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Report No: PAD3768

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF US\$13,761,468

TO THE

MEXICAN FUND FOR THE CONSERVATION OF NATURE

FOR A

CONNECTING WATERSHED HEALTH WITH SUSTAINABLE LIVESTOCK AND  
AGROFORESTRY PRODUCTION PROJECT

June 17, 2021

Environment, Natural Resources & The Blue Economy Global Practice  
Latin America And Caribbean Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective May 25, 2021)

Currency Unit = Mexican pesos (MXN)

MXN 19.87 = US\$1

US\$0.05 = MXN 1

## FISCAL YEAR

January 1 - December 31

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## ABBREVIATIONS AND ACRONYMS

AFD	French Development Agency
AGRICULTURA	Secretariat of Agriculture and Rural Development ( <i>Secretaría de Agricultura y Desarrollo Rural</i> )
AMEBIN	Mexican Alliance of Biodiversity and Business ( <i>Alianza Mexicana de Biodiversidad y Negocios</i> )
BAU	Business As Usual
BIENESTAR	Secretariat of Welfare ( <i>Secretaría de Bienestar</i> )
B-INTACT	Biodiversity Integrated Assessment and Computation Tool
BIOCOMUNI	Community Biological Monitoring ( <i>Monitoreo Comunitario de la Biodiversidad</i> )
BR	Biosphere Reserve
BSSP	Business Strategy for Sustainable Production
CAF	Development Bank of Latin America ( <i>Corporación Andina de Fomento</i> )
CC	Coordinating Committee
CONABIO	National Commission for the Knowledge and Use of Biodiversity ( <i>Comisión Nacional para el Conocimiento y Uso de la Biodiversidad</i> )
CONAFOR	National Forestry Commission ( <i>Comisión Nacional Forestal</i> )
CONAGUA	National Water Commission ( <i>Comisión Nacional del Agua</i> )
CONANP	National Commission for Protected Areas ( <i>Comisión Nacional de Áreas Naturales Protegidas</i> )
COPs	Communities of Practice
COVID-19	Coronavirus Disease of 2019
CPF	Country Partnership Framework
CP	Country Project
CSO	Civil Society Organization
C6	Coastal Watersheds Conservation in the Context of Climate Change Project
DA	Designated Account
ER	Ecological Reserve
EFA	Economic and Financial Analysis
E&S	Environmental and Social
ERP	Enterprise Resource Planning
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standard
EX-ACT	Ex-Ante Carbon-Balance Tool
FAO	Food and Agriculture Organization of the United Nations
FFPA	Flora and Fauna Protected Area
FGM	Gulf of Mexico Fund ( <i>Fondo Golfo de México, A.C.</i> )
FIRA	Trust Funds for Rural Development ( <i>Fideicomisos Instituidos en Relación con la Agricultura</i> )
FM	Financial Management
FMCN	Mexican Fund for the Conservation of Nature ( <i>Fondo Mexicano para la Conservación de la Naturaleza, A.C.</i> )
FOLUR	Food Systems, Land Use and Restoration
FONCET	El Triunfo Conservation Fund ( <i>Fondo de Conservación El Triunfo, A.C.</i> )
FONNOR	Northwest Fund ( <i>FONNOR, A.C.</i> )
FY	Fiscal Year
GAP	Gender Action Plan

GBV	Gender-Based Violence
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGP	Good Growth Partnership
GHG	Greenhouse Gas
GII	Gender Inequality Index
GLF	Global Landscape Forum
GoM	Government of Mexico
GP	Global Knowledge to Action Platform Project (the Global Platform)
GPS	Global Program on Sustainability
GRM	Grievance Redress Mechanism
IA	Implementing Agency (of GEF or FOLUR)
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IFR	Interim Financial Report
ILM	Integrated Landscape Management
IMF	International Monetary Fund
IMTA	Mexican Institute of Water Technology ( <i>Instituto Mexicano de Tecnología del Agua</i> )
INECC	National Institute of Ecology and Climate Change ( <i>Instituto Nacional de Ecología y Cambio Climático</i> )
INEGI	National Institute of Statistics and Geography ( <i>Instituto Nacional de Estadística y Geografía</i> )
IP	Impact Program (of FOLUR)
IPs	Indigenous Peoples
IPF	Investment Project Financing
IPPF	Indigenous Peoples' Planning Framework
IRR	Internal Rate of Return
IUCN	International Union for Conservation of Nature
IWAP	Integrated Watershed Action Plan ( <i>Plan de Acción para el Manejo Integral de Cuencas</i> )
KM	Knowledge Management
LCLO	Legally Constituted Local Organization
LPU	Livestock Production Unit
M&E	Monitoring and Evaluation
MFD	Maximizing Finance for Development
MRSL	Mexican Roundtable for Sustainable Livestock ( <i>Mesa Redonda de Ganadería Sustentable de México</i> )
MSME	Micro, Small and Medium Enterprises
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contribution
NDP	National Development Plan ( <i>Plan Nacional de Desarrollo</i> )
NGO	Nongovernmental Organization
NLC	National Learning Community
NP	National Park
NPV	Net Present Value
NWFP	Non-Wood Forest Product
OCU	Operational Coordinating Unit (at FMCN)

OM	Operational Manual
PLAT	Local Provider of Technical Assistance ( <i>Proveedores Locales de Asistencia Técnica</i> )
PAD	Project Appraisal Document
PDO	Project Development Objective
PES	Payments for Ecosystem Services
PF	Process Framework
PG	Producer Group
PPP	Purchasing Power Parity
PPSD	Project Procurement Strategy for Development
PSES	Private Sector Engagement Strategy
RF	Results Framework
SCC	Social Cost of Carbon
SCD	Systematic Country Diagnostic
SEMARNAT	Secretariat of Environment and Natural Resources ( <i>Secretaría de Medio Ambiente y Recursos Naturales</i> )
SEP	Stakeholder Engagement Plan
SFP	Secretariat of Public Administration ( <i>Secretaría de la Función Pública</i> )
SHCP	Secretariat of Finance and Public Credit ( <i>Secretaría de Hacienda y Crédito Público</i> )
SISEP	Information System for Project Follow-up ( <i>Sistema de Información y Seguimiento de Proyectos</i> )
SME	Small and Medium Enterprises
SMP	Sustainable Management Practices
SNMB	National System for Monitoring Biodiversity ( <i>Sistema Nacional de Monitoreo de la Biodiversidad</i> )
SOE	Statement of Expenditures
SPS	Silvopastoral Systems
SRVZ	Scenic and Recreational Value Zone
TA	Technical Assistance
TEEB MX	The Economics of Ecosystems and Biodiversity for Agriculture and Food programme (TEEBAgriFood) Mexico
TC	Technical Committee
TCU	Technical Coordinating Unit (at INECC)
ToR	Terms of Reference
TPS	Sustainable Productive Landscapes Project ( <i>Proyecto Territorios Productivos Sostenibles</i> )
UN	United Nations
UNCBD	UN Convention on Biological Diversity
UNCCD	UN Convention to Combat Desertification
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USFS	United States Forest Service
VCA	Voluntary Conservation Area
WRI	World Resources Institute

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## DATASHEET

BASIC INFORMATION				
Country(ies)	Project Name			
Mexico	Connecting Watershed Health with Sustainable Livestock and Agroforestry Production Project			
Project ID	Financing Instrument	Environmental and Social Risk Classification		
P172079	Investment Project Financing	Moderate		
GEF Focal Area				
Multi-focal area				
Financing & Implementation Modalities				
<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)			
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)			
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)			
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country			
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict			
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster			
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)			
Expected Approval Date	Expected Closing Date			
08-Jul-2021	31-Jul-2026			
Bank/IFC Collaboration	Joint Level			
Yes	Complementary or Interdependent project requiring active coordination			
Proposed Development Objective(s)				
Improve integrated landscape management and promote climate-smart productive practices in selected watersheds				



## Components

Component Name	Cost (US\$, millions)
Development and Promotion of Integrated Landscape Management	1,630,652.00
Strengthening of Business Skills for Sustainable Livestock and Agroforestry	2,304,467.00
Conservation, Restoration and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes	7,649,917.00
Project Coordination, Collaboration and Knowledge Management	2,176,432.00

## Organizations

Borrower:	The Mexican Fund for the Conservation of Nature (FMCN)
Implementing Agency:	The National Institute of Ecology and Climate Change (INECC) The Mexican Fund for the Conservation of Nature (FMCN)

## PROJECT FINANCING DATA (US\$, Millions)

### SUMMARY

Total Project Cost	13.76
Total Financing	13.76
of which IBRD/IDA	0.00
Financing Gap	0.00

### DETAILS

#### Non-World Bank Group Financing

Trust Funds	13.76
Global Environment Facility (GEF)	13.76

#### Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2022	2023	2024	2025	2026
Annual	1.37	2.95	3.21	3.00	3.23



Cumulative	1.37	4.33	7.53	10.53	13.76
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## INSTITUTIONAL DATA

### Practice Area (Lead)

Environment, Natural Resources & the Blue Economy

### Contributing Practice Areas

Agriculture and Food, Climate Change

## SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Low
6. Fiduciary	● Moderate
7. Environment and Social	● Moderate
8. Stakeholders	● Moderate
9. Other	● Substantial
10. Overall	● Moderate

## COMPLIANCE

### Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

**Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

**NOTE:** For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

**Legal Covenants**

## Sections and Description

## Institutional Arrangements:

- No later than three months after the Effectiveness of the Project, INECC shall establish and maintain throughout Project implementation the Technical Coordinating Unit ("TCU") with staffing and functions set forth in the Operational Manual;
- No later than three months after the Effectiveness of the Project the Recipient shall establish and maintain throughout Project implementation the Operational Coordinating Unit ("OCU") with staffing and functions set forth in the Operational Manual;
- INECC shall maintain throughout Project implementation the Coordinating Committee ("CC") with composition and functions set forth in the Operational Manual; and
- The Recipient shall maintain throughout Project implementation the Technical Committee ("TC") with composition and functions set forth in the Operational Manual.



#### Sections and Description

##### Operational Manual:

The Recipient, shall carry out the Project and/or cause the Project to be carried out, in accordance with the provisions of a manual (the Operational Manual) satisfactory to the Bank, containing, inter-alia: (a) the activities and timetable of actions to be implemented under the Project; (b) the respective roles and responsibilities of the Recipient, the INECC, and otheragencies involved in the implementation of the Project; (c) the detailed description of the institutional arrangements, bodies and rules and procedures to govern the Project, including the composition and responsibilities of the TCU, OCU, CC and TC; (d) the fiduciary, technical and operational aspects and procedures for implementation of the Project, including the financial management procedures (budgeting, accounting and internal control, disbursement and flow of funds, financial reporting, annual reports, internal and external audit arrangements procedures); (e) the application, criteria, and process for the selection of Eligible Beneficiaries and Local Providers of Technical Assistance (PLATs) under Part 2 of the Project; (f) application, criteria, and process for the selection of Eligible Beneficiaries, LCLOs, and Subprojects under Part 3 of the Project; (f) the Project's environmental and social requirements; (g) the performance indicators for the Project; and (h) the application of the Anti-Corruption Guidelines.

#### Sections and Description

##### Agreements:

- Prior to carrying out any activities in the geographic area, if assigned to a Regional Fund, the Recipient shall enter into an agreement (the "Regional Agreement") with said Regional Fund under terms and conditions acceptable to the Bank, set forth in the Operational Manual and including, inter-alia: (a) the Recipient's obligation to transfer part of the proceeds of the GEF Grant to the Regional Fund; and (b) the Regional Fund's obligation to carry out its respective Project activities in accordance with the relevant provisions of this Agreement, including the Anti-Corruption Guidelines, the Procurement Regulations, and the Project's environmental and social requirements.
- To facilitate the carrying out of Part 3 of the Project, and prior to the carrying out of each Subproject, the Recipient shall, or shall cause the relevant Regional Fund, as the case may be, to enter into an agreement ("Subproject Agreement") with the relevant Eligible Beneficiaries through the LCLO, under terms and conditions acceptable to the Bank, as set forth in the Operational Manual; including, inter-alia: (a) the Recipient's or the Regional Funds' obligation to provide the Grant to the LCLO in support of the relevant Eligible Beneficiaries; and (b) the LCLO and Eligible Beneficiaries' obligation to carry out the relevant Subproject in accordance with the relevant provisions of the Subproject Agreement, which shall include the provisions set forth in this Agreement, the Anti-Corruption Guidelines, the Procurement Regulations, and the Project's environmental and social requirements.

#### Sections and Description

##### Environmental and Social:

The Recipient shall and shall cause the Regional Funds and the Eligible Beneficiaries to ensure that the Project is carried out in accordance with the Environmental and Social Standards and the ESCP, in a manner acceptable to the Bank.

**Conditions**

Type Disbursement	Financing source	Description
	Trust Funds	No withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed US\$2,752,294 (two million seven hundred fifty two thousand and two hundred and ninety four United States dollars) may be made for payments made prior to this date but on or after January 1, 2021, for Eligible Expenditures.



## I. STRATEGIC CONTEXT

### A. Country Context

1. **The COVID-19 pandemic has had significant health, poverty, economic and employment costs.** The Government of Mexico's official statistics as of early June 2021 show that more than 2.4 million people contracted the virus and over 200,000 died. The Mexican economy contracted significantly in 2020. The overall impact of the crisis has been significant on jobs as well. Total employment fell drastically in the early months of the pandemic. Since then, it recovered gradually, but with more than 3.2 million fewer jobs by December 2020 compared to the previous year, with 1.3 million of them lost in the formal sector. Poverty reduction was already limited for decades before the crisis compared to peer countries, as growth rates were insufficient to support significant progress.<sup>1</sup> Similarly the annualized growth rate of the median per capita income was low.<sup>2</sup> The contraction in economic activity lead to a large impact in monetary poverty, increasing the (US\$5.5 line) poverty rate from 21 percent in 2019 to at least 24.8 percent in 2020 (or close to 5.6 million of new poor by this measure), with a gradual reduction expected in 2021-2.
2. **The authorities have implemented measures to face the crisis and strengthen the recovery.** Aside from the health response, the authorities launched a set of monetary, financial, fiscal, economic, and social measures to mitigate the impact of the crisis. On the monetary-financial side, currency swap lines, liquidity facilities, a regulatory forbearance, and other important measures were adopted. The fiscal response was more limited. The authorities' expressed rationale is that they are trying to strike a balance between short-term larger fiscal imbalances and a sustainable fiscal framework over the medium term, considering that risks remain high and fiscal space for further action may be needed in the months ahead. The support applied was targeted to help vulnerable households, workers, and micro, small and medium enterprises (MSMEs). Moreover, selected reforms to support the recovery period have been established. They include policies to reduce the regulatory costs for MSMEs and foster working capital for this critical segment of the private sector. They also included medium term reforms to ensure the sustainability of the pension system as well as several measures to support Mexico's climate change commitments.
3. **The recovery period ahead presents an opportunity to foster policies conducive to growth, inclusion, and sustainability.** The Mexico Systematic Country Diagnostic (SCD) from 2019 explained the low growth and limited poverty reduction experienced over the last decades and pointed to the key challenges ahead. One of them is the country's high vulnerability to climate change and environmental degradation, particularly as regards to forests, water, agriculture, air quality, and natural disasters. Disadvantaged groups suffer disproportionately from the adverse consequences of climate change and environmental degradation, since they are more exposed and thus more susceptible to climate-induced damage. Moreover, their ability to cope and recover is significantly lower.<sup>3</sup> This is particularly the case of the states in the south of the country. In this context, productive activities that generate income and at the same time enable resource sustainability are critical to meet Mexico's sustainability challenges.

