic inclusion and empowerment of women in forest-dependent communities.

By improving access to resources, technical support, and income-generating opportunities, these interventions will contribute to diversifying livelihoods, strengthening household resilience, and enhancing the role of women as key actors in sustainable land management and forest conservation. Integrating gender-responsive productive activities into CONAFOR's operational framework represents an important shift toward more inclusive and equitable approaches to rural development and climate action.

Payment for Environmental Services (PES) to strengthen forest conservation

In complementarity with silvopastoral systems, part of the proceeds will be used to promote PES mechanisms targeted at ejidos and communities in priority forest-edge areas to incentivize conservation, restoration, and sustainable management of forest and forage resources. This will reinforce collective governance and reduce risks of agricultural expansion and encroachment into forest areas.

In Mexico, the PES program is a key public policy instrument within the forest sector, implemented by CONAFOR through its Operating Rules. The program is voluntary and demand-driven, with eligibility often geographically targeted to areas of high hydrological, biodiversity, or climate importance. As defined by CONAFOR, PES provides direct economic incentives (cash transfers) to ejidos, communities, and private landholders for the conservation and sustainable management of forest ecosystems. The mechanism compensates beneficiaries for maintaining forest cover and the provision of key ecosystem services, including carbon sequestration, biodiversity conservation, water regulation, and soil protection, while also supporting complementary activities such as restoration, fire management, community monitoring, and strengthening of local governance. Through contractual agreements in priority areas with high environmental value or deforestation risk, PES contributes to long-term conservation, improved rural livelihoods, and national climate and biodiversity objectives.

The implementation process of the PES program follows a structured sequence. CONAFOR first develops the annual Operating Rules, which include the eligibility and prioritization criteria applicable to the program (see

flow diagram below). Once finalized, CONAFOR launches a public call for applications. Submitted applications are screened against these criteria, and eligible proposals are evaluated and approved by CONAFOR. Successful applicants are then formally notified, and CONAFOR enters into individual or collective agreements with beneficiaries, including with ejidos, communities, and IPs groups.

For PES agreements, beneficiaries receive an initial payment upon signature of the agreement, which establishes a five-year support period. Within 45 days of signing, beneficiaries must prepare a Guide for Best Management Practices (GMPM), a participatory technical planning document that defines conservation and management activities within enrolled areas. The GMPM promotes active conservation, sustainable forest management, biodiversity protection, and inclusive actions benefiting Indigenous Peoples, women, and youth. In the case of ejidos and communities, the GMPM must be approved by the relevant assembly before implementation begins.

Technical assistance is financed to support the preparation and implementation of the GMPM, including advisory services, annual reporting, monitoring, and capacity-building activities. Mandatory actions include preventing land-use change, maintaining forest cover, establishing community fire-prevention brigades, conducting annual training workshops, and submitting verified implementation reports. Additional conservation, restoration, or sustainable productive activities may be included according to local priorities, while activities that may compromise environmental integrity—such as unauthorized land-use change, extraction activities, infrastructure development, or the introduction of non-native species—are prohibited.

Activities are implemented using the initial payment. At the end of each year, beneficiaries submit an activity report, which serves as the basis for verification and the release of the next payment. This process continues throughout the five-year agreement period. In parallel, CONAFOR conducts annual field visits and satellite-based monitoring to verify compliance, monitor forest conditions, and assess implementation progress.

Support is provided through different modalities, including: (i) Hydrological PES, focused on conserving forests in priority watersheds; (ii) Biodiversity PES, targeting areas of high ecological value; and (iii) complementary support schemes that may include restoration, community monitoring, fire management, and governance strengthening.

A key paradigm shift of the proposed project is the inclusion of tropical dry forests within CONAFOR's PES scheme through the RBP mechanism. Historically, these ecosystems have received limited attention within PES despite facing some of the highest deforestation pressures associated with agricultural and livestock expansion. By directing PES incentives to communities managing tropical dry forests, the project will extend the benefits of an established national conservation instrument to landscapes that are particularly vulnerable to land-use change. The economic incentives, technical assistance, and community-based management measures supported through PES will help communities conserve forest cover, strengthen sustainable forest management, and reduce pressures for conversion to agricultural and livestock uses. This represents a shift from a predominantly reactive approach to deforestation toward a proactive strategy that rewards the stewardship of threatened dry forest ecosystems while supporting sustainable rural livelihoods and contributing to long-term forest conservation.

2.4 Contribution to the creation of an enabling environment

The successful adoption and long-term sustainability of silvopastoral systems and other sustainable production practices requires more than the implementation of technical measures. Producers need access to knowledge and technical support to implement and maintain these practices, institutional mechanisms that facilitate coordination and collective action across the landscape, and financial and market opportunities that make sustainable production economically viable. For this reason, the project will strengthen capacities through Farmer Field Schools, reinforce territorial governance mechanisms through territorial agents, and improve access to finance and markets, creating the conditions necessary for sustainable land-use transitions to be sustained over time.

Farmer Field Schools (ECAs)

Technical assistance for the establishment of silvopastoral systems and regenerative practices will be delivered through Farmer Field Schools (ECAs), which constitute the core mechanism for territorial extension and capacity development. Building on existing efforts by the Ministry of Agriculture and Rural Development

(SADER), CONAFOR, and previous REDD+ initiatives, ECAs will serve as integrated platforms for technology transfer, training, and on-site technical support.

Beyond training, ECAs will function as hubs for productive transformation, supporting producers in progressing from basic capacity development to the adoption of advanced sustainable practices. The model combines three complementary levels of intervention: (i) participatory knowledge transfer through field-based learning, (ii) continuous technical support provided by extension agents, and (iii) strengthening of organizational and business capacities.

Each ECA will also act as a coordination node, facilitating linkages between producers, markets, collection centers, and certification schemes, while promoting the adoption of quality standards. Through this approach, ECAs will address productive, environmental, and socioeconomic challenges simultaneously, strengthening group cohesion and enhancing the economic viability of production systems.

Complementing the FSS approach, the proposed model incorporates a standardized technological package designed to support the transition toward sustainable livestock production, based on technical criteria aligned with sustainability objectives and drawing on successful experiences implemented across Mexico.

Producers will be supported, facilitating the adoption of key practices such as improved grazing management, basic infrastructure, and the use of sustainable inputs. The design of these packages draws on previous initiatives, including silvopastoral systems implemented in Chiapas and Jalisco, which have demonstrated the technical and economic viability of sustainable livestock models. The packages will be structured around a set of core management elements (see Appendix A.2).

The development of technical and management capacities will be a key component of the Farmer Field School approach. Through training and continuous technical support, producers will strengthen their knowledge of water conservation and management, forage production, grazing management, soil conservation, and other sustainable livestock practices. In parallel, ECAs will support the development of basic organizational and management skills, including record-keeping. Strengthening these capacities will help producers gradually improve the management of their production systems and facilitate the adoption and maintenance of sustainable practices over time.

Territorial governance

At the territorial level, a key coordination mechanism of the proposal—building on and strengthening existing institutional arrangements—is the engagement of Territorial Agents, including local public institutions and civil society organizations that directly support ejidos, communities, and small landowners in implementing activities on the ground. Operating at the landscape scale, these actors have a strong understanding of local dynamics, ongoing initiatives across sectors, and the diverse stakeholders involved in territorial development. Their proximity to local actors positions them to facilitate dialogue, align interventions, and promote more coordinated implementation of RBP reinvestment activities.

Territorial Agents are organizations with mandates related to integrated rural development that support territorial planning, facilitate collaboration among government institutions, and contribute to the coordination of public policies at regional and local levels. Operating at federal, state, municipal, or intermunicipal scales, they play an important role in promoting the sustainable management of natural resources while helping connect local priorities with broader development objectives.

The REDD+ intervention model is based on intersectoral coordination, the harmonization of public policies, and the active participation of local stakeholders. Within this framework, Territorial Agents serve as facilitators of landscape-level processes by supporting the integration of programs, incentives, and technical assistance provided by different institutions. They also contribute to strengthening collaboration among government entities and local actors, including through participation in intermunicipal governance mechanisms and other territorial coordination platforms.

For the landscape approach promoted under REDD+ to be effective, coordination is required not only across sectors but also across different levels of governance. While national and state institutions provide policy direction, incentives, and technical frameworks, implementation ultimately depends on local capacity to coordinate stakeholders, align actions, and sustain engagement over time. Recognizing this, the proposal will strengthen existing Territorial Agents operating in the target landscapes by enhancing their technical,

organizational, and facilitation capacities and providing tools to support integrated land management processes. By reinforcing these existing territorial structures, the proposal will contribute to greater coherence, continuity, and effectiveness in the implementation of sustainable land-use strategies.

Access to finance and markets

A major barrier faced by ejidos, communities, and small producers in forest landscapes is that the transition toward sustainable and deforestation-free production systems requires both upfront investments and access to reliable markets that can reward these efforts. While sustainable practices such as silvopastoral systems can generate economic and environmental benefits over time, producers often lack access to financial products adapted to their realities, including credit, guarantees, co-financing mechanisms, and other instruments that can help cover the initial costs and risks associated with the transition. At the same time, limited market access, weak integration into value chains, and the absence of differentiated market incentives reduce the attractiveness of adopting sustainable production models. Addressing these constraints requires simultaneous action on both fronts. Therefore, the project will support the development of deforestation-free value chains and market access mechanisms, while strengthening and harmonizing financial products tailored to sustainable production in transition zones. Together, these interventions will help create an enabling environment in which producers can invest in sustainable practices while improving their opportunities to access markets and generate sustainable livelihoods.

By addressing both access to finance and access to markets, the project tackles two of the main structural barriers that have historically limited the adoption of sustainable production practices in forest landscapes.

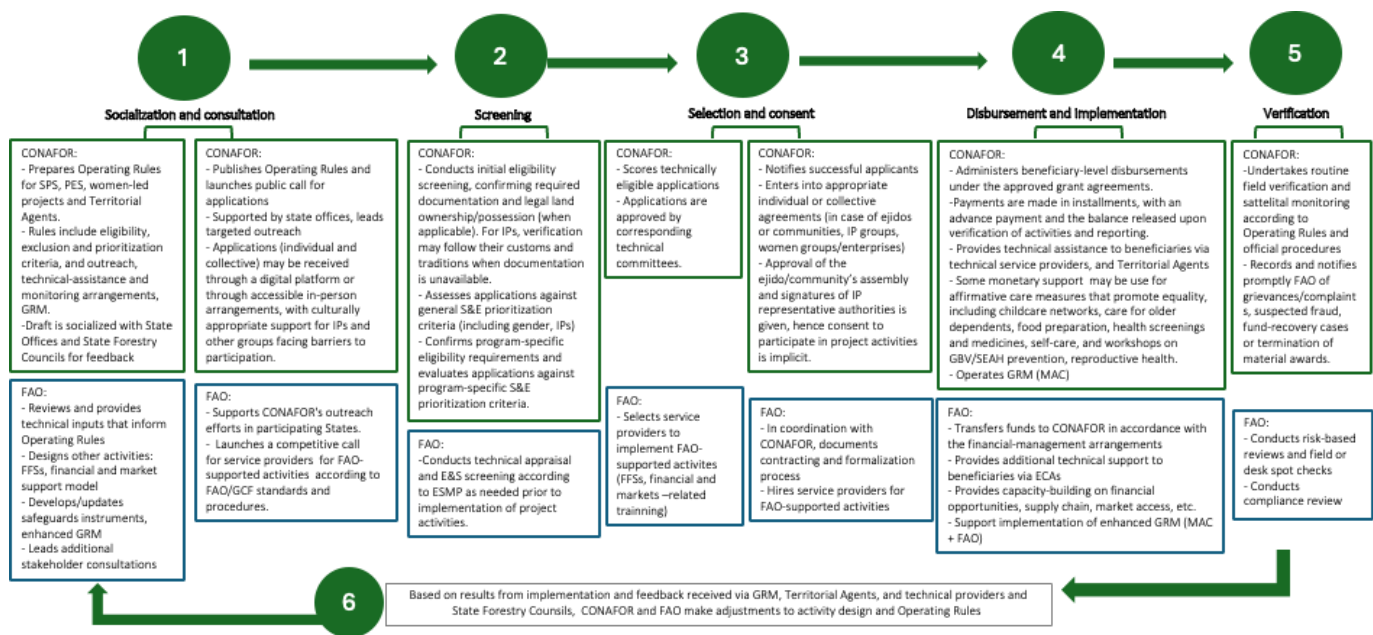
Strengthened Monitoring Systems

The RBP project will strengthen national and subnational monitoring systems to track land-cover change, restoration activities, grazing management, forage production, livestock carrying capacity, land clearing, agricultural fires, traceability of deforestation-free production, and greenhouse gas (GHG) emissions associated with silvopastoral systems.

These efforts will build on ongoing technical improvements developed since the publication of the Technical Report on the Technical Analysis of the Technical Annex (TARTA). For instance, the implementation of the Warsaw Framework for REDD+ has enabled advances in terms of enhancing data quality, consistency, and transparency.

Remaining areas for improvement and capacity-building needs are detailed in Appendix A.3, which provides a comprehensive account of progress achieved and pending actions identified since the TARTA, and serves as the basis for further strengthening the monitoring framework under the project.

The following process flow diagram illustrates the full decision-making pathway of the RBP project. It provides an overview of the design and implementation process for project activities highlighting the complementary roles of CONAFOR and FAO throughout the project cycle. The process begins with (1) Socialization and Consultation, during which the Operating Rules are prepared, outreach and consultations are conducted, and project activities are designed. This is followed by (2) Screening, where applications are assessed against eligibility and prioritization criteria. Eligible applications then proceed to (3) Selection and consent, including technical evaluation, consent by beneficiaries, contracting, and formalization of participation. During (4) Disbursement and Implementation, beneficiaries receive financial support, technical assistance, capacity building, and may use grievance mechanisms. (5) Verification includes routine monitoring, compliance reviews, grievance management, and verification of project implementation. Finally, (6) Adaptive Management is applied throughout implementation, using monitoring results, stakeholder feedback, and lessons learned to continuously improve project activities, safeguards implementation, and, where appropriate, CONAFOR's Operating Rules.



3. Sustainable development potential

Mexico's RBP proposal is designed to generate a range of non-carbon benefits (NCBs) by supporting an integrated model that not only ensures forest conservation, but also strengthens long-term rural livelihoods, territorial governance, and the provision of ecosystem services beyond safeguard compliance requirements. Through targeted interventions in priority areas, the proposal is expected to deliver social, governance, and environmental co-benefits as outlined below.

Environmental co-benefits

A key mechanism underpinning environmental co-benefits is the expansion of Payment for Environmental Services (PES). CONAFOR's PES programme not only compensates ejidos and communities for maintaining forest cover, but also promotes restoration, soil conservation, pest and fire management, and monitoring activities, contributing to biodiversity conservation and habitat protection.

The RBP proposal will expand PES schemes into new priority forest areas where they have not previously been implemented, strengthening long-term ecosystem service provision and the financial sustainability of conservation efforts. It will also support the application of national biodiversity monitoring frameworks at the local level, reinforcing environmental outcomes.

Social and economic co-benefits

The RBP proposal promotes income generation for Indigenous Peoples and Afro-Mexican population through the development of productive activities linked to the sustainable management and conservation of natural resources. Key interventions include the implementation of silvopastoral systems, Payment for Environmental Services, and productive initiatives led by women. In line with the objectives of ENAREDD+, the proposal combines forest conservation with coordinated efforts to sustain rural livelihoods, particularly in areas facing strong pressure from livestock expansion. By fostering long-term economic alternatives linked to sustainable forest management, the project addresses structural drivers of deforestation while supporting resilience and livelihood diversification.

Investments across these outputs will contribute to job creation and increased income for Indigenous and Afro-Mexican peoples, thereby enhancing the long-term sustainability of emission reductions. At the same time, they will promote low-carbon economic systems and provide Indigenous Peoples and Afro-Mexican population with the economic and environmental tools needed to respond to climate change impacts. Targeted livelihood support in forest areas at risk of livestock expansion is also expected to reduce the likelihood of emissions displacement.

Gender-related co-benefits

The proposal further promotes gender equality by integrating measures to ensure equitable participation and access to benefits for women. It includes targeted actions and affirmative measures to strengthen women's engagement in project activities, supported by capacity development. While existing CONAFOR programs already incorporate gender considerations, the proposal goes further by including a dedicated output (3.2) focused on strengthening women-led productive activities and improving their access to technical assistance, capacity development, and financial benefits. Overall, the project adopts a gender-responsive approach to ensure that capacity-building initiatives are accessible and aligned with women's needs.

Governance co-benefits

The RBP proposal aims to strengthen REDD+ governance by enhancing coordination across agricultural and forestry sectors, as well as between federal and state institutions, to address key drivers of deforestation and forest degradation. As described above, at the territorial level, the proposal builds on existing mechanisms by introducing and strengthening the role of territorial agents (local public institutions and civil society organizations) that support ejidos, communities, and small landholders in implementing activities on the ground (Output 3.1). These actors operate at the landscape level, with knowledge of ongoing initiatives and the capacity to engage multiple stakeholders.

Strengthening the capacities of these territorial agents and equipping them with appropriate tools is expected to enable more effective and coordinated implementation. This approach will support the development of durable territorial coordination mechanisms, strengthen cross-sector governance, and enhance local participation in land-use decision-making, ultimately improving the effectiveness of RBP reinvestment on the ground.

4. Needs of the recipient

The RBP project will focus its interventions on rural landscapes located at the interface between agricultural lands and forest ecosystems, particularly tropical dry forest, where livestock expansion is a key driver of deforestation. In these territories high levels of poverty and social marginalization coincide with cultural diversity, and high ecological value.

4.1 Economic and social development level of the country and affected population

Despite being among the 15 largest economies globally and the second largest in Latin America and the Caribbean, Mexico has experienced relatively modest economic performance in terms of growth, inclusion, and poverty reduction over the past three decades. Between 1980 and 2018, average annual growth was limited to around 2 percent, constraining convergence with high-income economies. Following an economic contraction of 8.2 percent in 2020, GDP rebounded by 4.8 percent in 2021.

High levels of inequality continue to affect living standards for a significant portion of the population. Despite macroeconomic stability and policy efforts to promote inclusive growth, structural challenges persist, including high informality, limited access to quality education and healthcare, weak rural infrastructure, and low productivity in the agricultural sector.

Poverty in Mexico shows strong territorial disparities, with southern states disproportionately affected and accounting for around 69 percent of the population in extreme poverty. While most people living in poverty reside in urban areas, poverty incidence is significantly higher in rural regions, where limited investment, low productivity, and restricted access to services constrain economic opportunities. Rural poverty remains a central dimension of inequality, with rates nearly twice as high as in urban areas and persistent regional gaps, particularly in states such as Chiapas, Guerrero, and Oaxaca. These disparities are closely linked to structural economic conditions, including the reliance on seasonal agricultural employment and unstable rural incomes.

Ethnic diversity

Mexico is characterized by significant socio-cultural and ethnic diversity, reflected in the presence of Indigenous Peoples, Afro-Mexican peoples and other local communities with distinct identities, languages, institutions, governance systems and relationships with land, territory and natural resources.