### B. Sectoral and Institutional Context

4. **Mexico is a megadiverse<sup>4</sup>, climate-vulnerable country with important natural capital, including biological diversity**

<sup>1</sup> The official poverty rate fell from 46.1 to 41.9 percent of the population between 2010-18. Monetary poverty amounted to 23 percent in 2018 using the upper middle-income poverty line (US\$5.5 a day, 2011 purchasing power parity, PPPs).

<sup>2</sup> Mexico's median per capita income in 2018 was US\$3,295 (in 2011 PPP terms), equivalent to US\$1,990 in nominal US dollars.

<sup>3</sup> Islam & Wikle, 2017, page 6.

<sup>4</sup> Megadiversity means exhibiting great biodiversity. A megadiverse country refers to the 17 nations identified by Conservation International in 1998 as harboring the majority of Earth's species and, among other criteria, at least 5,000 species of endemic plants.



**that provides substantial opportunities for socioeconomic development.** Mexico has over 88 million hectares of forests, covering almost 45 percent of its territory. Forests are important for supporting climate change mitigation, adaptation, and biodiversity conservation efforts. The country is home to around 10 percent of all known species<sup>5</sup>, a significant share of them in forest ecosystems, hence the strategic importance of their conservation and sustainable management. In 2015, forest production represented 0.6 percent of the gross domestic product (GDP). 12 million Mexicans depend from forests for their livelihood, and 5 million indigenous people inhabit forested areas, while 40.5 percent of the forest lands are in municipalities with high or very high marginalization. Mexico has one of the largest areas of community-managed forest land in the world, and sustainable forestry has potential to create jobs for forest dwellers. 61 percent of the forests are under a collective land tenure system owned by *comunidades* and *ejidos*<sup>6</sup>.<sup>7</sup>

5. **Agriculture and food systems are important in the rural economy and for poverty reduction.** Agriculture and related processing sectors account for around 8 percent of Mexico's GDP when forward and backward linkages created through primary production, agri-food processing, and food services are taken into account using detailed input-output matrix estimation.<sup>8</sup> Mexico occupies the 11<sup>th</sup> place in global cattle production, the 8<sup>th</sup> position in milk production, and is among the 10 top exporters of coffee and one of the world's largest exporters of organic-certified coffee. The agriculture sector is of pivotal socioeconomic importance considering that more than 24 million people live in rural areas and 45 percent of the rural labor force is employed in the primary sector. The livestock sector alone employs 938,000 people directly.<sup>9</sup> Meat and milk production for domestic and coffee for international markets are key economic activities in the project states Chiapas, Chihuahua, Jalisco, and Veracruz (see Annex 9 on the project map), and have potential for more and better growth. Annex 2 presents further the project-targeted meat, milk, and coffee value chains to improve sustainable agricultural productivity and increase competitiveness.
6. **Mexico's increasing commitment to conserve its natural capital is evidenced by a broad set of initiatives put in place since the early 1990s.** To date, 11 percent of the terrestrial surface and 22 percent of the marine territory count with federal protection status, comprising 182 protected areas managed by the National Commission for Protected Areas (CONANP).<sup>10</sup> 13 percent of the Mexican forests were protected in 2016.<sup>11</sup> There is also a strong movement by the environment sector and concerned producers towards promoting integrated and sustainable management of biodiversity and natural resources outside the protected areas. Several monitoring initiatives are in place, including the (i) National Forest and Soil Inventory (INFyS) by the National Forestry Commission (CONAFOR); (ii) National System for Monitoring Biodiversity (SNMB); and (iii) National System of Information on Biodiversity (SNIB) coordinated by the National Commission for the Knowledge and Use of Biodiversity (CONABIO) with more than 13 million registries of biodiversity, accessible through the EncicloVida platform. Since 2003, the Mexican Forest Fund and its Biodiversity Endowment Fund, managed by CONAFOR, the largest fund for payments for ecosystem services (PES) in Latin America, is financing PES across Mexico with multi-annual agreements. In November 2019, CONAFOR reported 2.3 million hectares of forest, where more than 3,000 PES-supported people from *comunidades*

<sup>5</sup> CONABIO. 2008. *Capital natural de México, vol. I: Conocimiento actual de la biodiversidad*. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, México.

<sup>6</sup> A *comunidad* is a group of people with legal personality, holder of recognized agrarian rights over forest lands. An *ejido* is an association of peasant farmers usually assigned to small parcels of land to be farmed under a federally supported system of communal land tenure.

<sup>7</sup> Mexico Programmatic Forest Note, World Bank 2018.

<sup>8</sup> Morris, Michael; Sebastian, Ashwini Rekha; Perego, Viviana Maria Eugenia. 2020. Future Foodscapes: Re-imagining Agriculture in Latin America and the Caribbean, page 7. World Bank, Washington, DC. © World Bank <https://openknowledge.worldbank.org/handle/10986/34812> License: CC BY 3.0 IGO. Due to prevailing data gaps, this number represents a significant under-accounting given the high share of informality in the Mexican food system.

<sup>9</sup> [https://nube.siap.gob.mx/gobmx\\_publicaciones\\_siap/pag/2019/Agricultural-Atlas-2019](https://nube.siap.gob.mx/gobmx_publicaciones_siap/pag/2019/Agricultural-Atlas-2019)

<sup>10</sup> [http://sig.conanp.gob.mx/website/pagsig/datos\\_anp.htm](http://sig.conanp.gob.mx/website/pagsig/datos_anp.htm)

<sup>11</sup> <https://www.gob.mx/conanp/prensa/las-areas-naturales-protegidas-de-mexico-resguardan-13-por-ciento-de-bosques-del-pais-24265>



and *ejidos* conserve ecosystems they inhabit.<sup>12</sup> The Government of Mexico (GoM) has committed to (i) reduce unconditionally 22 percent of its greenhouse gas (GHG) emissions and 51 percent of black carbon below the business-as-usual (BAU) scenario by 2030; and (ii) reach a zero-net deforestation rate by 2030 in its Nationally Determined Contribution (NDC) updated in 2020.<sup>13, 14</sup>

7. **Despite conservation achievements, Mexico's ecosystems and biodiversity face significant pressures from agriculture and land use change, and land degradation is among the most critical environmental hazards.** Agricultural expansion, extensive cattle ranching, continued reduction of vegetation in pastures, and commodity-driven deforestation are key factors contributing to deforestation and forest degradation. Overexploitation due to agricultural activities and overgrazing by livestock combined with lack of valorization of natural resources, increasing competition for water resources in agriculture, and limited access to technical knowledge and capacity building are among the key driving factors of degradation. In the project states – Chiapas, Chihuahua, Jalisco and Veracruz – national data indicates that between 36 to 54 percent of the territory in Chihuahua is overgrazed, in Jalisco and Veracruz this number is around 25 percent and in Chiapas it ranges between 10 to 14 percent. In 2018, the economic cost of environmental degradation and natural resource depletion amounted to 4.3 percent of the national GDP.<sup>15</sup> Although the national aggregated deforestation level has decreased to an average of 0.2 percent over the past years, localized impacts from land use pressures persist.<sup>16</sup> The annual deforestation rates in the project states are estimated at 0.55 percent in Jalisco, 0.71 percent in Chiapas, 1.70 percent in Veracruz and 6.25 percent in Chihuahua.<sup>17</sup> Agricultural production has a key role in the climate change agenda. While it is among the major sources of GHG emissions, together with forestry it is the only economic sector capable of reversing or mitigating climate change due to its ability to sequester and store carbon in soils and plant tissues. Agriculture and cattle production are also the economic activities most vulnerable to climate change with direct effects on food security and livelihoods of both rural and urban populations<sup>18</sup>. Restoring ecosystem services in vast cattle production landscapes in Mexico is also critical for preservation of biodiversity, regulation of water retention and runoff, crop pollination, soil retention and fertility. Lastly, the link between deforestation and spread of deadly zoonotic diseases<sup>19</sup> to humans presents hotspots for disease emergence in Mexico.<sup>20</sup> The risks are due to increasing animal-human contact, spillover rate, toxin exposure and threats to health-benefiting ecosystem services, prompted principally by changes in land use, agricultural industry and international travel and commerce. Efforts to reduce deforestation and habitat degradation and fragmentation go hand in hand with improving public health outcomes by limiting related transmission pathways.

#### C. Relevance to Higher Level Objectives

8. **The project is consistent with the World Bank Group's Mexico Country Partnership Framework (CPF) 2020–2025** (Report No. 137429-MX), discussed by the Executive Directors on February 27, 2020. The proposed Connecting Watershed Health with Sustainable Livestock and Agroforestry Production (CONECTA) project is aligned with Objective 7 to support the GoM in reaching its climate change goals. CONECTA will also contribute to Objective 2 in

<sup>12</sup> See <https://www.gob.mx/conafor/prensa/celebra-la-conafor-16-anos-de-la-creacion-del-programa-pago-por-servicios-ambientales>

<sup>13</sup> <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mexico%20First/MEXICO%20INDC%2003.30.2015.pdf>

<sup>14</sup> <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mexico%20First/NDC-Eng-Dec30.pdf>

<sup>15</sup> <https://seea.un.org/news/inegi-releases-seea-accounts-2018>

<sup>16</sup> <http://www.enaredd.gob.mx/wp-content/uploads/2017/09/Estrategia-Nacional-REDD+-2017-2030.pdf>

<sup>17</sup> Chiapas, Jalisco and Veracruz based on July 2016 data from series II and V of the National Institute of Statistics and Geography (INEGI) and Chihuahua from de Pool et. al 2014.

<sup>18</sup> <https://www.agricultura.gob.mx/sites/default/files/sagarpa/document/2019/01/28/1608/01022019-cambio-climatico.pdf>

<sup>19</sup> Zoonotic diseases are infectious diseases caused by bacteria, viruses and parasites that can be transmitted from animals and humans.

<sup>20</sup> Allen & al. (2017). Global hotspots & correlates of emerging zoonotic diseases: <https://www.nature.com/articles/s41467-017-00923-8>.



terms of reduction of competition barriers to economic growth, as it contributes to building capacity of small and medium producers to access credit among beneficiaries in the beef, milk and agroforestry related value chains such as coffee to improve sustainable agricultural productivity and increase competitiveness. Lastly, CONECTA contributes to Objective 3 on enhancing the management of public resources. Further, CONECTA is central to the GoM efforts to link growth with environmental objectives as per the National Development Plan (NDP) 2019-2024.

9. **CONECTA reflects the Global Environment Facility (GEF)-7<sup>21</sup> strategy and the Food Systems, Land Use and Restoration (FOLUR) Impact Program (IP), which seeks to promote sustainable integrated landscapes and efficient food value chains at scale.** The FOLUR IP is based on the growing recognition that food production systems and land use need to improve for the health of the planet. It seeks transformation to more environmentally sustainable production practices and resilient landscapes. The FOLUR IP is designed to respond to global food systems challenges and opportunities through two main elements: (i) a Global Knowledge to Action Platform Project (the Global Platform, GP) and (ii) currently 27 Country Projects (CPs)<sup>22</sup> designed to tackle challenges of achieving a global food system built on sustainable practices and productive, resilient landscapes using top-down and bottom up strategies simultaneously. This objective and design respond to the related needs discussed above in Mexico. The GP works with the CPs to offer capacity building, technical assistance (TA), policy engagement, resource mobilization, and knowledge exchange to bring about concerted collective action, and coordinated, integrated interventions; scaled up investment with a faster pace and greater impact; policy harmonization and subsidy repurposing, financial innovation and leverage; and communication and outreach to existing and new stakeholders. The FOLUR IP Core Partners<sup>23</sup> and Implementing Agencies (IA) will maintain a dialogue on opportunities to provide training, guidance, knowledge products and convening in response to CP demand and act at global and regional levels, bringing parties together, nurturing partnerships, analyzing issues and developing evidence for improved practices, presenting replicable and scalable successes, contributing to financial and policy innovation, and leveraging resources to help the FOLUR CPs achieve more than they could do alone. See details on FOLUR GP-CONECTA linkages in Annex 6.
10. **CONECTA contributes to Mexico's ambition to promote sustainable use of natural resources, green economic activities and "build back better" as a medium-term response to COVID-19** (see Annex 8). The World Bank's Agriculture and Food Global Practice is supporting the Secretariat of Agriculture and Rural Development (AGRICULTURA) to respond to COVID-19 through advisory services and analytics focused on priority programs in agriculture. It will provide important insights on development of the milk value chain in the South-Southeast region, specifically Veracruz, Tabasco, and Chiapas, which can be harnessed by CONECTA during implementation. CONECTA aligns with the World Bank Group's Maximizing Finance for Development (MFD) approach that helps countries leverage development resources by drawing on private financing and sustainable private sector solutions to provide value for money and meet the highest environmental, social, and fiscal responsibility standards while reserving scarce public financing for those areas where private sector engagement is not optimal or available. Thus, CONECTA collaborates with the International Finance Corporation (IFC), the private sector agency of the World Bank Group, that finances private sector projects and offers financial services to private companies. Further, the FOLUR IP and CONECTA have several important features to contribute to economic recovery and job creation as investment at the landscape level will retain and create jobs and increase resilience of rural communities, buffering the pressures of

<sup>21</sup> The GEF's seventh (GEF-7) replenishment period covers operations from July 1, 2018 to June 30, 2022.

<sup>22</sup> In Brazil, Burundi, China, Cote d'Ivoire, Ethiopia, Ghana, Guatemala, Guinea, India, Indonesia, Kazakhstan, Kenya, Liberia, Madagascar, Malaysia, Mexico, Nicaragua, Nigeria, Papua New Guinea, Paraguay, Peru, Tanzania, Thailand, Uganda, Ukraine, Uzbekistan, and Vietnam.

<sup>23</sup> The FOLUR IP Core Partners include the IFC, FAO, the Good Growth Partnership (GGP) of the United Nations Development Programme (UNDP), the Food and Land Use Coalition (FOLU) co-led by the World Resources Institute (WRI) and the GLF. They will expand the impact of country efforts by building on in-country activities and scaling-up at regional and global levels, focusing on capacity strengthening, policy and value chain engagement as well as strategic KM and communications.



reverse migration from cities. The emphasis on food safety and sourcing can create new opportunities for innovation and improvement along the value chains of key agricultural commodities. The project will assume the pandemic as an opportunity to emphasize how its activities support longer-term resilience for future pandemics and contribute to "green recovery" through more healthy and resilient landscapes, incorporating a wide definition of the One Health concept<sup>24</sup> that will be disseminated and addressed as part of the CONECTA environmental and social (E&S) risk management.

11. **CONECTA activities will create synergies between the objectives of the principal United Nations' (UN) Environmental Conventions.** The objectives of the UN Convention on Biological Diversity (UNCBD), UN Framework Convention on Climate Change (UNFCCC) and UN Convention to Combat Desertification (UNCCD) all converge in a landscape approach embedded in implementation of land use tools such as Integrated Watershed Action Plans (IWAPs). CONECTA activities will contribute to the achievement of the National Biodiversity Strategy and Action Plan under the UNCBD<sup>25</sup> and National Action Program under the UNCCD<sup>26</sup>. CONECTA also aligns with the objectives of the UN decade on Ecosystem Restoration and the Global Landscape Forum (GLF) promoting restoration of degraded ecosystems to fight the climate crisis and enhance food security, water supply and biodiversity.

## II. PROJECT DESCRIPTION

### A. Project Development Objective

#### Project Development Objective (PDO) Statement

Improve integrated landscape management and promote climate-smart productive practices in selected watersheds.