The country is characterized by a highly heterogeneous population structure. Mexico is home to 68 Indigenous Peoples, each associated with a distinct native language. These languages are grouped into 11 linguistic

families and comprise a total of 364 dialectal variants. According to the 2020 INEGI's Population and Housing Census, Mexico had a total population of 126.01 million people, of whom 49 percent were men and 51 percent were women. According to national demographic information, approximately 11.8 million people live in Indigenous households, while 23.2 million people aged three years and older, equivalent to 19.4 percent of the population in that age group, self-identify as Indigenous. Women represent approximately 51.4 percent of the Indigenous self-identified population. In addition, the Afro-Mexican or Afro-descendant population was estimated at 2,576,213 people, of whom 50.4 percent were women.

Disaggregation at the state level reveals significant territorial disparities in the distribution of indigenous and afro-Mexican population groups. The presence of Indigenous language speakers is concentrated primarily in the southern and southeastern regions. The states of Oaxaca (31.2 percent), Chiapas (28.2 percent), and Yucatán (23.7 percent) exhibit the highest proportions of Indigenous language speakers. Guerrero also shows a considerable share (15.5 percent), while lower proportions are observed in Quintana Roo (11.7 percent) and Michoacán (3.4 percent). In contrast, states such as Jalisco report very limited presence, with only 0.8 percent of the population speaking an Indigenous language.

Indigenous populations are particularly vulnerable, as they often inhabit environmentally sensitive areas and rely heavily on natural resources for their livelihoods. Approximately 20% of the rural population identifies as indigenous, and nearly half of the indigenous population resides in rural areas. These communities are often located in regions with high exposure to climate risks and limited development opportunities. Indigenous populations face significantly higher poverty rates than non-indigenous populations and are more likely to experience multiple deprivations, reflecting long-standing patterns of social exclusion.

Afro-descendant populations in Mexico, while representing a smaller proportion of the total population, show notable geographic concentration. The highest shares are found in Guerrero (8.7 percent) and Oaxaca (4.7 percent), followed by Yucatán (3.0 percent) and Quintana Roo (2.9 percent), with lower proportions observed in Chiapas and Jalisco. Although not exclusively, both Indigenous and Afro-descendant populations are predominantly located in the southern and southeastern regions of the country. These areas also tend to overlap with regions characterized by higher levels of social marginalization, poverty, and climate vulnerability.

Social inclusion and gender

In 2023, Mexico had a population of 129.5 million people, of which 51.7 percent were women. According to INEGI, the country is characterized by a relatively young demographic structure, with a median age of 32 years and 40.3 million people under the age of 20. At the same time, Mexico is undergoing a gradual ageing process: 14.7 percent of the population (19.0 million people) were aged over 60, of whom women accounted for 54.9 percent (10.4 million), reflecting an emerging feminization of ageing.

A total of 6.8 percent of the population—equivalent to 8.9 million people—lived with some form of disability. Nearly half of this group (49.4 percent) were persons over 60 years of age, and within this segment, 56.1 percent were women, highlighting an important intersection between ageing, gender, and disability. Given women's higher life expectancy compared to men (79.0 years versus 72.5 years), the number of women experiencing disability in later life is expected to increase in the coming years.

Mexico is predominantly urban, with 74.6 percent of the population residing in urban areas, while 25.3 percent live in rural settings, often characterized by dispersed settlement patterns. In 2023, 32.8 million people lived in rural localities (with fewer than 2,500 inhabitants), of whom 16.9 million (51.5 percent) were women. In rural and forest contexts, women play a fundamental role in agricultural production, natural resource management, forest use, food security and community care activities. However, their participation continues to take place under conditions characterized by disproportionate unpaid domestic and care workloads, lower levels of economic autonomy and limited representation within agrarian and community governance structures.

Women are disproportionately represented among populations living in extreme poverty, with inequality becoming more pronounced where gender intersects with rurality and ethnicity. Indigenous women in rural areas face significantly higher levels of extreme poverty compared to non-Indigenous urban populations, reflecting systemic disparities in access to economic opportunities, basic services and productive resources. These conditions are especially evident in states with high forest cover—such as Chiapas, Oaxaca and Guerrero—which also concentrate higher levels of rural poverty, larger Indigenous populations, lower educational attainment and limited access to assets.

4.3 Socio-economic context of forests

According to the 2020 Population and Housing Census, approximately 11.9 million people live in localities located within forest areas in Mexico, representing 9.4% of the national population and distributed across more than 103,000 forest localities. Forest populations are concentrated primarily in the center-southeast region of the country, particularly in states such as Chiapas (12.3 percent), Oaxaca (7 percent), Guerrero (5 percent), Michoacán (6 percent), and Jalisco (5 percent), which together account for a significant share of the population living in forest territories (Table 3). Forest localities are strongly associated with indigenous territories and agrarian communities, particularly in southern Mexico, where forest ecosystems overlap with areas of high biodiversity, communal governance systems, and social marginalization.

Forest resources constitute a form of natural heritage that not only meets basic needs and provides livelihoods for communities residing in forest ecosystems but also plays a central role in sustaining their social and cultural reproduction, underpinning identity, traditions, and community cohesion.

Table 2. Population Living in Forest Areas by Selected States

State	Population Living in Forest Areas	Indigenous Population in Forest Areas	Number of Forest Localities
Chiapas	1,462,508	820,472	11,468
Oaxaca	1,257,689	780,616	7,185
Guerrero	831,994	336,956	4,937
Michoacán	631,977	34,857	5,840
Jalisco	390,876	21,857	5,637
Quintana Roo	143,276	80,169	2,084
Yucatán	213,137	158,407	1,731

The socioeconomic conditions of populations living in forest areas reveal persistent structural inequalities in access to education, health, housing, and basic services. Approximately 13 percent of the population aged 15 years and older in forest localities is illiterate; 21 percent has not completed basic education, and 23 percent lacks access to health services. Housing deficits are also significant, with 15 percent of households lacking drainage systems, and 9 percent lacking piped water. These conditions are substantially worse than national averages and reflect the historical marginalization of rural and forest-dependent communities.

Forest territories are also characterized by high levels of indigenous presence and cultural diversity. Indigenous populations represent approximately 30.3 percent of the population living in forest localities, equivalent to more than 3.6 million people. The highest concentration of indigenous households in forest areas is located in Chiapas, Oaxaca, and Guerrero, which together account for more than half (53.7 percent) of the indigenous population living in forest territories. Afro-descendant populations also maintain an important presence in forest landscapes, particularly in Guerrero, Oaxaca, Veracruz, and Chiapas. Indigenous populations living in forest territories experience higher levels of social exclusion and infrastructure deficits compared to national averages, including higher illiteracy rates, lower school attendance, and reduced access to sanitation, electricity, drainage, and potable water.

Forest populations are also highly exposed to social vulnerability and climate-related risks. Approximately 23 percent of people living in forest localities are located in municipalities with high or very high levels of social lag, while 39 percent live in municipalities with high or very high levels of marginalization. In addition, 7.1 percent of forest localities are located in municipalities classified as highly or very highly vulnerable to climate change impacts, including floods, landslides, water stress, vector-borne diseases, and impacts on livestock and agricultural production systems.

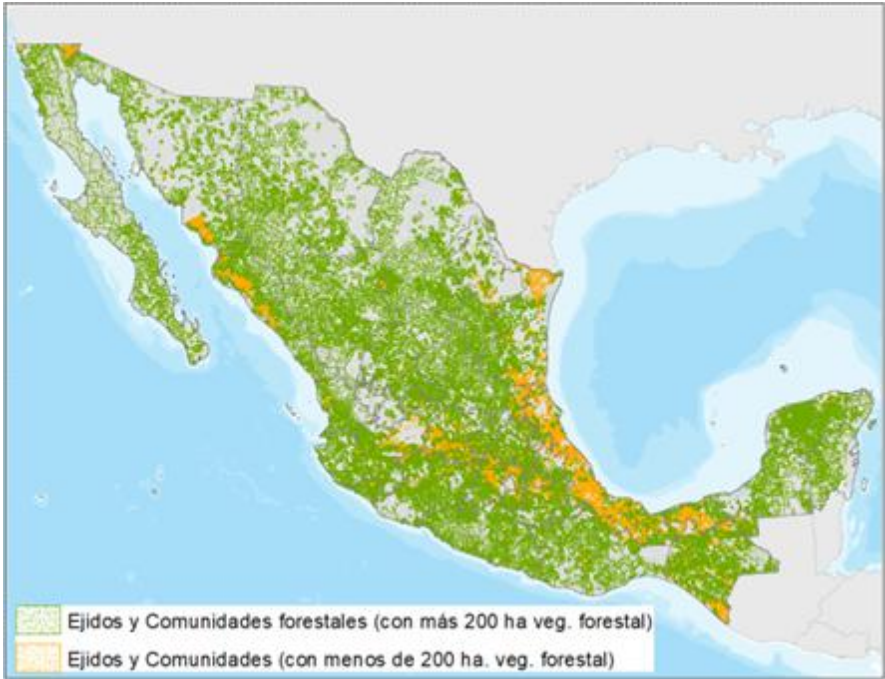
Land tenure

Mexico's land tenure system establishes three legally recognized property regimes: public property, private property, and social property. Social property, which includes ejidos and agrarian communities, is particularly relevant for the RBP proposal because a significant share of the country's forests is located in lands under collective tenure. Ejidos and agrarian communities have legally recognized governance structures and internal rules that guide decision-making over land use, access to natural resources, participation in public programs, and benefit-sharing arrangements.

According to data from the National Agrarian Registry (RAN), as of 2024 Mexico had 32,261 agrarian nuclei, including 28,525 ejidos and 1,995 agrarian communities. Registered ejido property exceeds 82.2 million hectares, while registered communal property covers approximately 17.4 million hectares.

Approximately 16,953 agrarian nuclei (ejidos and agrarian communities) own more than 70 million hectares of forest land nationwide equivalent to 50.9 percent of Mexico’s forest area. (see section 2.5 below). Ejidos account for the largest share, with approximately 60.5 million hectares of forest area, equivalent to 43.6 percent of the national forest area. Agrarian communities account for approximately 10.1 million hectares, equivalent to 7.3 percent of the national forest area. Of the total agrarian nuclei, those ejidos and communities with over 200 hectares of forest cover are considered forest agrarian nuclei. Within forest agrarian nuclei, approximately 5.6 million people reside in 43,755 localities, including more than 1.8 million people belonging to indigenous households.

Figure 5. Forest agrarian nuclei (ejidos and communities)



Source: CONAFOR with data from Land Use and Vegetation Map, Series VII; and INEGI (2020) – National Population and Housing Census.

States such as Oaxaca, Guerrero, Chiapas, Michoacán, Jalisco, Quintana Roo, and Yucatán contain extensive areas of forest land under ejido and agrarian community ownership, reinforcing the importance of communal governance systems for forest conservation, sustainable land management, and local livelihoods. Table 3 includes the number of forest agrarian nuclei and its forest cover in the selected states of Mexico’s RBP proposal.

Table 3. Forest agrarian nuclei in selected states

State	Forest Agrarian Nuclei	Forest Area within Agrarian Nuclei (ha)
Chiapas	1,167	1,782,291
Oaxaca	974	3,633,165
Guerrero	954	3,220,306
Michoacán	1,072	1,464,157
Jalisco	903	1,595,963
Quintana Roo	275	2,599,088
Yucatán	604	1,539,281

5. Country ownership

Country ownership is demonstrated through the strong alignment of this proposal with Mexico's flagship national policies and programs. The proposed activities are fully consistent with the Government of Mexico's development and environmental priorities, particularly the 2025–2030 National Development Plan (PND) and the National Forestry Program (2025–2030). These frameworks promote integrated, ecosystem-based approaches that recognize the interdependence of biodiversity, water, and climate, while advancing the conservation, restoration, and sustainable use of natural resources.

The PND explicitly recognizes the strategic role of Indigenous Peoples and local communities in the stewardship of forest ecosystems and highlights their contributions to climate justice, gender equality, and inclusive governance. This commitment is further reflected in CONAFOR's Institutional Program, which includes specific actions to reduce emissions from deforestation and forest degradation while strengthening adaptation to climate change.

Moreover, the RBP project will also contribute towards the objective of Mexico's National REDD+ Strategy (ENAREDD+), which identifies livestock as one of the main drivers of deforestation and forest degradation, and silvopastoral systems as a mechanism to address it; the ENAREDD+ also mandates the identification of financial instruments to invest in practices that reduce deforestation and forest degradation.

Through this proposal, the Government of Mexico seeks to scale up forest-landscape interventions that address the main drivers of deforestation and forest degradation and strengthen the resilience of forest ecosystems and forest-dependent communities. The project will enable the country to expand and consolidate ongoing efforts in sustainable forest management, ecosystem restoration, and community-based forest governance, while reinforcing the implementation of national policies and programs. These investments will contribute to achieving Mexico's climate, biodiversity, and sustainable development objectives, generating long-term environmental, social, and economic benefits.

Mexico has a long-standing history of forest management and has continuously recognized the role forests play in both environmental sustainability and rural livelihoods. Since the creation of the National Forestry Commission (CONAFOR) in 2001, these efforts have been further institutionalized through sustained actions to tackle deforestation and promote the sustainable management and conservation of forests, supporting communities, ejidos, and small landowners in the care and improvement of forest resources. These efforts are mainly implemented through public incentive programs that are demand-driven and voluntary, providing support in cash or in kind in accordance with the Operating Rules. The programs cover a wide range of activities, including social organization, capacity building, land-use planning, sustainable forest management, and the extraction, processing, and marketing of forest goods and services. Building on this experience, 58 percent of RBP resources will be channeled through CONAFOR to finance the implementation of productive and conservation activities on the ground, through public subsidy programs implemented under Operating Rules via the Mexican Forest Fund. Financial resources and inputs will be transferred directly to ejidos and communities that choose to participate on a voluntary basis, thereby promoting fair, equitable, and effective access to benefits derived from RBP.

Regarding stakeholder engagement, this RBP proposal has been developed in collaboration with multiple institutions and stakeholders under the lead of the CONAFOR and the guidance of the NDA, the Mexican Ministry of Finance and Public Credit (SHCP) and SADER. FAO has supported the drafting of this RBP proposal that has involved a participatory, consultative, and multi-sectoral planning process.

The proposal builds on over a decade of participatory engagement and institutional learning in the context of REDD+ in Mexico, which involved federal and state institutions, Indigenous Peoples, communities, civil society, and other key stakeholders. Building on this foundation, the RBP proposal was co-constructed through a series of national and subnational events in 2026, including federal socialization meetings (20–27 April) with CONAFOR, SADER, SHCP and FAO to define the proposal's strategic focus; a federal co-design workshop (13 May) with CONAFOR, SADER, SEMARNAT, SHCP and FAO to align priorities and refine the intervention logic; and a coordination meeting with seven state governments (29 May) to present the proposal and initiate state-level engagement. The proposal was further presented on 29 May 2026 to the REDD+ Working Group of the Inter-Ministerial Commission on Climate Change (GT-REDD+ of the CICC), which endorsed continued preparation toward submission to the GCF.

Building on these processes, a consultation process at territorial levels—through State Forestry Councils, REDD+ platforms, and direct engagement with ejidos, communities, Indigenous Peoples, women producers, and other actors—was conducted to gather feedback, identify risks, and refine implementation, and safeguards instruments. The territorial consultation process conducted achieved strong participation. A total of 336 stakeholders participated across the territorial consultation workshops, 110 participants (32.7%) were women and 113 participants self-identify as Indigenous representing 17 Indigenous Peoples and Afro-Mexican groups (Tseltal, Zoque, Pirinda, Nahua, Tepehuano, Wixarika, Maya, Chol, Chontal, Totonaco, Mixteco, Tacuate, Zapoteco, Purepecha, Huave, Afro-Mexican, and Chatino). As part of the consultation process, recommendations, concerns, opportunities, and implementation considerations raised by participants were systematically documented

6. Efficiency and effectiveness

The proposed reinvestment is economically sound and designed to achieve cost-effective climate, environmental and socioeconomic benefits by combining direct territorial investments with the enabling measures required for their sustained adoption. Rather than creating parallel delivery structures, the project will operate through established national and territorial mechanisms, including CONAFOR incentive programmes, territorial agents and Farmer Field Schools. This approach builds on existing institutional capacities, reduces transaction costs, and supports the continuity of implementation beyond the period of GCF financing.

The funding allocation prioritizes investments in priority forest–livestock transition landscapes. The largest programmed allocations support Payment for Environmental Services (PES) (USD 26.41 million), demonstrative productive reconversion models (USD 15.02 million), and strengthened sustainable practices in transition zones (USD 17.61 million). Complementary investments in territorial agents, technical capacities, monitoring and traceability, market access and sustainable financial products address the technical, institutional and financial constraints that may otherwise limit the uptake, maintenance and scaling of silvopastoral systems and forest-conservation measures. The combination of PES, productive restoration, technical assistance and territorial governance is expected to produce more durable results than isolated incentives or one-off demonstrations.

Cost-effectiveness will be assessed against the portfolio's multiple and measurable results, rather than against a single output. By project completion, the programme targets 205,000 hectares under improved low-emission and/or climate-resilient management practices, 1,600 productive units adopting improved and climate-resilient livelihood options, and 21,720 beneficiaries adopting innovations that strengthen resilience. Monitoring of these results will draw on CONAFOR annual implementation reports, the National Forest Monitoring System, and project-level information on adoption of sustainable practices, forest cover, forage production and grazing-management performance. This framework will support adaptive management, enabling implementation support and resource allocation to be adjusted where delivery, uptake or environmental performance is below expectation.

Effectiveness and fiduciary value for money will be reinforced through FAO oversight, periodic financial and narrative reporting, evidence-based disbursements, annual performance reports, and independent mid-term and final evaluations. The project draws on established national programmes and REDD+ experience while applying transparent selection processes, safeguards, gender-responsive monitoring and continuous learning. These arrangements provide a solid basis for efficient delivery, accountability and timely adjustment during implementation.

Appendix.

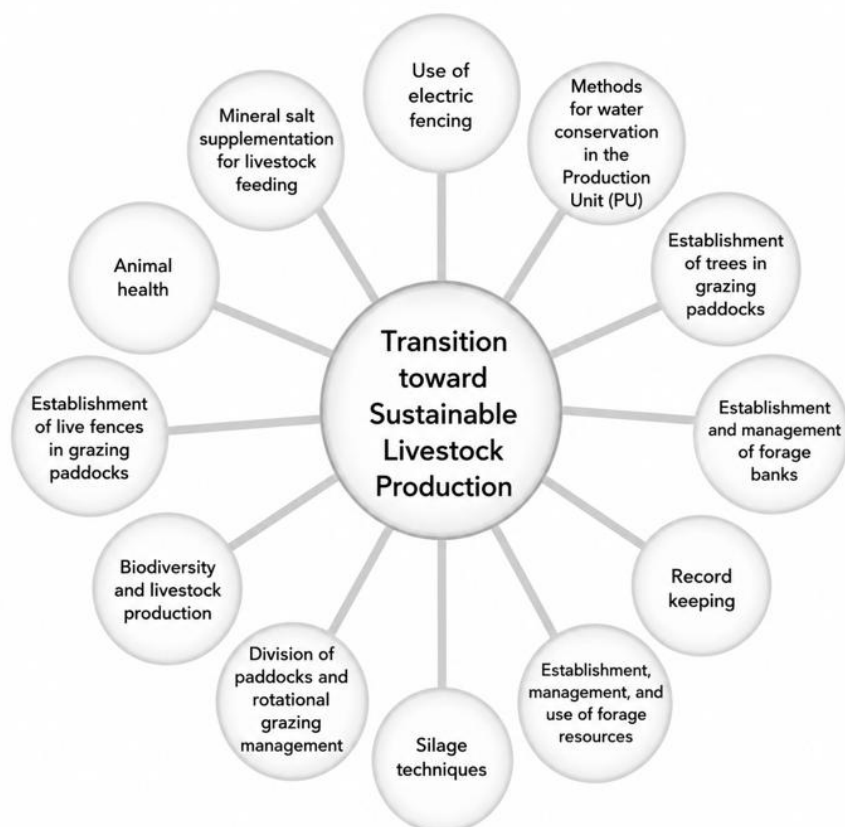
A.1 Types of silvopastoral systems most commonly implemented in Mexico