#### PDO Level Indicators

- a) Area of landscape under improved climate-smart practices (Hectare, Ha)
- b) Farmers adopting improved agricultural technology (Number), WB Corporate Results Indicator
- c) Share of producer groups (PGs)<sup>27</sup> implementing climate-smart practices that increase productivity by at least 10% (Percentage)

### B. Project Components

12. **CONECTA consists of four components aligned with the FOLUR IP:** 1) Development and Promotion of Integrated

<sup>24</sup> A collaborative approach for strengthening systems to prevent, prepare, detect, respond to, and recover from primarily infectious diseases and related issues such as antimicrobial resistance (AMR) that threatens human, animal, and environmental health collectively, using tools such as surveillance and reporting with an endpoint of improving global health security and achieving gains in development. While using infectious disease/AMR as a starting point, the World Bank Operational Framework for Strengthening Human, Animal, and Environmental Public Health Systems at their Interface (2018) recognizes the definition and approach to be expandable e.g. for water and soil pollution with animal and environment connections.

<sup>25</sup> <https://www.cbd.int/doc/posters/nbsap/post-mexico-02-en.pdf>

<sup>26</sup> <https://www.gob.mx/cms/uploads/attachment/file/31167/pnacdd.pdf>

<sup>27</sup> Producer groups (PGs) mean for purposes of the project, a group of producers, family businesses and/or enterprises from *comunidades*, *ejidos* or local groups; whether formally established or not, dedicated to livestock and/or agroforestry along all the stages of the targeted value chains, and willing to adopt and/or improve the application of climate-smart technologies.



Landscape Management; 2) Strengthening of Business Skills for Sustainable Livestock and Agroforestry; 3) Conservation, Restoration, and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes; and 4) Project Coordination, Collaboration and Knowledge Management. The project components are aligned with the following GEF-7 Focal Area objectives, intended for the achievement through the FOLUR IP: (i) Biodiversity: manage biodiversity in production landscapes; harnessing biodiversity for sustainable agriculture; secure high conservation value forest areas in production landscapes; (ii) Climate Change: land-based and value chain GHG mitigation; and iii) Land Degradation: restoration of degraded production landscapes.

13. **CONECTA as a FOLUR CP follows the FOLUR theory of change.** The GEF and partner organizations have identified various food systems and particularly eight commodities that include beef, palm oil, soy, coffee and cocoa as a necessary focus of interventions due to the magnitude and significance of their impact resulting from the location and rate of expansion of the areas dedicated to their production. Growing demand for agriculture products, particularly beef and milk, is impacting natural ecosystems in Mexico, like in many other countries. Extensive cattle ranching is the principal activity linked to environmental and forest degradation and deforestation in the targeted project areas. CONECTA will reduce said degradation and deforestation (i) as regenerative and sustainable livestock practices change the expansive nature of cattle ranching, and (ii) through promoting sustainable and cost-efficient practices to be implemented by PGs along all the stages of the targeted value chains. CONECTA will also help to align public and private funding to accelerate production of sustainable beef, milk, dairy and agroforestry products along the principles of deforestation-free value chains in selected watersheds under a high commodity-driven deforestation pressure. CONECTA will deliver economic and job opportunities for local populations in alignment with social, environmental and health benefits. Promotion of intersectoral and public-private collaboration to link public expenditures and value chain performance to land management practices and better environmental outcomes will deliver positive impacts e.g. on soil carbon sequestration and productivity. CONECTA will support landscape restoration and connectivity contributing to mitigation of GHG emissions, increased resilience of production practices, and improved livelihoods and conservation of biodiversity along key value chains (see Annex 2 and 5).
14. **CONECTA is a demonstrative project based on participatory integrated landscape management (ILM)<sup>28</sup> and targets 15 watersheds across different ecoregions and agroecosystems to showcase and disseminate recommended good practices and create enabling environment for replication and scale-up.** The eligible watersheds are in the states of Chiapas, Chihuahua, Jalisco, and Veracruz. Some of them may not result subject to interventions under Components 1-3, given the demand-based nature of the project design and a need to allocate limited project funding strategically across the watersheds and ecoregions to secure achievement of at least demonstrative impact at a landscape level. CONECTA is designed to protect and restore watershed health and sustainability of ecosystem services while improving productive economic activities as cattle ranching and farming based on silvopastoral, agropastoral, and agroforestry systems, applying a regenerative approach. CONECTA is complemented by a Bank-executed trust fund linked to this project from the Global Program on Sustainability (GPS)<sup>29</sup>; the World Bank's umbrella program on

<sup>28</sup> There are many definitions of ILM. The project uses the definition adopted e.g. for a World Bank study "Integrated Landscape Management in Drylands in Africa" (2016), based on the definition presented by the Landscapes for People, Food and Nature Initiative, a collaborative partnership of leading environmental and agricultural Nongovernmental Organizations (NGOs), UN agencies, and governments: "A long-term collaboration among different groups of land managers and stakeholders is required to achieve the multiple objectives required from the landscape. These typically include agricultural production, provision of ecosystem services (such as water flow regulation and quality, pollination, climate change mitigation and adaptation, cultural values); protection of biodiversity, landscape beauty, identity, and recreation value; and local livelihoods, human health, and well-being. Stakeholders seek to solve shared problems or capitalize on new opportunities that reduce trade-offs and strengthen synergies among different landscape objectives. Because landscapes are coupled with socio-ecological systems, complexity and change are inherent properties that require management.

<sup>29</sup> <https://www.worldbank.org/en/programs/global-program-on-sustainability>



natural capital accounting (NCA) and the economics of sustainability. The GPS grant will strengthen the technical and economic underpinnings of CONECTA's ILM work. CONECTA will build key actors' ILM-relevant capacities, coalesce action to integrate biodiversity and ecosystem service criteria into policies and incentive programs, promote creation of sustainable value chains, strengthen and train PGs to adopt climate-smart productive practices, leverage private and public investments, and provide related knowledge management (KM). Supported by the FOLUR GP, CONECTA aims at demonstrating and scaling-up sustainable productive approaches and emerging value chain partnerships.

15. **The eligible watersheds have a population of 5.9 million people and cover a total of 10,047,474 hectares, of which the project targets 450,000 ha.** They were prioritized in concurrence with the main funding sources received from GEF under the Programming Directions BD1-1 (Mainstream biodiversity across sectors), CM2-6 (Demonstrate mitigation options), and LD-1-1 (Maintain or improve flow of agro-ecosystem services).<sup>30</sup> Consequently, the prioritization of the watersheds was based on the (i) high presence of biodiversity; (ii) high level of cattle production; (iii) vulnerability to climate change and potential contribution to GHG emission reductions relevant to other areas in the country; and (iv) high risk of land degradation. Annex 2 provides greater detail on the selection criteria, state level characterization, and data sources up to the intervention area. Table A2.1 in Annex 2 provides some detail on the commodities produced within the project areas, the type of production, key environmental degradation pressures, and expected results in each watershed.<sup>31</sup> Annex 2 and Table A2.3 present key characteristics of the CONECTA watersheds in terms of biodiversity and presence of 24 protected areas. Protected areas in Mexico include many communities of small agricultural producers engaged in cattle rearing, fishing and/or forestry. The producers from these areas will be eligible to participate in the calls for proposals for TA and/or subprojects in regenerative ranching and sustainable agroforestry when within the eligible watersheds. The ecosystems represented in the project area include tropical rainforest, grasslands, dry deciduous forest, cloud forest, and pine-oak forest, the unique biodiversity of which is highly endangered. Some of these forests are critical for water provision.
16. **Component 1: Development and Promotion of Integrated Landscape Management (GEF US\$1,630,652).** The objective of Component 1 is to promote and implement ILM by: (i) developing two new and enhancing four existing land use instruments, named IWAPs<sup>32</sup>, covering at least 10 prioritized watersheds, using, updating and completing relevant studies and carrying out wide stakeholder engagement in consultative activities; (ii) operationalizing the IWAPs through technical support, training, and coordination between public and private programs and actors for better alignment at the watershed level; and (iii) aligning incentives for implementation of ILM. This will be accomplished through local/state/national level interinstitutional agreements, commodity value chain policy instruments, programs, certifications, standards, etc. informed by CONECTA.
17. **Sub-component C.1.1: Development and Improvement of Land Use Instruments.** The activities under C1.1 will support the development or enhancement and subsequent implementation of IWAPs in at least 10 of the prioritized watersheds (due to the ecological characteristics/dynamics and the watershed approach, some of the IWAPs will cover various watersheds). A regenerative livestock component will be integrated into four existing IWAPs that cover seven watersheds and at least two new IWAPs with said component developed to cover at least three additional

<sup>30</sup> The other GEF source was from the FOLUR IP to promote effective coordination and will be transversal across all components.

<sup>31</sup> It is to be noted that project-financed subprojects under Component 3 will be demand-based on one hand, and selected with the intention of maximizing project results on improved landscape connectivity on the other hand. Consequently, some of the eligible watersheds might end up without subprojects.

<sup>32</sup> IWAPs are planning instruments that identify the activities required to conserve the most critical ecosystems and environmental services while considering climate change impacts. Through the project, the IWAPs will guide climate-smart land-use changes to conserve/strengthen ecosystem services in parts of the 15 eligible watersheds. Under the C6 project in Mexico, implemented through the World Bank with GEF resources, similar work was carried out designing and piloting IWAPs in six of 16 targeted watersheds.



watersheds. The IWAPs will be developed or improved through a systematic process as per a methodology established by the National Institute of Ecology and Climate Change (INECC) among the first project activities. Relevant existing studies and models e.g. on climate change scenarios applying the National Atlas of Vulnerability to Climate Change and impacts of livestock production on water bodies will be used, updated, and completed according to the latest methods for developing IWAPs. Models used in the IWAPs will be fundamental for establishing priority sites for project interventions considering data on ecosystem services and existing land-use activities. They will incorporate the most climate-sensitive variables, allowing for projections to increase adaptation capacity and reduce vulnerability. Inputs from the IWAPs will guide the selection of beneficiaries and activities under Components 2 and 3, while they are not a pre-emptive condition for proposals to be approved. I.e. though location in a watershed with an IWAP and clear alignment of the proposal with inputs from the IWAP will be an asset to any proposal, proposals deemed strong or strategically important can be approved in watersheds that do not have an IWAP. The GPS grant will allow valuation of selected ecosystem services to contribute to the implementation of IWAPs.

18. **CONECTA will promote wide stakeholder engagement in consultative activities to inform the IWAPs and build broad ownership for their implementation.** The stakeholders presented under project beneficiaries will be conveyed to (i) review and provide feedback on the models and (ii) co-develop the IWAPs including data related to local knowledge and social capital and perspectives of the public, civil, private and financial sector and (iii) subsequently define priority sites for the promotion of biodiversity and climate-friendly productive practices, as well as conservation and restoration activities supported under Components 2 and 3. The monitoring results from the project sites carried out under Component 3 and other data will inform the models to document changes over time and update IWAPs as necessary. The IWAPs will also highlight the areas that require alignment of and between public or private incentives under C.1.2 and will facilitate implementation of strategies to address those arrangements, e.g. to recognize the value of ecosystem services and prompt markets to demand and incentivize sustainable practices.
19. **Sub-component C.1.2: Coordination of Public and Private Programs for Alignment at the Watershed Level.** The activities will focus on coordination between public and private actors to promote partnerships for the implementation of IWAPs, relevant programs/initiatives/incentives and replication and scale-up of the key project activities. C.1.2 is expected to lead to new or modified interinstitutional agreements, policy instruments and programs to support and leverage activities that promote connectivity in the watersheds. These will include productive and restoration and conservation practices supported under Components 2 and 3. Engagement with development banks such as the Trust Funds for Rural Development (FIRA) will prompt demand and shift towards sustainable investment criteria, sourcing and financial incentives to advance the FOLUR IP objectives at different scales. FIRA is working with the French Development Agency (AFD) to increase the funding of its existing credit program to promote regenerative ranching, which is expected to incorporate inputs from CONECTA and will add to its parallel financing<sup>33</sup> during implementation. CONECTA will benefit of the FOLUR Global Platform to access relevant analytical material, including assessment, design, refinement or roll-out of financial tools and mechanisms that promote more sustainable practices and value chains, such as a challenge program, investor forums, training products, convening and brokering services and business case studies.
20. **C.1.2 will test and mainstream innovative approaches to enhance interinstitutional collaboration.** It will provide technical support and training to key national, state-level, and local actors: policymakers, civil society organizations (CSOs) and private sector to adopt IWAPs and align policies and subsidy programs with their and/or other relevant

<sup>33</sup> Additional financing that supports the implementation of the CONECTA project financed by GEF and the achievement of its objectives, but with no relation to CONECTA's Results Framework (RF) nor implying fiduciary or E&S oversight responsibility for the World Bank; called "GEF co-financing in GEF terms".



recommendations. The Regional Funds will be key actors to identify potential for relevant alignment of incentives and prompt coordination. Examples include support for development of programs that allow landowners to restore upstream areas to receive PES from national/local agencies, and support from state-level Secretariats of Agriculture and Rural Development or Environment to adopt climate-smart livestock practices. Private sector strategies and dialogue will be promoted on financing regenerative ranching e.g. through incorporation of IWAPs' criteria by financial institutions and sustainable tourism through hotels and ecotourism businesses in the lower watersheds paying for ecosystem services provided under Component 3. Strengthened linkages with private and public partners at landscape level is expected to leverage investments in line with ILM objectives.

21. **Component 2: Strengthening of Business Skills for Sustainable Livestock and Agroforestry (GEF US\$2,304,467).** The objective of Component 2 is to (i) support the provision of advisory services and technical assistance through the engagement of Local Providers of Technical Assistance (PLATs, for its acronym in Spanish) to improve management and organizational capacities of eligible beneficiaries<sup>34</sup> to develop business strategies for sustainable production (BSSPs); and (ii) support the provision of consultancies and technical inputs for the selected eligible beneficiaries to support BSSP development and/or implementation, as necessary. PGs may be formal groups or groups in the process to be formalized, dedicated to livestock and/or agroforestry, and willing to adopt or improve the application of climate-smart technologies (see Table 1), including family businesses and enterprises from *comunidades* or *ejidos*. They can be working on any stage of the productive chain, including primary production (e.g. shadow coffee), transformation of sustainably produced meat/milk, and commercialization for local, national or international markets, as well as enterprises whose line of business adds value to products, e.g. packing of cheese from sustainably-produced milk or certified coffee.
22. **Component 2 will be implemented through an open and voluntary call for proposals to PLATs, which can be consultants, consulting firms or legally constituted local organizations (LCLOs)<sup>35</sup>** focused on promoting organizational and business management skills of PGs in an integral manner. The application and selection process of the PLATs and a full list of potential activities, adjustable during project implementation as pertinent, will be included in the project's Operational Manual (OM). PLATs will be contracted applying the relevant World Bank Procurement Regulations based on their long-term accompaniment strategies with one or more livestock and/or agroforestry PG(s) at the community level, going beyond traditional TA for 4-year engagements. Component 2 will finance demand-driven advisory services and TA to improve management and organizational capacities of PGs through development of BSSPs. Among potential topics of assistance are managerial aspects, organization and governance, financial and accounting training, marketing, land management, animal well-being and veterinary services, and value chain and market access.
23. **Based on an initial diagnostic on strengths and weaknesses of the interested PGs, PLATs will prepare their proposal(s), and the selected PLATs will develop them further to design a 4-year accompaniment strategy** in close collaboration with the PGs. Specialized consultancies and technical inputs can be financed in parallel for the selected PGs, including but not limited to value chain/market analysis, sustainable milk processing, cheese production, eco or agritourism services, marketing and commercialization of sustainably produced goods, and access to credit markets

<sup>34</sup> For purposes of Component 2, any PG (formal and informal) selected pursuant to the criteria and processes established in the Operational Manual (OM); and for purposes of Component 3, any PG, small landowners, and community enterprises, either formal (organized as an LCLO) or informal (grouped by an LCLO that allows non-organized producers to access project funding), selected pursuant to the criteria and processes established in the OM.

<sup>35</sup> The project will consider an LCLO any legally organized group constituted with the capacities to receive, manage, and apply resources according to the law. They may be civil associations, social solidarity societies, intermunicipal boards, rural production companies with limited liability, civil societies, etc.



for sustainable production. This approach will allow enhancing the beneficiary PGs' market linkages, increasing demand for sustainable value chains, and implementing a tailor-made plan adapted to the needs of each PG depending on their development stage (from initiatives to consolidation) and using participatory techniques.<sup>36</sup> The PGs may also be selected under Component 3 to implement activities related to regenerative ranching, agroforestry, or other sustainable production practices included in their BSSP. PGs may leverage the skills gained through the project to access other sources of financing to implement the BSSP e.g. from project partners like FIRA.

24. **Component 3: Conservation, Restoration, and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes (GEF US\$7,649,917).** Component 3 will finance subprojects covering a variety of activities to increase connectivity in the watersheds to implement the IWAPs developed under Component 1. It can also support the implementation of selected BSSPs developed under Component 2. The beneficiaries will be landowners and PGs, including *comunidades, ejidos*, small landowners, and community enterprises either organized as an LCLO or grouped by an existing LCLO that allows non-organized producers to access project funding. The supported actions will promote sound environmental practices to increase the area under sustainable landscape management, reduce GHG emissions, promote climate adaptation, and improve water quality and biodiversity. Component 3 will be implemented through a voluntary call for proposals to LCLOs that will promote synergies with the call for proposals under Component 2 and group beneficiaries to accompany them with a 4-year plan to adopt sustainable practices in livestock, agroforestry systems, and forest preservation and management. The subprojects will have a watershed logic and complement each other to maximize connectivity benefits. The application and selection process of the LCLOs will include an adaptable list of eligible activities designed by the Technical Coordinating Unit (TCU) and the CC and categorized by their implementation at farm, sub-watershed, or landscape level. After the close of the call for proposals, the Mexican Fund for the Conservation of Nature (FMCN) and the Regional Funds will organize a virtual or face-to-face workshop in each state for external evaluation of the proposals. Relevant experts from different sectors will be invited to evaluate the proposals using a format agreed upon by the Technical Committee (TC) and in the OM. FMCN in Chihuahua and the Regional Funds in their states will sign Subproject Agreements with the selected LCLOs.
25. **The subprojects<sup>37</sup> will finance support for regenerative ranching, agroforestry systems and landscape connectivity:** (a) regenerative ranching with an integrated approach in the production unit and promoting the adoption of climate-smart technologies, including initial inputs, finance of wages by the day (*jornales*), e.g., for establishment of living fences, improvement of pastures (evaluation, grass enrichment, rotations, introduction of trees) and animal health, and building of watering troughs to avoid animals entering streams; TA, training, workshops, and experimental farms to promote the transition to sustainable ranching practices; (b) agroforestry systems, including for example, TA and inputs for the establishment and improvement of shade coffee, cacao, and pepper plantations and/or production, as well as agroecological practices to conserve soils and restore degraded pasture lands; and (c) practices that improve the connectivity in livestock and agroforestry landscapes, that is, promotion of agreements with landowners for establishment of voluntary areas for conservation; training for fire prevention, control, and management; inputs to build nurseries for a group of communities; and inputs and TA for soil restoration and reforestation. PGs will be trained in community monitoring of biodiversity and/or water quality.

<sup>36</sup> This PG accompaniment model has been successfully tested under the Forest Investment Partnership 4 (FIP4) in Mexico, implemented by FMCN and FINDECA with funding from the IDB during 2014-2019.

<sup>37</sup> Subproject is defined as an activity or set of activities that complies with the criteria set forth in the OM for eligible activities under Component 3 to be financed by the project, including, *inter-alia*: (i) carrying out regenerative ranching with an integrated approach in the production unit and promoting the adoption of climate-smart technologies and practices, (ii) implementing agroforestry systems, including, the establishment and improvement of shade coffee, cacao, and pepper plantations and/or production, as well as other climate-smart agroecological practices to conserve soils and restore degraded pasture lands, and (iii) carrying out practices that improve the connectivity in livestock and agroforestry landscapes."



**26. Component 4: Project Coordination, Collaboration and Knowledge Management (GEF US\$2,176,432).** Component 4 will cover the project management activities, including implementation support and supervision of fiduciary requirements, E&S risk management, strengthening of FMCN's existing Information System for Project Follow-up (*Sistema de Información y Seguimiento de Proyectos, SISEP*), communications, and monitoring and evaluation (M&E) activities, counting independent mid-term and final evaluations. Further, it will enhance stakeholder participation and inclusion in watershed management by strengthening existing local and national stakeholder platforms, contributing to the work of existing platforms, e.g. Mexican Alliance of Biodiversity and Business (AMEBIN)<sup>38</sup>, the Economics of Ecosystems and Biodiversity for Agriculture and Food programme (TEEBAgriFood) Mexico (TEEB MX)<sup>39</sup>, and Mexican Roundtable for Sustainable Livestock (MRSL), and creating a National Learning Community (NLC) for regenerative ranching and agroforestry production. The NLC will allow systematic exchange of experiences between and beyond the eligible watersheds through digital platforms, social networks, and annual gatherings at different levels, including a biennial national gathering. Component 4 will also have a permanent virtual platform, where beneficiaries of Components 2 and 3, academics, producers and other private sector representatives, PLATs, LCLOs, CSOs, and different levels of government representatives can interact. It will allow systematic documenting, sharing of good practices and lessons learned, and carrying out activities to address gender and social inclusion issues. Annex 7 provides details on Component 4 and the role of private sector.

### C. Project Beneficiaries

**27. The project is estimated to reach 15,000 direct beneficiaries, mainly micro and small producers, processors, and traders.** Some medium producers may also be selected as direct beneficiaries where their participation results strategic for environmental gains. Beyond the targeted 10,000 farmers supported to adopt improved agricultural technology, 5,000 additional producers are expected to benefit from training and capacity building under Components 1 and 4. 30 percent of both groups are expected to be women. Women represent 51 percent of the total population of 5.9 million people living in the 15 eligible watersheds and will be encouraged to benefit from project activities. In Veracruz, indigenous populations live in the municipalities of Benito Juárez, Texcatepec, Tlachichilco, Ixhuatlán de Madero, Castillo de Teayo, Chicantepec, Álamo Temapache and Tepetzintla<sup>40</sup> in the watershed of Tuxpan, and Afro-Mexican populations in the municipalities of Tepetzintla and Tamiahua in the same watershed, and in the municipalities of Córdoba, Yanga, Cuitlahuac, Carrillo Puerto, Soledad del Doblado, Camarón de Tejeda, Boca del Río, Alvarado, Tlalixcoyan and Veracruz in the watershed of Jamapa<sup>41</sup>, and their participation will be promoted in project activities. Table 1 below summarizes the main project beneficiaries under each component. During project implementation, a detailed typology of beneficiaries will be carried out to accurately identify the characteristics and the type of benefit each beneficiary obtains through the project.

<sup>38</sup> Launched in 2016, AMEBIN is the most important forum that facilitates dialogue and action between the private sector and CSOs to contribute to the conservation, sustainable use and restoration of biodiversity in Mexico. 29 members integrate the Alliance that meets regularly and maintains working groups on relevant topics, and it is also a forum for dialogue and experience sharing among members.

<sup>39</sup> An initiative of “The Economics of Ecosystems and Biodiversity” hosted by UN Environment Program (UNEP), where the private sector, civil society and academia collaborate to understand how agricultural value chains could have positive effects on environment, socio-economic well-being and human health. FMCN and AMEBIN are part of the TEEB MX.

<sup>40</sup> Information based by the National Institute of Indigenous Peoples (*Instituto Nacional de los Pueblos Indígenas*) and UNDP, 2006

<sup>41</sup> Based on information by the National Commission for the Development of Indigenous Peoples (*Comisión Nacional para el Desarrollo de los Pueblos Indígenas, CDI*), 2012. During project preparation, there was no precise information about number of indigenous and Afro-Mexican populations in these municipalities. The Census conducted in 2020 will collect disaggregated data for indigenous and Afro-Mexicans.

**Table 1. Mapping of Beneficiaries to Project Components**

Component	Beneficiaries highlighting the principal ones per component
<b>1: Development and Promotion of Integrated Landscape Management</b>	<ul style="list-style-type: none"> <li><b>Government Secretariats and agencies of environment and agriculture at the federal, state, and local levels</b> with relevance in the project watersheds.</li> <li><b>Different organizations</b> with programs in selected watersheds.</li> <li><b>Private sector</b> (tourism and financial sector, companies interested in sustainable value chains, etc.).</li> <li><b>Existing relevant platforms, networks and initiatives, beneficiary PGs under Components 2 and 3.</b></li> </ul>
<b>2: Strengthening of Business Skills for Sustainable Livestock and Agroforestry</b>	<ul style="list-style-type: none"> <li><b>Livestock and agroforestry PGs (formal and informal), including family businesses and enterprises from <i>comunidades</i> or <i>ejidos</i></b> already implementing sustainable agroforestry or livestock practices for productive activities or interested in doing so along the production chain.</li> <li><b>Women.</b></li> <li><b>IPs and Afro-Mexicans.</b></li> </ul>
<b>3: Conservation, Restoration, and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes</b>	<ul style="list-style-type: none"> <li><b>Livestock and agroforestry PGs, including <i>comunidades</i>, <i>ejidos</i>, small landowners, and community enterprises</b>, either formal, organized as an LCLO or informal, grouped by an LCLO that allows non-organized producers to access project funding. They already implement sustainable practices for productive activities and/or conservation or restoration activities or are interested in doing so along, in any stage of the production chain.</li> <li><b>Women.</b></li> <li><b>IPs and Afro-Mexicans.</b></li> </ul>
<b>4: Project Coordination, Collaboration and Knowledge Management</b>	<ul style="list-style-type: none"> <li><b>Livestock and agroforestry PGs (formal and informal) and producer families</b> already implementing sustainable practices for productive activities or interested in doing so.</li> <li><b><i>Comunidades</i>, <i>ejidos</i> and small landowners, including IP organizations and Afro-Mexicans.</b></li> <li><b>Community enterprises</b> that are already implementing sustainable practices or are interested in doing so.</li> <li><b>Women.</b></li> <li><b>Government agencies at the federal, state, and local levels.</b></li> <li><b>Private sector</b> (tourism and financial sector, companies interested in sustainable value chains, etc.).</li> </ul>

28. **Gender Approach.** The project has developed a Gender Analysis and Gender Action Plan (GAP) to address gender inequalities and gaps in livestock and agroforestry value chains. Annex 4 provides a summary of the gender approach. The GAP identified the gender gaps in the livestock, agroforestry and agriculture sectors in Mexico, mainly related with ownership of land, productive assets, participation in decision making processes at the household and community levels, and in terms of access to credits and technology. The GAP was informed by the Environmental and Socioeconomic Diagnostics on Regenerative Livestock that FMCN contracted in the project states and eligible watersheds that looked at the participation of women in livestock value chains and identified business opportunities with extensive participation of women (e.g. dairy businesses as detailed above). In terms of monitoring and evaluation of progress addressing identified gender gaps, the project (i) will disaggregate indicators by gender, including women benefited by FOLUR-related training, and those adopting climate-smart productive practices; and (ii) includes specific GAP indicators at the level of the OM.
29. **Based on the gender analysis conducted, project activities are designed with a gender lens to promote strategies and approaches to strengthen the role and participation of women in livestock and agroforestry value chains.** This includes: (i) giving priority for awarding resources to proposals that aim to strengthen PGs where women are



significantly represented among the beneficiary producers; (ii) not requiring land titles as a requisite to benefit from the project for not to exclude a significant number of women in *ejidos* and communities; (iii) the two calls for proposals will be disseminated through communication channels and spaces that are relevant to women, for example WhatsApp, community radios, community savings banks (*cajas de ahorros*), places where women usually meet, among others, and as detailed in the project's Stakeholder Engagement Plan (SEP); (iv) provide immediate information and handholding to women interested in knowing more about the project and participate in it; (v) include translators to indigenous languages in the dissemination meetings about the benefits and mechanisms to participate in the project in areas with presence of IPs; (vi) to the extent possible, the project will identify and encourage mechanisms well established at the community level that can incentivize economic independence of women and improve well-being of their families; (vii) encourage payment parity both within the two Coordination Units and at the community/farm levels as per details included in the Labor Management Procedures (LMP); and (viii) encourage the use of inclusive language in all communications and include a gender lens in all project communications. The project personnel in FMCN includes a gender focal point that will focus on mainstreaming gender across project activities and identify potential areas for further analysis related to relevant gender differences and gaps. The project will also inform PLATs and LCLOs of existing service providers as part of referral paths in cases of sexual exploitation, abuse or harassment at the community and farm level or because of backlash caused by project activities. Capacity building and training will be designed to existing and new PGs, including those formed by women, in a gender sensitive manner e.g. in financial literacy and support for creation of business plans to access financial support.

30. **Citizen Engagement.** FMCN carried out consultations with key stakeholders, beneficiaries, and affected people during project preparation. These consultations were carried out across the four project states, while additional virtual consultations due to the COVID-19 pandemic were conducted in the state of Veracruz focused on the watershed of Tuxpan to target IPs and Afro-Mexicans. Feedback provided by participants in the consultations confirmed the appropriateness of the project design and the list of eligible activities under Components 2 and 3; and some of the project risks and impacts were adjusted as a result of the consultations. Further, the project will identify and work through existing community-level organizations that can serve as catalysts and mobilizers to encourage small producers to get organized into PGs and gain extensive experience serving as channels of interest and concerns of peer producers in the project watersheds. The consultations and close engagement with relevant organizations provided inputs for project design and the preferred ways to better engage with PGs and producer families during implementation, including dissemination of the project's Grievance Redress Mechanism (GRM).
31. **M&E of Citizen Engagement and GRM.** Citizen engagement will be measured through beneficiary feedback mechanisms and the efficiency of the project's GRM, which will be designed in a culturally appropriate way. CONECTA will include a beneficiary feedback mechanism and regular feedback collection at the PG level. The intermediate results indicators include an indicator on beneficiary satisfaction. The GRM efficiency will be periodically evaluated in terms of registered grievances satisfactorily responded, disaggregated by gender, and how these grievances are being used to inform project implementation and related decision making for adaptive project management.
32. **Net carbon balance.** An ex-ante mitigation potential assessment detailed in Annex 5 was carried out by the World Bank in close collaboration of INECC, FMCN and the Regional Funds to estimate the result of a GEF indicator "Greenhouse Gas Emissions Mitigated (metric tons of CO<sub>2</sub>e)" that the project will report at mid-term and closure. The net carbon balance quantifies GHGs emitted or sequestered as a result of a project compared to the "without project" scenario applying the Ex-Ante Carbon-balance Tool (EX-ACT) of the Food and Agriculture Organization of the United Nations (FAO). The project is expected to provide sustained benefits for a period of 20 years and constitute a net carbon sink of 1.64 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e); 1.2 percent of the NDC mitigation target



for the Agriculture, Forestry and Other Land Use (AFOLU) sector by 2030.<sup>42</sup> Over the implementation period of five years, the project is estimated to constitute a net carbon sink of 411,035 tCO<sub>2</sub>e (3.3 percent of the 2030 target). On average, the annual GHG emission reduction is estimated at 82,207 tCO<sub>2</sub>e. From these, 17 percent will be indirect contributions by reducing the loss of grass and shrublands and forest areas (14,236 annual tCO<sub>2</sub>e.). The activities implemented under Component 3 will directly contribute 82 percent of the emission reduction (67,971 tCO<sub>2</sub>e.) The largest emission reductions are attributed to avoided loss of the referred ecosystems and promotion of agroforestry and silvopastoral systems (SPS). The ex-ante analysis is based on a set of assumptions and data generated from specific watershed diagnostics, national observations, and information revised and verified by the INECC mitigation team. It applied Tier 2 level emission factors for Mexico from the 2018 National GHG Inventory Report.<sup>43</sup>

33. **Figure 1 presents the CONECTA theory of change** that depicts the results chain as described through the component description. The problem statement is “unsustainable livestock and cropping systems cause environmental degradation and natural resource depletion in watersheds in Mexico”.