Type	Description
Scattered trees in pastures	Scattered trees in pastures are the most common silvopastoral arrangement in tropical Mexico, consisting of isolated or irregularly distributed trees conserved for their productive, ecological, or cultural value. They play a key role in livestock systems by providing shade, reducing heat stress, and improving microclimatic conditions, while also enhancing soil fertility, water infiltration, erosion control, carbon sequestration, and landscape connectivity. This arrangement often serves as an entry point to more advanced silvopastoral systems, allowing producers to integrate ecological functions without major changes to traditional practices, while also generating additional benefits such as timber, fuelwood, fruit, or fodder.
Live fences	Live fences are linear arrangements of trees and shrubs used to delimit paddocks, plots, and infrastructure within livestock systems. They are widely adopted in Mexico due to their low cost, ease of establishment, and multiple ecological and productive benefits. Unlike conventional fences, live fences are dynamic systems that can function as physical boundaries, windbreaks, and landscape connectors. Importantly, they serve as biological corridors in fragmented landscapes, facilitating the movement of wildlife and contributing to biodiversity conservation and ecosystem connectivity.
Protein Banks	Protein banks are intensive silvopastoral systems designed to produce high-quality forage, particularly during dry seasons or periods of pasture scarcity. Established with high densities of forage trees and shrubs, they function as a strategic reserve of protein-rich biomass that helps maintain animal condition, stabilize milk and meat production, and reduce dependence on external feed inputs, especially in tropical environments with marked seasonal limitations. These systems complement rather than replace pastures and are managed through cut-and-carry practices or controlled grazing, requiring careful regulation of regrowth and rotation to ensure sustained productivity. Beyond their nutritional role, protein banks also provide key environmental benefits, including nitrogen fixation, increased soil organic matter, improved fertility, reduced erosion, and continued biomass production under drought conditions, thereby enhancing the overall resilience of livestock systems.
Forage alleys	Forage alleys are silvopastoral systems consisting of rows of forage trees or shrubs integrated within grazing paddocks, with intermediate strips left for pasture and livestock movement. Unlike protein banks, which serve as strategic reserves, forage alleys are designed to enhance overall farm productivity through more efficient use of space, soil, and biomass. This arrangement allows for the incorporation of a higher density of woody species without reducing effective grazing area. Tree rows provide forage, shade, nutrient cycling, and ecological connectivity, while grass strips maintain the base diet for livestock. In addition to their productive function, forage alleys generate important environmental benefits, including improved water infiltration, reduced erosion, carbon sequestration, microclimate regulation, enhanced biodiversity, soil fertility recovery, and increased landscape connectivity.
Rational Grazing	Rational grazing is a livestock management approach based on the planned control of grazing time, rest periods, and stocking rates to optimize interactions between soil, pastures, trees, and animals. Its objective is not only to feed livestock, but also to restore ecological functions through efficient forage use and improved distribution of grazing pressure. Within silvopastoral systems, rational grazing is essential to maintain system balance, as inadequate management can lead to overgrazing, soil degradation, and damage to woody components. Controlled grazing and adequate recovery periods are key to sustaining vegetative cover, with timings adjusted to seasonal conditions. When integrated with silvopastoral practices, rational grazing enhances productivity, soil fertility, water infiltration, carbon sequestration, biodiversity, and animal welfare, while strengthening overall climate resilience. Paddock subdivision and improved water distribution systems are critical to support this management approach and reduce pressure on natural ecosystems.

Rational Grazing in Dry Forests under Conservation Management	In tropical dry forests, rational grazing can be applied as a conservation-compatible strategy when grazing intensity is kept low and grazing and recovery periods are strictly controlled. The objective is not to convert forests into pastures, but to make limited use of natural forage resources while maintaining ecosystem structure and function. This approach involves short grazing periods, low to moderate stocking rates, protection of natural regeneration, and conservation of tree cover, while avoiding soil compaction and overuse of sensitive species. Properly managed, it supports nutrient cycling, reduces excess dry biomass, and allows controlled use of forest resources without causing deforestation or degradation. As such, it offers a viable pathway to reconcile livestock production with conservation in dry forest landscapes.
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A.2 Key Parameters for the Transition toward Sustainable and Deforestation-Free Livestock Production

Sustainable Livestock Parameters



A.3 Technical improvements of the Forest Reference Level (FREL) and Technical Annex

Document	Technical improvement	Progress	Pending	Comments
FREL	(a) Improving the classification of land that was unstocked but did not undergo a land-use change. In particular, the AT considers that a set of grid cells or polygons supported by ground-truth data is needed to achieve unbiased interpretation (see para. 17 above). Mexico considers that the field data from the next NFI cycle will be useful for this;	Three cycles of the INF have been conducted: Cycle 1 from 2004 to 2009, Cycle 2 from 2009 to 2014, and Cycle 3 from 2015 to 2020. However, in the third cycle, only around 40% of the sample was surveyed. Since then, data has only been collected in some states through specific projects such as the ISFL or the Balsas project.	Conduct an analysis of plots identified as DFA in the visual interpretation and field data from the third cycle of the INFyS to determine whether they were indeed maintained as forest land or whether there was in fact a change in land use.	
FREL	(b) Considering the estimation of emissions that may occur due to illegal conversion from natural forests to forest plantations on forest land that remains forest land (see para. 22 above) as part of the stepwise approach for improving forest monitoring of partial forest degradation;	The area under forest plantations at national level (https://www.datos.gob.mx/dataset/plantaciones_comerciales) covers around 369,000 ha, a very small area compared to the total forest area. Most of the areas of PFC are supported by CONAFOR; the establishment of PFCs in forested areas is not legally permitted, and CONAFOR ensures compliance with this requirement when providing support. The conversion from forest to plantations has not been visually identified in the sampling grid; this is consistent with the previous point regarding the very small area relative to the national forest area.	A desk-based analysis could be carried out of the areas of PFC supported by CONAFOR and the land use prior to their establishment.	

FREL	(c) Improving consistency between the national GHG inventory and the FREL submission (see para. 23 above) as part of the stepwise approach;	The same sampling-based area estimation approach has already been used to estimate Activity Data in both the FREL and the INGEI; both use INFyS data to estimate Emission Factors.	This is understood as a process of continuous improvement, where there may be minor differences in the estimates.	
FREL	(d) Continuing the improvement of the consistency of the national forest definition between the FREL and other international reporting (see para. 31 above).	The definition of forest in FREL and INGEI is consistent in the most recent reports; however, with regard to the FRA, there are some inconsistencies concerning the definition of forest itself and other aspects of forest land in the FRA, as well as the data used in the FRA report.		
FREL	(a) Including non-CO2 gases, taking into account developments in the national GHG inventory	Data collection from fire sites has been improved.	Emissions of non-CO2 gases from forest fires may be included in the next FREL	
FREL	(b) Covering the full scope of the activity reducing emissions from forest degradation, including partial forest degradation if the emissions from this activity are deemed to be significant	Information on tree elements within the visual interpretation plot is collected; using this data, information on changes in canopy cover can be generated as a proxy for partial forest degradation.	Explore methodological approaches, such as linking the loss of forest cover with the loss of biomass. The loss of forest cover requires inputs such as high- or very high-resolution imagery (currently limited availability). As forest inventory data is limited, the use of	INEGYCEI 1990–2022 Forest degradation: The reduction in carbon due to loss of forest cover associated with mainly anthropogenic disturbances. ‘Absolute forest degradation’ (AFD), the only type accounted for in this report, entails the total loss of woody vegetation cover following a disturbance that does not involve a permanent

			dynamic biomass maps could be explored to fill in the gaps.	change in land use from forest to non-forest. Furthermore, following the disturbance, no recovery is evident. Forest degradation as partial loss is implicit in the FE for the permanence of forest land in each ecoregion, given that the FE incorporates the behaviour of a region's vegetation over a period.
FREL	(c) Investigating and improving monitoring (using new satellite inputs and field data) of carbon stock change following absolute forest degradation	Partial INFyS data (only for some states) are available for recent dates; the availability of high-resolution satellite imagery is limited, which has hampered progress in this regard; other approaches may be explored.	Analyse the current status of plots with absolute forest degradation (AFD) using the most recent visual interpretation data available to date.	
FREL	(a) Ensuring consistency of the national forest definition used between the second FREL or future FRELS and the national GHG inventory included in the Party's national communications and biennial update reports or biennial transparency reports;	The definition of forest in FREL and INGEI is consistent in the most recent reports; however, with regard to the FRA, there are some inconsistencies due to the very definition of forest and other forested land in the FRA, as well as the data used in the FRA report.		NREF Definition of forest: Forest land with a canopy cover of more than 10%, with woody species over 4 metres in height, or capable of reaching that height in situ, and with a minimum area of 1 ha. INEGYCEI 1990–2022 Forest land (FL): Forest land with a