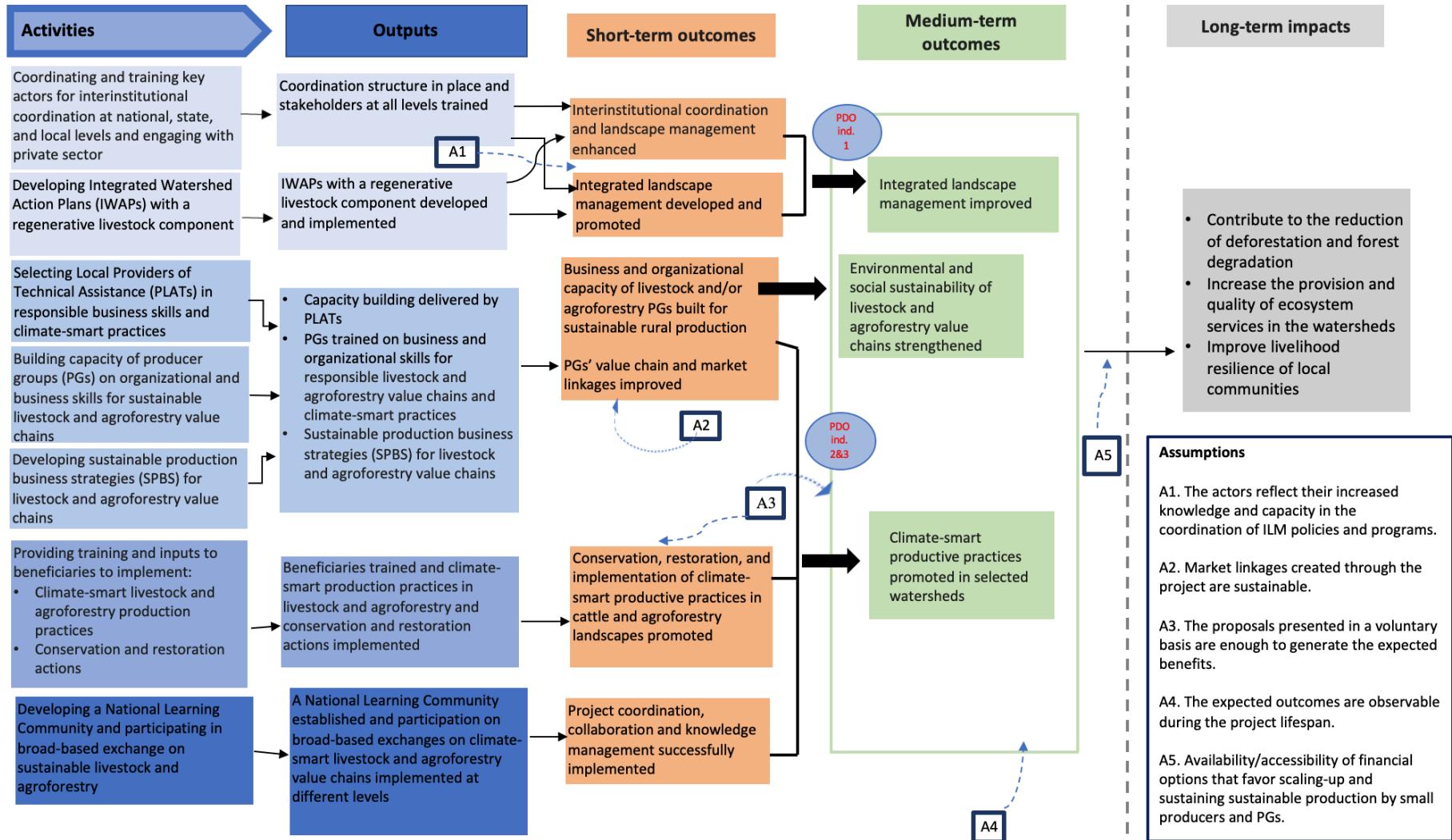
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<sup>42</sup> The CONECTA cost of mitigation is US\$8.5/tCO<sub>2</sub>e; this is low compared to the range of US\$30-40 of the shadow price of carbon in economic analysis used by the World Bank and in the EFA of CONECTA.

<sup>43</sup> <http://cambioclimatico.gob.mx:8080/xmlui/handle/publicaciones/226>



Figure 1: CONECTA theory of change



**E. Rationale for Bank Involvement and Role of Partners**

34. **The World Bank has wide knowledge and experience serving as the GEF IA for a range of environmental projects across the Latin America and the Caribbean Region and globally.** Since GEF-5<sup>44</sup>, these projects have started to integrate a stronger focus on transforming business-as-usual productive practices into more environment-friendly, resource-efficient and climate resilient practices. Under GEF-7, the World Bank serves as the lead IA for the FOLUR IP, which counts with eight IAs<sup>45</sup>, builds on the momentum and growing commitment by governments and private sector toward a transformational shift in food systems. FOLUR directly engages 27 countries, selected based on their strong alignment with the program vision and high potential to generate global environmental benefits through investments in promoting transformational change. Consequently, the World Bank leading the FOLUR IP can bring Mexico global knowledge and experience and transfer technical and strategic knowledge through the participation of specialists with ample experience in these areas and allow other countries to learn and benefit from the FOLUR work conducted in Mexico. Synergy is also expected from the World Bank-IFC FOLUR collaboration in Mexico, where IFC participates in the delivery of CONECTA's private sector engagement strategy (PSES). IFC will continue to work on identifying private companies operating in the mentioned sectors who can benefit from IFC Investments, Advisory Services or Upstream Work.
35. **The project creates additionality** by: (i) enhancing the social and natural capital in the project areas; (ii) fostering the transformation and value aggregation of economic activities through strengthening access to markets; (iii) linking local, regional, and federal actors to PGs to derive benefits from information and knowledge exchange on biodiversity, sustainable productive practices, and related legislation and programs to generate behavioral changes in implementation of value chains in productive economic activities. Thus, these incremental benefits strengthen both the environmental basis and the beneficiary PGs' capacities for productive improvements, including potential access to credit among beneficiaries in the beef, milk, and agroforestry related value chains, such as coffee.
36. **The project will leverage an estimated total of US\$99,013,829 of parallel financing ("GEF co-financing")** from INECC, FMCN, the Northwest Fund (FONNOR), the Secretariat of Environment and Territorial Development (SEMADET) of Jalisco, CONANP, CONAFOR, AGRICULTURA, National Water Commission (CONAGUA) and FIRA. All the parallel financing leveraged through the GEF grant will contribute to the CONECTA PDO but will be implemented under separate institutional and implementation arrangements and their results measured separately. The project will report of the executed parallel financing at mid-term and project closure.

**F. Lessons Learned and Reflected in the Project Design**

37. **The project will apply multiple lessons from projects in Mexico and elsewhere.** A significant lesson learned through past projects in Mexico is the importance of institutional capacity building and institutional memory for carrying forward subsequent projects and aligning to past ones. The agencies involved in CONECTA have accumulated experience, presenting an unprecedented opportunity for efficient and effective coordination. Institutional arrangements in place through the GEF "Coastal Watersheds Conservation in the Context of Climate Change Project" ("C6"; P131709) are continued and adapted for CONECTA. These arrangements, described in the C6's legal and subsidiary agreements and operational manual, have served as the main model for agreements between INECC and FMCN, while FMCN's 25-year experience comprises financing of 2,163 subprojects worth US\$177.9 million with

<sup>44</sup> The GEF's fifth (GEF-5) replenishment period covered operations from July 1, 2010 to June 30, 2014.

<sup>45</sup> Conservation International (CI), FAO, International Fund for Agricultural Development (IFAD), UNDP, UN Environment Programme (UNEP), UN Industrial Development Organization (UNIDO), World Bank (WB), and World Wildlife Fund (WWF-US).



62,515 beneficiaries. Other past operations in Mexico include the Sustainable Rural Development Project (P106261) and the Forests and Climate Change Project (P123760), which established successful arrangements for implementation of PES with CONAFOR. CONECTA will benefit from their lessons learned and complement their objectives while expanding their scope and geographies covered. CONECTA will also complement the on-going GEF-6<sup>46</sup> Sustainable Productive Landscapes Project (P159835, “Territorios Productivos Sostenibles, TPS”), approved in 2018 focusing on ILM. The TPS is led by the Secretariat of Environment and Natural Resources (SEMARNAT) with participation by AGRICULTURA and CONANP, among other agencies, to align productivity, rural livelihoods, and environmental objectives. CONECTA will look for synergies with the TPS in terms of the areas covered, approaches to ILM with productive aims and building producers' capacity to access credits for sustainable productive activities. CONECTA also builds upon analytical efforts undertaken in Mexico to understand gender roles and differentiated gender impacts on access to natural resources and their management (Building capacity to mainstream gender in Emission Reductions programs and REDD+ strategies, P170429).

38. **The project builds upon prior success in advancing interinstitutional coordination at a landscape level.** The CONECTA project builds on the success of the C6 project. C6 was implemented by INECC, CONAFOR, CONANP, and FMCN, a nonprofit organization, during 2014–2019. It promoted integrated management of coastal watersheds to conserve biodiversity, contributed to climate change mitigation, and enhanced sustainable land use in the Gulf of Mexico and Gulf of California. C6 achieved improved management of productive landscapes in the watersheds covering more than 35,000 hectares, improvement of protected areas management covering over 1,700,000 hectares, and due to the emphasis on community participation, strengthened socio-ecological resilience of the watersheds in terms of climatic changes and other potential future E&S perturbations. Two Regional Funds, FONNOR in Jalisco and the Gulf of Mexico Fund (*Fondo Golfo de México*, FGM) in Veracruz were created for local project coordination and training. This collaboration resulted in the alignment of efforts in climate vulnerable watersheds through IWAPs that INECC developed in six watersheds with comprehensive technical data to allow identification of the priority sites to invest in identified activities to maintain ecosystem services. C6 provided strong evidence of how IWAPs, paired with key activities, can reduce biodiversity loss, GHG emissions and land degradation through strengthening sustainable land use and socio-ecological resilience at the watershed level.
39. **Working through Regional Funds in Mexico for efficient resource allocation and using them as a vehicle to provide direct, highly technical hands-on support to subprojects and their beneficiaries is critical,** and an important lesson for CONECTA. FMCN has successfully designed and launched three Regional Funds, which serve as effective financial mechanisms to address regional needs, strengthening local capacities and complementing local public investments. Key institutional arrangements and operating features, such as public-private partnerships, transparent management of funds, and guidelines accepted by all participating institutions (the FMCN operational manual was used as a reference for other environmental funds worldwide), support effective collaboration toward environmental, social, and economic objectives. Independent evaluations highlight the importance of strong policy and advisory bodies and subproject selection criteria, including linkage to local networks that can provide long-term support, engagement of the protected areas' management teams in projects in their influence zone, and regular collection and interpretation of ecological data as key success factors for this type of projects. Continuity of partnerships established under C6 into the current project is an important factor mitigating the risk of complex institutional arrangements.
40. **The project design incorporates lessons learned from earlier Bank-supported projects in Mexico,** including the Strengthening Entrepreneurship in Productive Forest Landscape Project (P164661), approved in 2019 with a focus on forest management, and the Sustainable Production Systems and Biodiversity Project (P121116, 2012–2018): (i) the

<sup>46</sup> The GEF's sixth (GEF-6) replenishment period covered operations from July 1, 2014 to June 30, 2018.



opportunities to implement a variety of interventions at the landscape level to better address drivers of deforestation and degradation; (ii) the importance of community engagement and collective planning to create buy-in and enable long-term sustainability of landscape planning and management; (iii) need to secure creation of critically important enabling environment, including appropriate economic incentives, to support ILM approaches. Where local communities see tangible economic benefits from biodiversity conservation, their conservation efforts are more sustainable; (iv) need for strong policy coordination at the national, subnational, jurisdictional, and landscape levels for lasting landscape management. Governments can help promote successful landscape planning and programs by facilitating, funding, and rewarding interagency coordination and collaboration through working groups, sharing examples of documented synergies between sectors, and reinforcing the importance of cross-sectoral priorities.

41. **Additional lessons learned from global World Bank operations in productive landscape and livestock operations<sup>47</sup> were also incorporated into the project design:** upfront formalization of institutional partnerships with well-defined roles and responsibilities and common targets; active participation of FMCN, INECC and the Regional Funds in the project design to secure their full ownership and shared understanding of all the project concepts and approach; promoting a bottom up approach with strong participation from regional and local partners and community engagement during implementation. The latter will cover a systematic approach encompassing water resources management, land management, climate change considerations and taking into consideration livelihood concerns and economic aspects to promote conservation in a strategic manner; focus on few key areas sufficient to generate benefits for the population and environment rather than an expansive intervention with multiple work fronts; facilitate local administrative capacity for watershed governance; and use of available World Bank Group instruments, including from the IFC to strengthen private sector engagement, among other.
42. **Lessons from IFC show that investing in capacity development of actors in value chains, particularly of small and medium producers, is strategic to support establishment of market linkages.** Interventions that provide a comprehensive set of activities (technical, financial, and entrepreneurial capacity) tailored to the specific needs of the beneficiaries are necessary to promote participation in value chains.