				canopy cover of more than 10%, with woody species taller than 4 metres or capable of reaching that height in situ, and with a minimum contiguous area of 1 ha.
FREL	(b) Improving the collection and management of the information captured through the visual interpretation of satellite images at sampling plots using the Collect Earth tool;	SOPs, including QA/QC, have been developed and implemented to improve the information collection process.	There is a plan to transition to CEO with support from FAO. Work will be carried out in parallel with both platforms to ensure consistency with the historical series.	
FREL	(c) Improving the detection and quantification of forest degradation (absolute and partial) and recovery through photographic analysis using higher-resolution images, where available;	As the availability of high- or very high-resolution images is limited or rarely available free of charge, alternative approaches will be sought.	Explore methodological approaches, such as linking the loss of forest cover with the loss of biomass. The loss of forest cover requires inputs such as high- or very high-resolution images (currently limited availability). Forest inventory data are limited; the use of dynamic biomass maps to fill gaps	

			may be explored.	
FREL	(d) Increasing the precision of the estimation of deforested areas through the combination of cartographic products generated using MAD-Mex software within the framework of Mexico's satellite forest monitoring system and sampling information	Deforestation maps have been produced for some states (https://snmf.cnf.gob.mx/cobertura-del-suelo/), although there is no nationwide coverage. The sampling grid continues to be used for reporting official statistics.	Continue working on the development of the institution's own cartographic resources and in collaboration with other institutions.	
FREL	(e) Including the rates of carbon increase and loss in the national forest and soil inventory for above-ground biomass, below-ground biomass, deadwood, litter and soil organic carbon;	Data from the third cycle of the INFyS on permanent plots are being analysed to estimate increment rates in the four ISFL states.	Extend to the national level. However, the size of the actual sample collected has decreased. Efforts must be made to streamline the collection of field data.	
FREL	(f) Improving soil organic carbon estimates	This is pending; it requires additional resources.		
FREL	(g) Updating estimates of above-ground biomass, below- ground biomass, deadwood and litter using more recent and robust data;	The available data from the third cycle of the INFyS are currently being analysed.	Extend to the national level. However, the size of the sample actually collected has decreased. Efforts must be made to streamline the	

			collection of field data.	
FREL	(h) Accounting for and propagating other sources of uncertainty, such as those arising from measurement and modelling errors;	This is pending and requires additional resources.		
FREL	(i) Making adjustments to the NFI field data collection procedures aimed at estimating carbon in the five pools;	Discussions on the subject have begun with experts, including the FAO	Develop a guiding document and a new sampling and response design for the INFyS. Collect the information using OpenForis Arena.	
FREL	(j) Increasing the automation and systematisation of the compilation of emissions, quality control and preparation of intermediate products		Processes have been improved, and procedures have been documented and systematised.	
FREL	k) Including in the FREL other REDD+ activities such as conservation and enhancement of forest carbon stocks and sustainable management of forests, as	Data from the third cycle of the INFyS are currently being analysed from permanent plots to estimate growth rates in the four states of the ISFL.	Expand to the national level. However, the size of the sample actually collected has decreased. Efforts must be made to streamline the collection of field data, or additional	

	well as non-CO2 gases;		resources must be allocated to bring the current sample up to 100%.	
FREL	(l) Using the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories	These have been used in the INGEI.	To be used in the next FREL to ensure consistency with the INGEI	INEGYCEI 1990–2022 The Intergovernmental Panel on Climate Change Guidelines established in 2006 and 2019 were used Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories
FREL	(m) Include in the next FREL submission the complete estimate of emissions from forest degradation (absolute and partial);	Information on tree elements within the visual interpretation plot is collected; using this data, information on changes in canopy cover can be generated as a proxy for partial forest degradation.	Explore methodological approaches, such as linking the loss of forest cover with the loss of biomass. The loss of forest cover requires in s such as high- or very high-resolution imagery (currently in short supply). Forest inventory data are limited; the use of dynamic biomass maps to fill in gaps could be explored.	

FREL	(n) Promoting the dissemination of relevant materials and results of GHG emission quantification for the forest sector to decision-makers and the public.	Deforestation data has been published on the CONAFOR website. https://snmf.cnf.gob.mx/deforestacion/	Technical publications related to FE and emissions are pending.	
TAResults	(a) Improving the clarity of the information related to the auxiliary files, codes and calculation worksheets used in the estimation to facilitate the process of reconstructing the results;	SOPs, including QA/QC, have been developed and implemented to improve the information collection process.	Document the procedures in the following information collection cycles.	
TAResults	(b) Including biomass gains on forest land that remains forest land and on land converted to forest land	Data from the third cycle of the INFyS on permanent plots are being analysed to estimate growth rates in the four ISFL states.	Extend to the national level. However, the size of the sample actually collected has decreased. Work will need to be done to streamline the collection of field data, or additional resources will be required to bring the current sample up to 100%.	
TAResults	(c) Estimating forest soil carbon uncertainty in a manner similar to that used for		Pending; external support is required to resume.	INEGYCEI 1990–2022 Soil organic carbon (SOC) data provided by the

	estimating other pools;			University of Delaware ("Soil O Organic Carbon Estimates for 30-cm Depth, in Mexico and the contiguous USA, 1991–2011") were used.
TAResults	(d) Using high-resolution imagery to assign a land-use label to each point in the plot (as opposed to assigning a majority value to each plot, as is currently done), to improve the precision of the estimates of forest area and the mapping of partial forest degradation;	Information on tree elements within the visual interpretation plot is collected; using this data, information on changes in canopy cover can be generated as a proxy for partial forest degradation.	Explore methodological approaches, such as linking forest cover loss with biomass loss. Forest cover loss requires inputs such as high- or very high-resolution imagery (currently in short supply). Forest inventory data are limited; the use of dynamic biomass maps to fill in gaps could be explored.	
TAResults	(e) Improving the uncertainty estimation procedure to take into account the covariance between the pools calculated on the plots		Pending implementation as it can reduce uncertainty.	

TAResults	(a) Estimating carbon stock gains in forest land that remains forest land;	Data from the third cycle of the INFyS are being analysed on permanent plots to estimate rates of increase in the four ISFL states.	Extend to national level. However, the size of the sample actually collected has decreased o Efforts must be made to streamline the collection of field data, or additional resources must be allocated to bring the current sample up to 100%.	
TAResults	(b) Including non-CO2 gases	Data collection from fire sites has been improved.	Emissions of gases other than CO2 from forest fires can be included in the next FREL.	
TAResults	(c) Improving the propagation of uncertainty, particularly from field measurements;	Error propagation using the Monte Carlo method is being implemented for the ISFL area.	Pending implementation; requires further support on uncertainty issues.	
TAResults	(d) Improving the systematisation of estimates and the quality assurance/quality control process;	SOPs, including QA/QC, have been developed and implemented to improve the data collection process.	Document the procedures in the following information collection cycles.	
TAResults	(e) Incorporating new data from the NFI to update the carbon pools and emission factors (EFs);	Data from the third cycle of the INFyS on permanent plots are being analysed to estimate growth rates in the four states of the ISFL.	Expand to a national level. However, the actual size of the sample collected has decreased (). Efforts must be made to streamline the	

			collection of field data, or additional resources must be allocated to increase the current sample size to 100%.	
TAResults	(f) Including data on carbon removals;	Data from the third cycle of the INFyS on permanent plots are being analysed to estimate growth rates in the four ISFL states.	Expand to the national level. However, the size of the sample actually collected has decreased. Efforts must be made to streamline the collection of field data, or additional resources must be allocated to bring the current sample up to 100%.	
TAResults	(g) Accessing and using very-high-resolution satellite images and analysis tools from international partners to address the assessment of absolute and partial forest degradation, and forest land recovery.	Information on tree elements within the visual interpretation plot is collected; using this data, information on changes in canopy cover can be generated as a proxy for partial forest degradation.	Explore methodological approaches, such as linking the loss of forest cover with the loss of biomass. The loss of forest cover requires inputs such as high- or very high-resolution imagery (currently in short supply). Forest inventory data are limited; the use of dynamic	

			biomass maps to fill in gaps can be explored.	
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GCF Results-Based Payments Mexico 2018-2019 aimed at Forest Conservation and Sustainable Livestock

Project information

The project *GCF Results-Based Payments Mexico 2018–2019: Forest Conservation and Sustainable Livestock* promotes climate change mitigation through integrated land-use interventions in forest–livestock landscapes. It focuses on improving land management practices in silvopastoral and agrosilvopastoral systems, reducing emissions from livestock production, and avoiding deforestation in forest areas. The intervention includes three components: (i) regenerative grazing practices, (ii) protection of forest areas through Payments for Environmental Services (PES), and (iii) reduction of enteric fermentation through improved feeding practices.

Location of the project

The project will target priority landscapes located within forest–livestock transition zones across dry and sub-humid forest ecosystems in seven different states: **Chiapas, Guerrero, Jalisco, Michoacán, Oaxaca, Quintana Roo, and Yucatán**, Figure 1. These states were selected through a multicriteria analysis incorporating land cover and land-use data, land-use change trends, deforestation risk, agricultural frontiers, cattle distribution, livestock production units, and restoration priorities. Jalisco and Chiapas are among Mexico's leading cattle-producing states, ranking second and sixth nationally, respectively, while Yucatán and Quintana Roo are emerging as important centers for dairy production. Together, these areas represent strategic locations for addressing deforestation pressures associated with livestock expansion while promoting sustainable land management and restoration, Table 1.

Figure 1: Location of the seven states targeted for project implementation in Mexico



Table 1: Targeted landscapes and dominant ecosystem types

State	Main ecosystem
Jalisco	Temperate pine-oak forests, tropical dry forests
Michoacán	Temperate pine, pine-oak, oak and oyamel forests; tropical dry forests
Chiapas	Tropical rainforests, cloud forests
Guerrero	Tropical dry forests, temperate pine-oak forests
Oaxaca	Tropical dry forests, temperate pine-oak forests
Quintana Roo	Tropical semi-evergreen forests
Yucatán	Tropical dry forest (low deciduous forest)

Mitigation impact

The Nationally Determined Contribution Expert (NEXT) tool

The [NEXT](#) (Nationally Determined Contribution Expert) tool is a new generation greenhouse gas accounting tool developed by the FAO to support the annual environmental impact assessment in agrifood systems. It provides a 30-year series of annual and cumulative estimates of carbon uptake and greenhouse gas (GHG) emission reductions resulting from actions determined by the Parties in their climate policies. NEXT has been developed using the methodologies of the Intergovernmental Panel on Climate Change (IPCC), and estimates can be made using either the 2006 IPCC Guidelines or the 2019 refinement of the 2006 IPCC Guidelines, both of which are supplemented by the 2013 IPCC Wetlands Supplement. The tool has been designed to provide results that respond directly to the provisions of the Enhanced Transparency Framework and support the development of nationally determined contributions (NDCs) as required by the modalities, procedures and guidelines. NEXT provides a detailed time series of results and a wide range of indicators, including the social value of carbon, providing an environmental and economic overview of climate actions taken to meet mitigation targets. This tool helps countries to interpret, monitor and strengthen the ambition of their climate actions. NEXT is a land accounting standard for national and subnational GHG reduction targets, which measures annual changes in carbon stocks per unit of land (in hectares), as well as methane (CH₄) and nitrous oxide (N₂O) emissions, expressed in tonne of carbon dioxide equivalent (tCO₂-eq)/year. NEXT provides an annual and cumulative estimate of potential changes in greenhouse gas (GHG) emissions from a range of climate actions over a 30-year time horizon (Schiettecatte et al., 2022 a, b). Thanks to the 30-year reading grid, NEXT can be used at several points in time of climate mitigation commitments, including NDCs, investments and projects:

- before the implementation of a climate action to assess potential changes on GHG emission reductions,
- during the implementation of a climate action to assess and report on progress towards the mitigation goal, and assess the additional GHG emission reductions needed to meet mitigation commitments,
- at the end of the climate action period, to assess the results achieved in terms of GHG emission reductions.

The 30-year series of results by gas, by activity and by carbon reservoir helps to understand the impact of past and current climate actions and to define the actions needed and the corresponding international and national investments if countries are to meet their climate targets. For the full description of the tool please refer to the technical manual (Schiettecatte et al., 2022a).

NEXT logic

NEXT allows users to assess the impact of climate actions against a hypothetical reference scenario. In NEXT's terminology, the climate action is defined as the target, while the hypothetical scenario is the reference. Climate action can be a policy, or low-carbon measures implemented within the country or region of interest.

In the context of low-carbon development, the reference scenario refers to scenarios based on the assumption that no mitigation policies or measures will be implemented beyond those already in force or planned to be adopted. The reference scenario is not a prediction of the future but rather a counterfactual projection based on information retained to indicate the level of emissions without any mitigation policy. The term “**reference scenario**” can be used interchangeably with **the baseline, BAU, or no policy scenarios**.

Once users have provided a set of basic information per activity, which is the area, the start and end of the climate action, and the land management practices, NEXT will estimate the annual and cumulated GHG fluxes and carbon stock changes from the transition of the initial land-use or management practices to the final land-use or management practices, including changes in GHG fluxes and carbon stocks that will keep occurring after the end of the climate action. These estimates are done for the target, the reference scenario, and, ultimately, the balance. The final results of NEXT are the potential changes in GHG emissions reductions per activity and per gas. This potential change in GHG emissions reductions, or balance, is defined as the difference between the gross fluxes from the target and those from the reference.

Assumptions taken to perform the carbon-balance accounting

Home page

- **NEXT version used to conduct the analysis:** 04/06/2026
- **Country of analysis:** Mexico
- **Overall base year:** 2028
- **Main methodology:** IPCC 2019 Guidelines and IPCC 2013 Wetlands Supplement

Activities of the project

The proposal will support productive restoration in transition zones, silvopastoral and agrosilvopastoral systems, regenerative grazing practices, improved forage production, and Payments for Environmental Services (PES) in forest areas. Within NEXT, these interventions are represented through three activities:

1. Regenerative grazing practices on 16,000 ha of grassland
2. Protection of 205,000 ha of forests
3. Reduction of enteric fermentation through improved feeding practices

1. Regenerative grazing practices on 16,000 ha of grassland

This activity targets grassland areas within silvopastoral and agrosilvopastoral systems that will be managed under regenerative grazing practices.

Table 2: Area of regenerative grazing intervention by state (ha)

State	Total grassland area (ha)	Weight (%)	Intervention target area (ha)
Chiapas	578,688.25	18.10%	2,896.18
Guerrero	904,743.06	28.30%	4,527.99
Jalisco	382,712.31	11.97%	1,915.37
Michoacán de Ocampo	311,686.82	9.75%	1,559.91
Oaxaca	285,950.11	8.94%	1,431.10
Quintana Roo	110,097.97	3.44%	551.01
Yucatán	623,097.73	19.49%	3,118.44
Total	3,196,976.25	100.00%	16,000.00

The activity was modelled in NEXT using the **CROP&GRASS** module with the following parameters:

- **Climate type:** Tropical Moist, selected because it is the predominant climate across the implementation areas. Climate classification follows the IPCC Climate Zones (2021), based on Earth Map data.
- **Soil type:** High Activity Clay, selected because it is the most common soil type in the country. Soil classification follows the IPCC soil classes (HWSD 2.0 classification), based on Earth Map data.
- **Initial land use:** Grassland, Non-degraded
- **Final land use:** Grassland, Improved
- **Implementation period:** 2028–2032
- **Total area reference scenario:** 0 ha, nothing changes without the project
- **Total area target scenario:** 16,000 ha

The implementation of regenerative grazing practices is expected to increase soil carbon stocks through the accumulation of soil mineral carbon (CO₂).

2. Protection of 205,000 ha of forests

This activity targets forest areas distributed across seven states, which will be protected through Payments for Environmental Services (PES). The intervention areas are presented in Table 3.

Table 3: Forest area in the intervention target by state (ha)

State	Main ecosystems	Total forest area (ha)	Total x State	Weight (%)	Intervention target area (ha)	Total x State
Chiapas	Tropical rainforests	31,436.41	136,606.89	1.16%	2,379.16	10,338.63
	Cloud forests	105,170.48		3.88%	7,959.47	
Guerrero	Temperate pine-oak forests	654,691.11	857,095.76	24.17%	49,548.05	64,866.36
	Tropical dry forests	202,404.65		7.47%	15,318.31	
Jalisco	Temperate pine-oak forests	386,800.49	632,927.75	14.28%	29,273.68	47,900.98
	Tropical dry forests	246,127.26		9.09%	18,627.30	
Michoacán	Temperate pine, pine-oak, oak and oyamel fore	344,231.21	627,561.01	12.71%	26,051.97	47,494.82
	Tropical dry forests	283,329.80		10.46%	21,442.85	
Oaxaca	Temperate pine-oak forests	27,878.05	49,363.68	1.03%	2,109.86	3,735.93
	Tropical dry forests	21,485.63		0.79%	1,626.07	
Quintana Ro	Tropical semi-evergreen forests	397,408.93	397,408.93	14.67%	30,076.54	30,076.54
Yucatán	Tropical dry forest (low deciduous forest)	7,752.74	7,752.74	0.29%	586.74	586.74
Total		2,708,716.76		100.00%	205,000.00	

The intervention areas are further disaggregated into ecosystem types following the IPCC 2006 classification to allow a more precise representation in the NEXT tool, Table 4.

Table 4: Ecosystem classification and model inputs for forest protection activity (IPCC 2006 categories)

Climate type	Main ecosystem	Equivalent global ecological zone according to the IPCC classification	Intervention target area (ha)	Annual deforested area in the reference scenario (ha/year)
Tropical Wet	Tropical rainforests	Tropical Rainforest	2,379.16	6.97
Tropical Montane	Cloud forest	Tropical Mountain System	7,959.47	23.33
Warm Temperate Moist	Temperate pine-oak forests	Tropical Mountain System	106,983.56	313.56
Tropical Dry	Tropical dry forests	Tropical Dry	57,601.27	168.82
Tropical Moist	Tropical semi-evergreen forest	Tropical Moist	30,076.54	88.15
Total			205,000.00	600.84

The activity is modelled using the **FOREST LAND** module. A total of five model lines is defined, corresponding to the different ecosystem types:

- **Climate type:** Based on IPCC Climate Zones as reported, Table 4
- **Soil type:** High Activity Clay
- **Initial land use:** Forest, with ecosystem-specific forest type defined according to the IPCC Global Ecological Zones classification, Table 4
- **Final land use:** Grassland, used as a conservative proxy scenario
- **Implementation period:** 2028–2058
- **Deforestation area:**
 - **In the Reference scenario:** it is assumed that a portion of the intervention area would be deforested in the absence of the project. The deforestation rate is derived as follows:
 - Average annual deforestation (2001–2024): **203,552 ha/year**, according to the [Deforestación – Sistema Nacional de Monitoreo Forestal](#)
 - Forest land in 2001: **69,449,859 ha** ([FAOSTAT Forest land](#))
 - The annual deforestation rate is therefore: **0.293 % per year**
 - This rate is assumed to remain constant over the analysis period (2028-2058) and is applied uniformly to each intervention area, Table 4. Under this assumption, the total expected deforestation in the absence of the project is: **18 025 ha**.
 - **In the Target scenario:** we assume that the project effectively protects the entire area. As a result, the deforestation rate decreases linearly between 2028 and 2032, reaching zero by 2032. To represent this transition as realistically as possible, the “**observed**” mode in NEXT is used for the modelling.

The protection of forest areas avoids emissions associated with the loss of above-ground and below-ground biomass. Therefore, the intervention results in avoided CO₂ emissions through the prevention of forest conversion and associated biomass loss.

Two values will be given in the results part of this report:

2A – Mitigation potential calculated with Tier 1 values from the IPCC 2019, see Table 5 below.