### III. IMPLEMENTATION ARRANGEMENTS

#### A. Institutional and Implementation Arrangements

43. **FMCN will be the IA that administers the GEF resources and INECC will be the lead GoM agency in charge of strategic and technical guidance.** The details on the division of tasks between FMCN and INECC were defined in the OM of the project, which was finalized during Negotiations. The Secretariat of Finance and Public Credit (SHCP) has followed the project preparation and will continue to be informed on its advances during project implementation, as SHCP hosts the GEF Political and Operational Focal Point of Mexico and supports and coordinates projects with international project finance. To administer the GEF funds and implement the project components, FMCN will delegate part of the execution tasks to three Regional Funds that have participated closely in the project design and will facilitate coordination and project implementation with local actors: (i) El Triunfo Conservation Fund (*Fondo de Conservación el Triunfo*, FONCET) in Chiapas; (ii) FONNOR in Jalisco; and (iii) FGM in Veracruz. For Chihuahua, FMCN

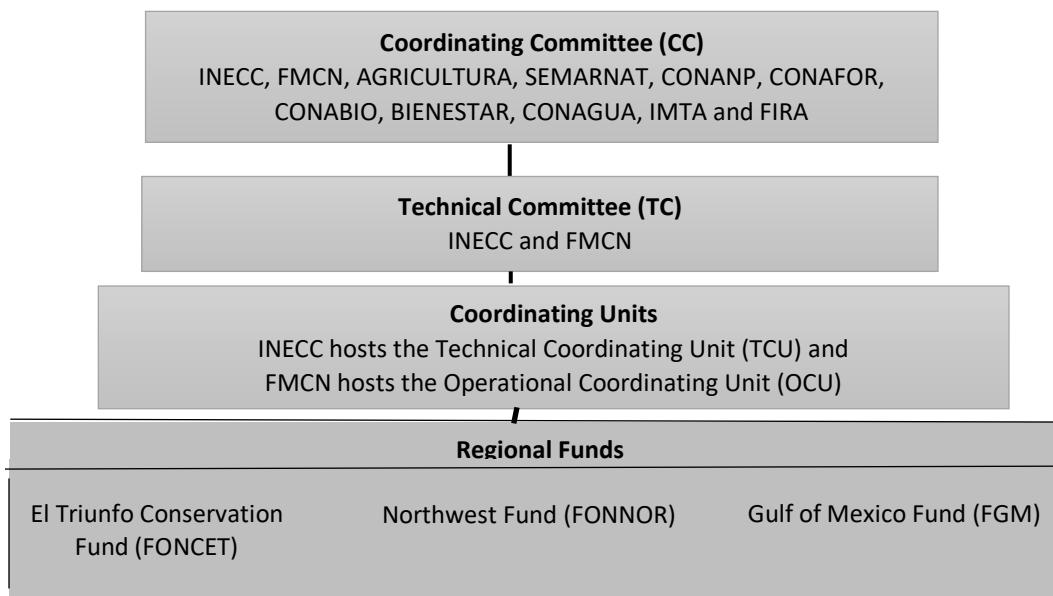
<sup>47</sup> Brazil Rio de Janeiro Sustainable Integrated Ecosystems Management in Production Landscapes of Northwester Fluminese project (P075379); Brazil Sustainable Cerrado Initiative (P091827); Resilient Productive Landscapes in Haiti (P162908); Ethiopia: Integrated Silvopastoral Approaches to Ecosystem Management (P072979); and Ethiopia: Oromia National Regional State Forested Landscape Program (P156475).



will have among its personnel a Coordinator responsible for overseeing the actions to be developed in the region. In the mid-term evaluation, FMCN will assess the need for operational support from a potential organization in Chihuahua. FMCN will continue training the Regional Funds in different aspects as needed, including supporting and monitoring the implementation of the relevant Environmental and Social Standards (ESSs).

44. **The governance structure of CONECTA includes a Coordinating Committee (CC), a Technical Committee (TC), a Technical Coordinating Unit (TCU) hosted by INECC and an Operational Coordinating Unit (OCU) hosted by FMCN.** The CC will be composed of INECC and FMCN that also serves as its Technical Secretariat, and the following key GoM agencies: SEMARNAT, AGRICULTURA, BIENESTAR, CONANP, CONAFOR, CONABIO, CONAGUA, Mexican Institute of Water Technology (IMTA), and FIRA. INECC will coordinate the CC, be responsible for providing strategic and policy guidance, promote coordination, collaboration and alignment of project-related work among the participating agencies to achieve the objectives within the project areas across governance levels and promote replication and scale-up of successful activities across the country as relevant. INECC has convened the CC agencies through a process of formal invitations and responses, and the first CC meeting took place in September 2020. The OM includes a detailed description of the CONECTA institutional arrangements, bodies and rules and procedures.

**Figure 2. CONECTA governance structure**



45. **In an advisory capacity, the project will coordinate regional forums that include representatives of stakeholders and key local and regional entities to help align project-related activities among local, state, and federal agencies at the watershed level.** An NLC will be created for regenerative ranching and sustainable agroforestry, and local networks or forums currently in place or new ones to be established through the project will provide further important channels to share information.

## B. Results Monitoring and Evaluation Arrangements

46. **During implementation, FMCN with support by the Regional Funds will be responsible for the overall project monitoring in conjunction with INECC based on an M&E plan.** Progress will be measured against the PDO, PDO



indicators, and intermediate results indicators (see Section VII). CONECTA uses relevant GEF/FOLUR indicators to contribute to the global FOLUR IP results in comparable terms across the participating countries. Technical reports will be prepared by the Regional Funds under the oversight of the TCU and OCU and presented to the TC and the World Bank every six months. FMCN will conduct a mid-term and a final evaluation, including quantitative assessment of outcomes and analysis of achievements and difficulties encountered, compliance with ESSs, and lessons learned. The final review will focus on the achievement of objectives, sustainability, and lessons and recommendations.

47. **FMCN has developed strong M&E systems and capacity;** the results information on Components 1, 2 and 3 will rely on FMCN SISEP developed for the GEF-funded Consolidation of the Protected Area System (SINAP II, P112327) project and improved under the C6 project, both implemented by FMCN through the World Bank. The community monitoring of water quality and biodiversity under Component 3 will be designed by the TCU and OCU, selecting the monitoring points based on scientific models and cost-effectiveness, and implemented by selected Component 3 beneficiaries. The Regional Funds will help to collect and analyze said information.
48. **The World Bank is supporting FMCN and INECC to be trained in the use of novel platforms to enhance project M&E in multiple ways, including remote supervision** through the Geo-Enabling initiative for Monitoring & Supervision (GEMS), and the Biodiversity Integrated Assessment and Computation Tool (B-INTACT) developed by the FAO EX-ANTE team. B-INTACT is planned to be piloted by CONECTA, expecting the project can also support its further improvement through provision of user feedback. As detailed in Annex 2, this pilot is expected to add value to biodiversity monitoring conducted under the SNMB of CONABIO and the Community Biological Monitoring (*Monitoreo Comunitario de la Biodiversidad*, BIOCOMUNI), a protocol for community monitoring of biodiversity developed in collaboration by CONAFOR, FMCN and the United States Forest Service (USFS).

### C. Sustainability

49. **The project's approach and outcomes contribute to the NDP in terms of rural growth, social and environmental agendas, as well as international commitments on climate change, biodiversity, and poverty reduction.** The project's design incorporates several elements of technical and financial sustainability:
  - a. **Building the capacity of relevant stakeholders,** particularly at the local level, leads to increased knowledge and capacity to promote and sustain aggregated landscape-level outcomes. CONECTA will generate and systematize evidence e.g. on the cost-benefit implications of the promoted climate-smart practices and inform local, state and national policies to support scale-up of sustainable livestock and agroforestry practices, strengthen PGs, and help producers improve their access to markets and credits.
  - b. **Investments on improved/sustainable productive practices** for beef, dairy and agroforestry PGs will be underpinned by the actions defined in the IWAPs and BSSPs. The demand-driven nature and participatory approach of the IWAPs and BSSPs at the local level will prompt sustainability of the investments.
  - c. **Enhancing coordination between landscape interventions** through strong implementation arrangements creates lasting partnerships between federal, state and local institutions. The project brings together the most relevant national agencies and will ensure efficient state and local level action that will be showcased at the national level to align programs and incentives for long-term sustainability strategies.
  - d. **Strong M&E systems** will help verify results achieved related to biodiversity, water quality and GHG emissions, including related costs. Strong monitoring and solid results can open opportunities to scale up nationally, support reporting of global commitments and access green finance and/or carbon markets, etc.



## IV. PROJECT APPRAISAL SUMMARY

### A. Technical, Economic and Financial Analysis

#### Technical

50. **CONECTA builds upon an ILM approach centered on regenerative cattle ranching and sustainable agroforestry in priority watersheds as per the results of the demand-based calls for proposals under Components 2 and 3.** Regenerative ranching comprises a set of principles that guide management decisions on ranching based on the natural resources base, principally soil and water, and the main applicable economic and social factors. The processes and practices promoted aim to reactivate the natural cycles to boost an integral and holistic ecosystem functionality. The first step is promoting the regeneration of the disturbed ecosystem as needed to reach sustainable ranching. Regenerative ranching aims to improve biodiversity and increase soil carbon; it has demonstrated positive impacts on profitability for farmers when compared to input-intensive models.<sup>48</sup> As per the FAO, agroforestry is a multiple land-use system in which agricultural crops and/or animals are deliberately combined with woody perennials in a specific spatial arrangement or temporal sequence on the same land management unit. Agroforestry practices increase ecological stability, productivity, economic returns, and social benefits on a sustained basis. Through these approaches, CONECTA expects to demonstrate simultaneous production of food and conservation of the underlying ecosystem services; two factors traditionally pitted against each other in simplified food production systems.
51. **CONECTA carries forward and scales up efforts and results of past and current projects.** INECC and FMCN have collaborated closely on various successful GEF operations, the C6 project as a precedent, whose overall outcome rating was Satisfactory, and whose results CONECTA will replicate and develop further. INECC and FMCN have strong commitment to and ownership of the project. INECC has accumulated experience and expertise in the analysis of social and institutional conditions needed for watershed management and consideration of needs to adapt to climate change. It is responsible for the national communications to the UNFCCC and the development of the IWAPs and their adoption by public entities. FMCN has 25 years of experience in funding conservation through more than 90 calls for proposals to NGOs, communities, and public-private partnerships. FMCN's cooperation with the GoM through six different federal administrations is an important strength for long-term continuity of the project.

#### Global Environmental Benefits and GEF Incremental Analysis

52. **Land-use changes for productive activities and construction together with climate change are among the main threats to biodiversity,** the conservation of which is critical to support most of the ecosystem functions upon which humans rely. CONECTA aims to attend both threats and generate environmental benefits from local to global level. It will focus strategically on addressing agricultural expansion, one of the root causes of land-use change, by helping the beneficiary PGs and other stakeholders to gain understanding and know-how in sustainable practices whose dissemination will decrease pressure on land-use changes. PGs' increased environmental knowledge and awareness of their dependency on functioning ecosystem services together with enhanced capacity to take related positive action will also help PGs to adapt to climate change. CONECTA will serve as a pilot to identify and implement solutions and systematize the applied practices and lessons learned in diverse priority ecosystems and climatic conditions in Mexico. Potential for scaling up its results is embedded in the project design focused on demonstrating and

<sup>48</sup> Gooden J. and Moir, F.C. 2019 Consensus, clusters, and trade-offs in wildlife-friendly ranching: An advance analysis of stakeholder goals in northern Mexico. Biological Conservation, Volume 236, pages 443-451.



disseminating experiences in diverse ecosystems and creating the conditions and enabling environment for replication and leverage at scale by different actors at the landscape level. Through Components 2 and 3, CONECTA will pilot testing of improved productive practices in different agroecosystems. Through Components 1 and 4 and engagement with the FOLUR GP, the ILM model will be shared through a strong KM approach from local to global level with the aim of scaling up the experience and approach in other watersheds.

53. **CONECTA is designed to protect watershed health and sustainability of ecosystem services while improving productive activities** like cattle ranching and farming based on silvopastoral, agropastoral, and agroforestry systems, with a regenerative approach. Among these activities, existing literature for Mexico shows that SPS generate higher income for producers than conventional systems, as an integrated land use practice that combines trees, forage, and livestock improves sustainability and quality of pasture (González, 2013; Ávila and Revollo, 2014). This activity allows the intensification of cattle production based on an integrated approach to sustainable land use (Nair et al., 2009). Therefore, SPS will be promoted to decrease pressure to continue deforestation and for beneficial ecological interactions that manifest themselves in increased yield per unit area, improved resource use efficiency, and enhanced provision of environmental services both at small and large scales (Chará et al.; Jose and Dollinger, 2019).
54. **In the absence of the project, beneficiaries would likely remain without access to TA, capacity building and financing for initial inputs to transition to practices that support ILM** in the eligible watersheds where proposals for services under Component 2 will be approved. The watersheds would continue on a decreasing track of ecosystem health and sustainability of the ranching and farming activities that would lead to further pressure on the agricultural frontier; conventional extensive cattle grazing would continue with low tree cover on pasture lands and thus limited capacity to absorb carbon; a limited number of sustainable forest operations would be incorporated into the economic activities of local communities; and, therefore, land use conversion would remain subject to ranching and farming activities with intensive use of water and even illegal activities.
55. **The project creates additionality as described in paragraph 35 above.** The GEF incremental support would assist the GoM in strengthening the watersheds' health with sustainable practices and their long-term economic and financial sustainability. CONECTA will support alternative instruments to overcome budget constraints and involve new cross-sectoral actors to address policies related to ILM. Without the project, the budget forecast to be allocated for watershed conservation by the GoM (the baseline scenario) would be limited. The GEF investment is expected to leverage additional resources from other partners over the same period. This financing will help develop the necessary institutional capabilities, set up policy frameworks for the sustainable watershed ecosystems, and develop mechanisms for sustainable productive systems.

#### Economic and Financial Analysis

56. **The economic analysis presents the economic (welfare) benefits generated by the project (see Annex 3).** Three benefit streams are measured: (a) the first related to ecosystem services provided by watershed management, (b) the second linked with carbon storage and sequestration by ILM, and (c) the third associated with activities at the producer level enabling them to transit to sustainable management activities that have positive social and private returns. In direct terms, all the three benefit streams relate the most with Component 3, while Component 1 will aim at producing equally the first and second benefits. However, as Component 1 is geared to create the necessary enabling environment among relevant stakeholders, its contributions will be more indirect and will depend on the impact it will achieve in related decision making among the relevant stakeholders at different levels. Component 2 will contribute mostly to the third benefit.



57. **For the Economic and Financing Analysis (EFA), a BAU baseline case is used assuming that future development trends follow those of the past** and no changes in policies and practices will take place. In developing countries, land-use patterns are changing quickly, so it is more relevant to use recent past trends than long-term past trends in this case. Therefore, the analysis on land-use changes for the project uses recent trends instead of long-term trends because the recent changes seem to be more representative of the current evolution. In the BAU scenario, the following average deforestation rates are assumed in the four project states: 0.71 percent in Chiapas, 6.25 percent in Chihuahua, 0.55 percent in Jalisco, and 1.70 in Veracruz.
58. **A 20-year period is assumed to assess the economic feasibility of the project.** It is also assumed there are no further incremental changes of project-generated benefits beyond the 20-year evaluation period. While the project costs are only assumed to emerge for the five years of project implementation, the benefits and opportunity costs are assumed to be generated beyond the five-year implementation period. The distribution of benefits (increase of areas under improved landscape management and sustainable practices) is based on the triangular number for five project years. The rationale for this assumption regarding the growth pattern is that to reach a strengthened landscape management initially requires more time than at a later point. Similarly, the distribution of project costs follows the same pattern, having lower investment costs in the early years and increasing investments in later years.
59. **The incremental economic analysis shows that the net present value (NPV) is projected to reach US\$31 million (lower bound) and US\$73 million (upper bound) in the baseline scenario** (20 years, carbon social price of US\$60, and 6 percent discount rate). The investments evaluated for the EFA will generate a Benefit-Cost ratio between 1.48 and 2.12 and an internal rate of return (IRR) between 47.73 and 91.28 percent. The EFA thus shows that if project implementation is effective and efficient, project-supported investments will bring substantial financial and economic benefits to agriculture and livestock producers in the project area and to Mexican society in general. The results of the quantitative simulations are robust in terms of sensitivity analyses: the conclusions are not affected by (a) increasing the discount rate from 6 percent to 9 percent, (b) reducing the carbon social price by 33 percent (from US\$60 to US\$40), (c) adopting the value of the voluntary carbon market (US\$3.01), or (d) using more conservative estimates regarding the value of ecosystem services provided.
60. **Estimates shown correspond to a lower bound as they represent the benefit streams derived from Components 1 and 3, applying a very conservative approach.** The E&S value of Component 3 is likely to be higher since the EFA did not include in the calculations other non-economic global and local benefits such as the resulting improvement in food security, among other benefits. While this approach is likely to systematically undervalue the project's impacts, it provides a high degree of robustness. If additional project benefits are considered, results are expected to be even stronger. For the World Bank team to secure solid inputs to the project's EFA at mid-term and final evaluations, the Regional Funds will systematically collect data on project-related costs and gains in collaboration with the PLATs in charge of technical support under Component 2 and LCLOs under Component 3.