Table 5: Tier 1 carbon stock values (IPCC 2019) for above-ground and below-ground biomass by forest ecosystem

TIER 1 DATA			
Main ecosystem	Equivalent global ecological zone according to the IPCC classification	Above ground-biomass (tC/ha)	Below-ground biomass (tC/ha)
Tropical rainforests	Tropical Rainforest	144.337	31.898477
Cloud forest	Tropical Mountain System	91.65	34.73535
Temperate pine-oak forests	Tropical Mountain System	91.65	34.73535
Tropical dry forests	Tropical Dry	59.925	22.711575
Tropical semi-evergreen forests	Tropical Moist	88.031	25.000804

2B – Mitigation potential calculated with Tier 2 values from the FREL, the above-ground biomass and below-ground biomass of the ecosystems can be corrected as in Table 6.

Table 6: Tier 2 carbon stock values (FREL-based correction factors) for above-ground and below-ground biomass by forest ecosystem (tC/ha)

TIER 2 DATA			
Main ecosystem	Equivalent global ecological zone according to the IPCC classification	Above ground-biomass (tC/ha)	Below-ground biomass (tC/ha)
Tropical rainforests	Tropical Rainforest	30.05	7.15
Cloud forest	Tropical Mountain System	27.9	7.05
Temperate pine-oak forests	Tropical Mountain System	27.9	7.05
Tropical dry forests	Tropical Dry	15	3.7
Tropical semi-evergreen forests	Tropical Moist	23.15	5.65

3. Reduction of enteric fermentation through better feed practices

This activity targets silvopastoral and agrosilvopastoral systems where improved feed management is expected to reduce enteric fermentation and associated methane emissions. The activity is modelled using the **LIVESTOCK module** with the following parameters:

- **Climate type:** Tropical Moist, selected because it is the predominant climate across the implementation areas. Climate classification follows the IPCC Climate Zones (2021), based on Earth Map data.
- **Annual average temperature:** 26°C (ECMWF ERA5-Land dataset)
- **Animal category:** Cattle – Other
- **Productivity system:** Low productivity
- **Implementation period:** 2028-2032
- **Number of heads:** The number of cattle remains constant throughout the implementation period in both the reference and project scenarios. A total of **27,324 cattle heads** is included in this activity. This value was estimated by allocating state-level cattle populations to the intervention area based on land availability, Table 7.

Table 7: Number of cattle heads targeted by intervention area by state (heads)

State	Total cattle heads in the state	Total grassland area per state (ha)	Intervention target area (ha)	Number of heads targeted (number of heads)
Chiapas	1452079	578,688.25	2,896.18	7,267.27
Guerrero	1095075	904,743.06	4,527.99	5,480.55
Jalisco	1322761	382,712.31	1,915.37	6,620.06
Michoacán	530474	311,686.82	1,559.91	2,654.88
Oaxaca	390589	285,950.11	1,431.10	1,954.79
Quintana Roo	124295	110,097.97	551.01	622.06
Yucatán	544472	623,097.73	3,118.44	2,724.94
Total	5,459,745.00	3,196,976.25	16,000.00	27,324.54

TIER 2

Under the project scenario, improved feed practices are assumed to enhance forage quality within grazing systems, resulting in lower enteric fermentation emissions. **A 10% reduction in enteric CH₄ emissions (kg CH₄/head/year) is applied in the project scenario relative to the reference scenario:**

- **Initial:** 58 kg CH₄/head/year
- **Reference:** 58 kg CH₄/head/year
- **Target:** 52.2 kg CH₄/head/year (10% reduction)

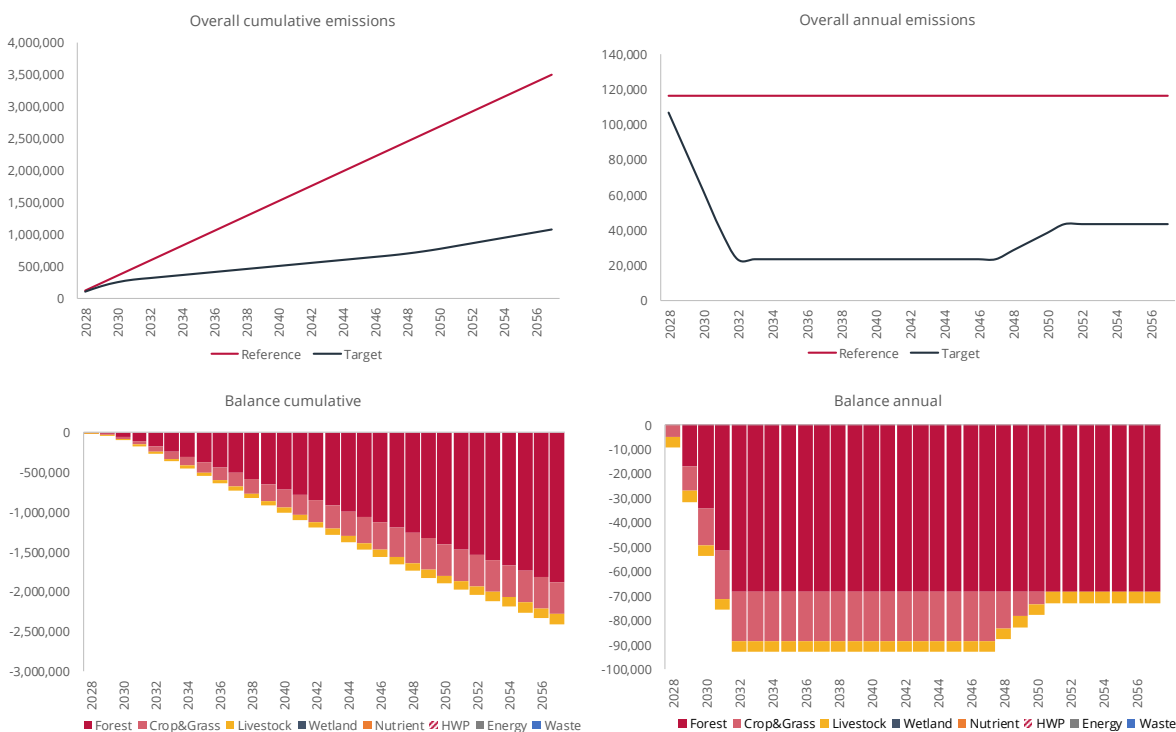
The effect of improved feed management under grazing conditions on enteric CH₄ emissions varies according to the specific practice considered. At a general scale, improved feed balancing has been associated with reductions in enteric methane emissions ranging from 13% to 15% (Garg et al., 2013; doi: [10.1016/j.anifeedsci.2012.11](https://doi.org/10.1016/j.anifeedsci.2012.11)). For grazing animals specifically, evidence suggests that the magnitude of mitigation depends on the characteristics of the forage and management system. For example, the inclusion of tannin-rich forages has been associated with reductions in daily enteric methane production of approximately 12%. Other practices, such as improving forage quality by reducing grass maturity at grazing, may primarily reduce methane emission intensity (kg CH₄ per unit of product) through enhanced animal productivity rather than substantially lowering absolute methane emissions (Arndt et al., 2022; doi: <https://doi.org/10.1073/pnas.2111294119>). Given the diversity of potential feed improvement practices and the limited information currently available on the specific measures to be implemented under the project, a conservative reduction factor of 10% was adopted.

Results of the analysis

The overall mitigation potential of the project is estimated at **94 472 tCO₂-eq** by mid-project implementation (end of 2030), **262 801 tCO₂-eq** by the end of the implementation period (end of 2032), and **2 047 070 tCO₂-eq** by 20 years after project completion (end of 2052), Figure 2.

Figure 2: Screenshot of the NEXT Dashboard

NEXT indicators*						
* Indicators from the strategies implemented in the present analysis						
Cumulative emissions - Emissions expected by:		2030		2032		2052
Reference scenario:		349,534	tCO ₂ -eq	582,557	tCO ₂ -eq	2,912,784
Target scenario:		255,062	tCO ₂ -eq	319,756	tCO ₂ -eq	865,714
Mitigation potential:		-94,472 ▼	tCO ₂ -eq	-262,801 ▼	tCO ₂ -eq	-2,047,070 ▼
Carbon stock changes (balance):						
		-81,160 ▼	tCO ₂	-240,613 ▼	tCO ₂	-1,936,133 ▼
Total emissions changes, excluded carbon stock (balance):		-13,313 ▼	tCO ₂ -eq	-22,188 ▼	tCO ₂ -eq	-110,938 ▼
Annual emissions - Emissions expected by:		2030		2032		2052
Reference scenario:		116,511	tCO ₂ -eq	116,511	tCO ₂ -eq	116,511
Target scenario:		62,954	tCO ₂ -eq	23,807	tCO ₂ -eq	43,754
Mitigation potential:		-53,557 ▼	tCO ₂ -eq	-92,704 ▼	tCO ₂ -eq	-72,757 ▼
Forest cover (balance, cumulative area):						
		451	ha	1,502	ha	13,519



The overall mitigation estimate is based on **Activity 2B**, which uses Tier 2 carbon stock values derived from Mexico's Forest Reference Emission Level (FREL).

The mitigation potential of each project activity is presented in Table 8.

Table 8: Mitigation potential by activity and time horizon (tCO₂-eq)

Activity	Cumulative mitigation potential (tCO₂-eq)		
	Mid-project implementation, end of 2030	End of the implementation, end of 2032	20 years after the end of the implementation, end of 2052
Activity 1 - Regenerative grazing practices on 16 000 ha of grassland	29 920	69 813	398 933
Activity 2 - Protection of 205 000 ha of forests 2B - Tier 2 values	51 240	170 800	1 537 199
Activity 3 – Reduction of enteric fermentation through better feed practices	13 313	22 188	110 938
Total (Activity 1, Activity 2B and Activity 3)	94 472	262 801	2 047 070

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