## B. Fiduciary

### (i) Financial Management

61. **The project's financial management (FM) assessment was conducted at an early stage of project preparation and finalized in March 2021.** The residual FM risk is considered Moderate. The project will be centrally managed by FMCN, which will direct funds to the three Regional Funds: FONCET (Chiapas), FONNOR (Jalisco), and FGM (Veracruz). FMCN has adequate capacity to carry out the CONECTA-related FM tasks, given its long-standing experience in executing projects financed by the World Bank. Its internal control environment is sound and will be further



strengthened by the following mitigating measures: (a) project payments and procurement activities will be made by FMCN and the Regional Funds and supervised by FMCN, while the Regional Funds will pay for the subprojects under Component 3, supported and supervised by FMCN; and (b) FMCN has revised manuals of policies and procedures, including a set of operational rules applicable to the payments of the subprojects.

62. **FMCN will prepare and submit to the Bank bi-annual non-audited Interim Financial Reports (IFRs),** and the project financial statements and Statements of Expenditures (SOEs) will be subject to annual audits to be conducted by external eligible auditors and based on Terms of References (ToR) acceptable to the Bank.

**(ii) Procurement**

63. **The project's procurement risk is considered Moderate as the result of the initial assessment conducted in May 2020, which was updated during project preparation.** Although FMCN as the main implementing entity has solid previous experience with World Bank projects, the assigned risk considers working partly through the three Regional Funds under the purview of FMCN. FGM is the only Regional Fund that conducted procurement in line with World Bank norms under the C6 project, while FONNOR also participated in the C6 project and is thus familiar with them. FONCET has no previous experience in or exposure to the World Bank procurement regulations. LCLOs selected under Component 3 will also conduct low-value and non-complex procurement activities. Due to the LCLOs' expectedly limited experience in or exposure to the World Bank procurement regulations, they will be supported by the responsible Regional Fund and FMCN on an as-needed basis.
64. **For investments financed under the project, strict validation mechanisms and controls will be in place to monitor financial and physical progress, and subproject beneficiaries will need close supervision and capacity building.** To mitigate these risks, the project will work to ensure from the onset that procurement training is provided by the World Bank not only to FMCN, but to the participating Regional Funds and further to the selected LCLOs as needed. For subprojects, the procurement arrangements shall include clear procedures comprising: (a) a simplified capacity assessment methodology for the beneficiaries; (b) eligible expenditures; (c) procurement methods; (d) templates for simplified procurement plan, request for quotations, contracts, etc.; and (e) supervision arrangements.
65. **Procurement will be conducted per the World Bank's "Procurement Regulations for Investment Project Financing (IPF) Borrowers",** dated July 2016, and revised on November 2017 and August 2018 ("Procurement Regulations"), included in the OM. Procurement activities under Components 1, 2, and 4 will be undertaken by FMCN and the Regional Funds, while FMCN will be responsible for the general project execution. Beneficiaries (formally organized producers) under Component 3 (subprojects) will follow Procurement Regulations as agreed in the OM, the Project Procurement Strategy for Development (PPSD), and the Procurement Plan with ongoing support and supervision by the Regional Funds. The World Bank's Standard Procurement Documents will govern the procurement of World Bank-financed Open International Competitive Procurement, which is not expected under this project. When approaching the national market, as agreed in the Procurement Plan dated March 19, 2021, the procedures and documents agreed by the Bank and FMCN will be used.

**C. Legal Operational Policies**

	<b>Triggered?</b>
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No



## D. Environmental and Social

66. **CONECTA is likely to have multiple positive E&S impacts.** The project will promote the adoption of sustainable and resilient land use and rural production practices aiming at: (i) organization of productive activities under a landscape vision; (ii) improvement of land use planning and other measures to prevent expansion of the cattle raising frontier and forest and soil degradation, including control of erosion; (iii) conservation of ecosystems and biodiversity of both local and national importance to strengthen provision of ecosystem services; (iv) reduction of use of chemical herbicides and pesticides; and (v) contribution to reducing GHG emissions and increasing resilience to climate risks. On the social side, CONECTA will (i) improve management and organizational skills of PGs to develop BSSPs; (ii) implement and promote sustainable and regenerative practices in selected value chains; (iii) improve livelihoods of members of PGs by adopting sustainable and regenerative practices as well as improving PGs' management and business skills; (iv) improve social inclusion of women (mostly active in dairy value chains and to some extent in other activities as detailed in the project GAP, see Annex 4), IPs and Afro-Mexicans as participants of the beneficiary PGs.
67. **Both E&S risks of the project are considered Moderate under the World Bank Environmental and Social Framework (ESF).** All the ESS are relevant to CONECTA, except ESS9 on Financial Intermediaries. Beyond the number of expected positive impacts, E&S risks have been identified and avoidance of negative impacts is being carefully considered. In case of any management failure, negative impacts will in every case be site-specific, short-term, and reversible. Potential risks include: (i) labor and working conditions that are not aligned with the principles of ESS2 on Labor and Working Conditions, particularly at the level of PGs. The project will conduct close monitoring and pay attention to cases of generational ranching where family members, including teenagers, help their parents in cattle raising as a way to learn about the practices and management of livestock businesses to be ready to take them over when needed. In any case, project activities will not allow or finance child labor and will follow the minimum working age stated in the Labor Mexican Law (15 years old, under certain conditions as per the Mexican federal laws); (ii) inefficient use of living natural resources and all materials, and non-consideration of good practices (sustainable livestock, agroforestry systems, riparian protection, etc.); end up encouraging further expansion of the agricultural frontier, GHG emissions and/or overexploitation of water resources in case producers do not or cannot assume ownership of the pursued considerations of environmental protection; (iii) negative impacts on community health and safety particularly related to fires and inadequate application of agrochemicals (addressed principally under ESS4); (iv) involuntary restriction of access to Natural Protected Areas (ESS5<sup>49</sup>); (v) exclusion of vulnerable populations as direct beneficiaries, resulting from potential selection of LCLOs and PLATs that might not present proposals under Component 2 and/or 3 for PGs that include/benefit directly vulnerable populations; (vi) barriers to develop an inclusive and culturally adequate stakeholder engagement strategy (ESS7<sup>50</sup>); (vii) conflicts with producer associations and small and medium producers who might not agree with the project-promoted practices; (viii) difficulties in getting cattle raisers and agroforestry producers to associate and work in groups; (ix) lack of credibility in the process of selecting LCLOs and PLATs if the selection criteria is not broadly communicated at the watershed level; and (vii) inappropriate management of cultural heritage, particularly intangible heritage (ESS8). Since March 2020, exposure to COVID-19 is considered among the key risks that require specific management in compliance with evolving national regulations and international good practices, particularly those of the World Health Organization (WHO).
68. **FMCN has solid capacity in terms of E&S risk management.** As a result of earlier World Bank-financed projects and successful completion of an accreditation process, FMCN is the first Mexican Direct Access Entity of the Green Climate Fund (GCF). FMCN has an overarching operational manual that covers E&S safeguards including on gender. To secure

<sup>49</sup> ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.

<sup>50</sup> ESS7 on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.



compliance with the ESF, FMCN prepared and consulted an Environmental and Social Management Framework (ESMF) and complementary social management instruments in close collaboration with the World Bank team.

69. **CONECTA will implement the ESMF and other instruments to identify and mitigate potential risks and impacts and to maximize E&S value added.** The ESMF provides detailed information on how the ESSs are relevant for the components and activities and the guidelines developed for securing ESS compliance at the subproject level. The ESMF builds upon environmental and socioeconomic diagnostics conducted with focus on regenerative ranching at the project states and eligible watersheds. The ESMF includes Labor Management Procedures (LMP, Appendix C) and related GRM; guidance for E&S management for the subprojects, covering e.g. efficient water use, hazardous and non-hazardous waste management, integrated pest and vector management, monitoring of biodiversity, animal welfare, and contingency or emergency response at community level particularly regarding fire prevention and fighting. FMCN has also prepared an Indigenous Peoples' Planning Framework (IPPF), Process Framework (PF), and SEP. The draft ESMF and IPPF were disclosed and consulted in March and April, 2020, respectively, and the final documents were disclosed in-country and at the World Bank external website before project Appraisal, along the Environmental and Social Commitment Plan (ESCP).<sup>51</sup> The ESMF contains guidance to include the content of Environmental and Social Management Plans (ESMPs) in the proposals of subprojects financed under Component 3. When applicable, the content of all other plans such as Indigenous Peoples Plans (ESS7) and Action Plans (ESS5) will also be included in the proposals of TA and subprojects funded under Component 2 and 3, respectively.
70. **Applying an exclusion list of activities for the subprojects based on the relevant IWAP is integrated in the ESCP as a key task during project implementation.** The subproject cycle will incorporate E&S screening and an exclusion list that will condition subprojects' approval and financing. The necessary budget resources are estimated in the ESMF to secure adequate support and monitoring activities and processes for its implementation.
71. **Gender, gender-based violence (GBV)/sexual exploitation and abuse (SEA) and sexual harassment (SH).** A screening for the level of risks related to GBV and SEA/Sexual Harassment in CONECTA was conducted by the World Bank, determining such risks are low. Beyond the referred risks, the environmental and socioeconomic diagnostics that informed the preparation of the ESMF and the GAP paid attention to the role played by women along the livestock-related value chains to determine the necessary measures to be included in the project design to improve such roles, usually invisible and non-remunerated. The project will encourage active participation of women as part of beneficiaries of TA under Component 2 and initial investments under Component 3 to improve their capacities, including promotion of their access to credit in the future. CONECTA will require establishment of codes of conduct in the agreements signed between FMCN and the Regional Funds with the PLATs and LCLOs that will lead the work conducted with PGs and will provide information on available services part of a referral pathway in cases of GBV or SEA.
72. **Indigenous Peoples (IPs) and Afro-Mexicans.** IPs and Afro-Mexicans are present in various municipalities in Veracruz, in the watershed of Tuxpan in case of IPs, and Tuxpan and Jamapa in case of Afro-Mexicans. CONECTA will give a special effort to encourage both groups to participate in either or both calls for proposals under Components 2 and 3. However, potential risks are associated with project's inability to break prevailing social dynamics that exacerbate discriminatory practices against IPs and Afro-Mexicans. To address risks related with IPs, the IPPF introduces guidelines to support communication with and outreach to IPs, including use of indigenous languages and culturally

<sup>51</sup> The ESMF, IPPF, PF, SEP, GRM description, and ESCP were disclosed by FMCN on August 14, 2020 at <https://fmcn.org/es/proyectos/conecta>. The World Bank disclosed the instruments on Nov 3, 2020 at <https://documents.worldbank.org/en/publication/documents-reports/documentlist?qterm=P172079,P172079>.



appropriate communication channels, provision of services in culturally adapted manners, including the GRM, and leveraging experience and presence of community level organizations to support implementation as PLATs/LCLOs.

73. **The COVID-19 pandemic emerged and expanded globally and in Mexico during project preparation.** FMCN has introduced measures to address the COVID-19 challenges while continuing the project preparation in compliance with national requirements and international good practice recommendations in line with the objectives of the relevant ESSs. For instance, the IPPF consultations were conducted virtually with relevant stakeholders in the Tuxpan watershed (Veracruz) with successful results. FMCN also prepared a COVID-19 mitigation strategy for the project that consists of cross-cutting measures embedded in CONECTA's E&S management instruments to address immediate challenges and impacts and response strategies for longer-term actions. Among the latter, as the project starts implementation, the World Bank will support FMCN and INECC in considering the One Health approach in relevant project activities, relevant to the consideration of multiple interlinkages between human, animal and ecosystem/environmental health, to take advantage of CONECTA to raise awareness and contribute to building of related knowledge to effectively address threats and reduce risks of zoonotic diseases at the animal-human-ecosystem interfaces within the project context.

## V. GRIEVANCE REDRESS SERVICE

74. **Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level GRMs or the WB's Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

## VI. KEY RISKS

75. **Overall, the project is considered to imply Moderate residual risks for achieving the expected outcomes.** Only "Other" risk related with COVID-19 pandemic is considered Substantial as described below, while CONECTA counts with a solid COVID-19 mitigation strategy as part of the OM. The principal project-specific Moderate risks related to its technical design and stakeholders are presented for the GEF in Annex 1.
76. **Other risks stemming from the health side of the COVID-19 pandemic are Substantial.** There is still a high degree of uncertainty as to the duration of the pandemic in different countries, including in Mexico, and thus, to its additional economic, social, and health ramifications in each economy. A broader based economic recovery in the country depends in part on the timely delivery of vaccines and the vaccination campaign. The key risk mitigating factor is that Mexico was able to rapidly secure contracts for a large amount of vaccines in a portfolio approach, that is larger than its population.

**VII. RESULTS FRAMEWORK AND MONITORING****Results Framework****COUNTRY:** Mexico

Connecting Watershed Health with Sustainable Livestock and Agroforestry Production Project

**Project Development Objectives(s)**

Improve integrated landscape management and promote climate-smart productive practices in selected watersheds

**Project Development Objective Indicators**

Indicator Name	PBC	Baseline	End Target
<b>Improve ILM and promote climate-smart productive practices in selected watersheds.</b>			
Area of landscape under improved climate-smart practices (Hectare(Ha))		0.00	450,000.00
Farmers adopting improved agricultural technology (CRI, Number)		0.00	10,000.00
Farmers adopting improved agricultural technology - Female (CRI, Number)		0.00	3,000.00
Farmers adopting improved agricultural technology - male (CRI, Number)		0.00	7,000.00
Share of producer groups implementing climate-smart practices that increase productivity by at least 10% (Percentage)		0.00	70.00



### Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
<b>Component 1: Development and Promotion of Integrated Landscape Management</b>			
IR Indicator 1.1 Inclusive, participatory ILM plans developed in (i) FOLUR CP supported landscapes; and (ii) additional landscapes beyond CP target area (Number) (Number)	0.00		6.00
IR Indicator 1.2 Global/regional/national commodity value chain policies, certifications, standards, etc. informed by FOLUR CPs (Number) (Number)	0.00		5.00
<b>Component 2: Strengthening of Business Skills for Sustainable Livestock and Agroforestry</b>			
IR Indicator 2.1 Producer groups along the targeted value chains with improved management capacities to implement climate-smart practices that improve ILM (Number)	0.00		25.00
IR Indicator 2.2 Producer groups that have adopted sustainable production business strategies (SPBS) (Number)	0.00		30.00
<b>Component 3: Conservation, Restoration, and Implementation of Climate-smart Productive Practices</b>			
IR Indicator 3.1 Area of land restored (Hectare(Ha))	0.00		10,500.00
IR Indicator 3.2 Number of the watersheds where subprojects are approved covered with a community water and/or biodiversity monitoring system under implementation (Number)	0.00		6.00
IR Indicator 3.3 Beneficiaries of subprojects satisfied with the level of engagement in the project and with project activities to enhance conservation, restoration and improve climate-smart practices (Percentage)	0.00		90.00
<b>Component 4: Project Coordination, Collaboration and Knowledge Management</b>			
IR indicator 4.1 Registered project-related grievances addressed according to the objectives set for quality and timeliness (Percentage)	0.00		90.00
IR indicator 4.2 Members of FOLUR-supported Communities of Practice (Number)	0.00		500.00



Indicator Name	PBC	Baseline	End Target
IR indicator 4.2 sub-indicator: Female members of FOLUR-supported Communities of Practice (Number)	0.00		200.00
IR indicator 4.3 Participants trained in FOLUR best practices or cross-cutting issues (Number)	0.00		10,000.00
IR indicator 4.3 sub-indicator: Female participants trained in FOLUR best practices or cross-cutting issues (Number)	0.00		3,000.00
IR indicator 4.4 Number of direct beneficiaries as co-benefit of GEF investment (Number)	0.00		15,000.00
IR indicator 4.4 sub-indicator: Number of direct female beneficiaries as co-benefit of GEF investment (Number)	0.00		4,500.00

#### Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Area of landscape under improved climate-smart practices	<p>The indicator will be reported to the GEF/FOLUR IP on annual basis according to the wording of the GEF/FOLUR IP indicator 'Area of landscape under improved practices (Hectare, Ha)'</p> <p>This indicator measures in hectares the land area for</p>	Annual, Cumulative	Project and activity records using geospatial databases	<p><i>Area of landscape</i> is the terrestrial biologically productive system comprising soil, vegetation, and the associated ecological and hydrological processes.</p> <p><i>Under improved climate-smart practices</i></p>	FMCN and Regional Funds



	<p>which new climate-smart and/or improved sustainable landscape management practices have been introduced through the project under all its components with the objective of strengthening/improving integrated landscape management.</p> <p>All project components will address climate change considerations as a key transversal issue that needs to be covered under improved practices both in terms of adaptation and mitigation.</p>		<p>refers to change of practice or change in the use of a climate adaptation technology promoted or introduced by the project under all its components, including productive practices and ecological restoration and conservation as described in the Operational Manual (OM) and in further detail in the Environmental and Social Management Framework (ESMF) of CONECTA.</p> <p>Climate-smart practices seek to generate the necessary adjustments to respond to the experienced or anticipated impacts of climate change and contribute to its mitigation efforts. The design of these measures must provide</p>	
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				adequate and specific responses to climate stimuli, actual or projected, or their effects and moderate the damage or take advantage of its beneficial aspects where possible, including mitigation efforts.	
Farmers adopting improved agricultural technology	<p>This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by operations supported by the World Bank.</p> <p>NB: "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber and non-timber forest products.</p> <p>Adoption refers to a change of practice or change in use of a technology that was introduced or promoted by</p>	Annual, Cumulative	Review of subproject documents and related monitoring records and field verification on a sample basis	<p>This indicator measures the number of farmers who have adopted climate-smart regenerative cattle and agroforestry production practices promoted or introduced by the project to strengthen integrated landscape management (ILM) under all its components and with direct support to farmers under Component 2 and 3.</p> <p><i>Adoption</i> refers to a change of practice or change in use of a</p>	FMCN and Regional Funds



	<p>the project.</p> <p>Technology includes a change in practices compared to currently used practices or technologies (seed preparation, planting time, feeding schedule, feeding ingredients, postharvest storage/processing, etc.). If the project introduces or promotes a technology package in which the benefit depends on the application of the entire package (e.g., a combination of inputs such as a new variety and advice on agronomic practices such as soil preparation, changes in seeding time, fertilizer schedule, plant protection, etc.), this counts as one technology.</p> <p>Farmers are people engaged in farming of agricultural products or members of an agriculture related business (disaggregated by men and women) targeted by the project.</p>		<p>technology that was introduced or promoted by the project. The activity must comply with the criteria of adoption, such as provide photographic or physical evidence of the implementation.</p> <p><i>Technology</i> includes a change in practices compared to currently used practices or technologies: feeding ingredients, postharvest storage/processing, and other activities aimed at reducing climate vulnerability and negative impacts on environment as detailed in the OM.</p> <p><i>Farmers</i> are people engaged in agroforestry and cattle production practices targeted by the project (disaggregated by</p>	
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				gender and ethnicity, the latter at the level of the OM).	
Farmers adopting improved agricultural technology - Female					
Farmers adopting improved agricultural technology - male					
Share of producer groups implementing climate-smart practices that increase productivity by at least 10%	The indicator measures the percentage of producer groups that report at least 10% increase in their average productivity from baseline applying climate-smart practices promoted by the project.	Annual, Cumulative	Field / WhatsApp / SMS surveys by the project technicians	<p><i>Producer groups</i> are groups of producers, family businesses and/or enterprises from "comunidades", "ejidos" or local groups; whether formally established or not, dedicated to livestock and/or agroforestry along all the stages of the targeted value chains, and willing to adopt and/or improve the application of climate-smart technologies under Components 2 and 3.</p> <p><i>Productivity</i> measurement will be determined in the proposal for each case</p>	FMCN and Regional Funds



				<p>to allow flexibility and adaptability for a wide range of potential activities in all eligible value chains. The detailed methodology for the measurement of this indicator will be included in the OM. Example questions related with livestock and coffee production are:</p> <p>1) How much milk are you able to generate per cow? (Liters/annual average/hectares); 2) What is the average weight of your cows of prime selling age? (Kg/annual average); and 3) How many kg/ha of coffee you produced in the last 12 months?</p>	
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Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
IR Indicator 1.1 Inclusive, participatory ILM plans developed in (i) FOLUR CP supported landscapes; and (ii) additional landscapes beyond CP target area (Number)	<p>GEF FOLUR IP results indicator; CP refers to the Country Projects under the FOLUR Impact Program.</p> <p>This indicator measures the number of Integrated Watershed Action Plans (IWAP) that have been developed by key actors. Some of the IWAPs cover various watersheds, depending on ecological and socioeconomic considerations.</p>	Semi-annual, Cumulative	Project and activity records	<p><i>Land use management plans</i> within the project framework are the IWAPs, which are planning instruments that promote functional connectivity of the territory by focusing production and ecological restoration and conservation strategies in areas with important supply of ecosystem services and consider climate change aspects.</p> <p><i>Developed inclusive and participatory</i> means that there is a formal participatory process through workshops and meetings/virtual means to collect inputs for and feedback on the plans, recovering traditional local knowledge and</p>	FMCN and Regional Funds



				considering community and institutional capacities to implement actions focused on the ecological connectivity within each watershed.	
IR Indicator 1.2 Global/regional/national commodity value chain policies, certifications, standards, etc. informed by FOLUR CPs (Number)	GEF FOLUR IP results indicator; CP refers to the Country Projects under the FOLUR Impact Program.  This indicator measures the number of agreements informed by the project that support the implementation, replication and scale-up of activities implemented under Components 2 and 3, including regenerative cattle production, climate-smart agroforestry, conservation and restoration practices, among others.	Semi-annual, Cumulative	Project and activity records	<p><i>Policies, standards, etc. influenced</i> are interinstitutional agreements, policy instruments or programs generated by the project that may include formal agreements, laws, modification to operational rules, and others as detailed in the OM.</p> <p><i>FOLUR products</i> include IWAPs, communication material and other resources developed by the project.</p> <p><i>The agreements supported by the project</i> can be with a range of agencies, public and private at</p>	FMCN and INECC



				federal, state or local level, relevant to the implementation of the project, including, <i>inter alia</i> , CONAFOR, CONANP, AGRICULTURA, CONAGUA, FIRA, financial institutions, state-level ministries, municipal agencies and private sector actors.	
IR Indicator 2.1 Producer groups along the targeted value chains with improved management capacities to implement climate-smart practices that improve ILM	This indicator measures the number of producer groups that have participated in the 3-4-year accompaniment program, have been trained and are working through the project-specific platforms for technical assistance that improve their relevant capacities.	Mid-term and end of project	Pre-post assessment through a participatory survey	<p><i>Producer groups</i> are the community enterprises, organizations, and other groups, formally or informally organized, described in Table 1 of the PAD, targeted by the project and benefited under Component 2.</p> <p><i>Improved management capacity</i> means improved knowledge measured by an ex ante-ex post participatory survey.</p> <p><i>Climate-smart</i> are</p>	FMCN and Regional Funds



				<p>those livestock and agroforestry practices implemented under Component 2 to improve environmental and social responsibility of each value chain.</p> <p><i>Targeted value chains</i> are beef, dairy, coffee and other eligible agroforestry value chains that may involve agrotourism, as defined in the OM.</p>	
IR Indicator 2.2 Producer groups that have adopted sustainable production business strategies (SPBS)	This indicator measures the number of producer groups that have a developed and are implementing a 3-4-year accompaniment program, detailed in a SPBS.	Annual	Project and activity records	<p><i>Producer groups</i> are the community enterprises, organizations, and other groups, formally or informally organized, described in Table 1 of the PAD, targeted by the project and benefited under Component 2.</p> <p><i>Sustainable production business strategies</i> are instruments developed under Component 2 that</p>	FMCN and Regional Funds



				detail a master plan that aims to improve the management and organizational capacities of PGs, including relevant climate considerations. They are tailored to each PG and based on an initial diagnosis carried out by local providers of technical assistance (PLATs).	
IR Indicator 3.1 Area of land restored	<p>GEF FOLUR IP results indicator.</p> <p>This indicator measures the aggregate total of area of degraded land restored under the project, implying a greater resilience to impacts of climate variability and change.</p>	Annual, Cumulative	Project and activity records using geospatial databases	<p><i>Land</i> means the area under restoration practices supported by Component 3 as well as Component 2.</p> <p><i>Restored</i> means agricultural lands restored; soil restoration practices in place; area of forest and forest land restored; area of natural grass and shrublands restored; and area of wetlands (including estuaries and</p>	FMCN and Regional Funds



				mangroves) restored.	
IR Indicator 3.2 Number of the watersheds where subprojects are approved covered with a community water and/or biodiversity monitoring system under implementation	This indicator measures the number of the eligible watersheds that have a new/improved community water and/or biodiversity monitoring system implemented by participating communities through project support. The monitoring points will be selected in collaboration with the beneficiaries of Component 3 to conduct cost-effective monitoring.	Semi-annual	Project data, based on participatory water monitoring and/or biodiversity monitoring system	<p><i>Watersheds</i> are those watersheds where Component 3 is implemented.</p> <p><i>Community system</i> means a system that involves the beneficiaries from Component 3 in the measurement.</p> <p><i>Water and/or biodiversity monitoring</i> means a system that measures the main water and biodiversity characteristics related to the project in each watershed as defined in the OM.</p> <p><i>Under implementation</i> means that the system complies with the technical criteria detailed in the OM and the information is being analyzed under the project.</p>	INECC, FMCN and Regional Funds



IR Indicator 3.3 Beneficiaries of subprojects satisfied with the level of engagement in the project and with project activities to enhance conservation, restoration and improve climate-smart practices	This indicator measures the rate of satisfaction of project beneficiaries of subprojects under Component 3. Mid-term and final surveys will obtain feedback on their satisfaction on key dimensions, for example, design and dissemination process for the call for proposals, capacity building received, level of engagement, opportunities to provide feedback and the responsiveness of the project to feedback provided. "Satisfaction" will be rated from 1-5 (from very low to very high satisfaction); and an average response of 4 is determined as "satisfied".	Mid-term and end of project	Two feedback surveys sent to each subproject and complementary qualitative supervision records along the subprojects' implementation period	Two feedback surveys sent to beneficiaries of Component 3; two surveys per subproject. Data collected through the surveys will be complemented with qualitative information gathered during supervision of the subprojects.	FMCN and Regional Funds
IR indicator 4.1 Registered project-related grievances addressed according to the objectives set for quality and timeliness	The indicator will be reported towards the WB citizen engagement indicator 'Registered grievances related to the project being addressed (Percentage)'.	Semi-annual	Grievance Redress Mechanisms	<i>Registered grievances</i> are those grievances related to the project received by the GRMs that are in place for the project.	FMCN and Regional Funds



	This indicator measures the ratio of the grievances/other project-relevant communication received that are addressed in full compliance with the processing and quality standards set forth in the design of the project's GRMs included in the OM.			<i>Addressed</i> are those grievances that are handled in good time and in an appropriate manner, according to the procedures and criteria described in the OM.	
IR indicator 4.2 Members of FOLUR-supported Communities of Practice	<p>GEF FOLUR IP results indicator.</p> <p>This indicator measures the number of members that participate in the Communities of Practice developed under the project with the objective to exchange knowledge on regenerative cattle production and climate-smart agroforestry practices.</p>	Semi-annual	Project and activity records	<p><i>Communities of Practice</i> are the CONECTA National Learning Community and regional knowledge platforms that cover virtual and physical meetings to exchange knowledge about regenerative cattle production and climate-smart agroforestry practices. There will be at least two national meetings and eight regional meetings.</p> <p><i>Members</i> include a wide range of key actors, e.g. producers benefited by</p>	FMCN



				Components 2 and 3, and representatives of public entities at different levels, private sector and financial institutions.  Additional to this indicator, the number of participants in other local and national workshops and events will be measured.	
IR indicator 4.2 sub-indicator: Female members of FOLUR-supported Communities of Practice					
IR indicator 4.3 Participants trained in FOLUR best practices or cross-cutting issues	GEF FOLUR IP output and gender indicator that involves counting the number and proportion of female participants of any capacity strengthening efforts, virtual or otherwise, related to ILM, promotion of sustainable food practices and responsible FOLUR commodity value chains; cross-cutting issues relate to sustainability, equity, etc.	Semi-annual, Cumulative	Project and activity records	Training events are any project-related events at local, regional or federal level that cover virtual and physical courses and meetings to learn about climate-smart practices, regenerative cattle production, sustainable agroforestry practices and different topics related with good environmental and	FMCN



				social practices, including gender issues.	
IR indicator 4.3 sub-indicator: Female participants trained in FOLUR best practices or cross-cutting issues	PROFOR gender indicator GEF FOLUR IP results indicator  This indicator measures all the direct beneficiaries under Components 1-3 of the project based on the following definitions: government officials and private sector and local communities' representatives that participate in the capacity building events related to the development / strengthening of the IWAPs and alignment of policies and programs under Component 1, and beneficiaries of Components 2 and 3, including those that do not meet the WB CRI definition of a farmer, e.g. land owners of areas dedicated to conservation	Semi-annual, Cumulative	Project and activity records	<i>Direct beneficiaries</i> refer to the total number of project beneficiaries under Components 1-3, disaggregated by gender and ethnicity, the latter at the level of the OM.	FMCN
IR indicator 4.4 Number of direct beneficiaries as co-benefit of GEF investment					



	or non-productive (habitat) restoration.				
IR indicator 4.4 sub-indicator: Number of direct female beneficiaries as co-benefit of GEF investment					

**ANNEX 1: Implementation Arrangements and Support Plan****Composition of the Technical Committee, Coordinating Units, and role of the Regional Funds**

1. **The TC will be composed by INECC and FMCN and have internal regulations to oversee the project's technical and operational aspects, including E&S risk management.** The TC will rely on the CC to coordinate actions in the watersheds to facilitate compliance with the ESMF and work with the participating agencies to assure that appropriate local and regional bodies are engaged or launched where needed. It will also assure they have the necessary technical and logistical support to comply with their project-related responsibilities to ensure its adequate governance, regional coordination, compliance with ESSs, and local participation. The TC will be chaired by INECC and it will select the personal of the TCU and OCU, review the two calls for proposals and select the service proposals and subprojects under Components 2 and 3, as well all contracted consultancy services. It will meet three times a year and receive reports from the TCU, OCU, and the Regional Funds, which will participate in the TC meetings.
2. **The TCU and OCU will be established at INECC and FMCN, respectively, and report to the CC and TC.** The TCU will be made up of five specialists selected by INECC with the approval of the TC and hired by FMCN: an Integrated Landscapes Coordinator, Market and Economic Analysis Officer, Mitigation Officer, Technical Modeling Officer, and Analyst or Specialist. They will report to the official designated by INECC. The TCU will oversee generating the technical information for the project components and be equipped by computers and specialized technology packages financed by the project. Three local consultants will be contracted to promote the alignment between the project and government institutions at the local level. They will work jointly with the Regional Funds and report to the TCU. FMCN will house the OCU composed of a Sustainable Management Director, Project Coordinator, E&S Management Specialist, E&S Management Officer, and Accounting Assistant hired by FMCN. The OCU will also be supported by FMCN personnel to carry out all project-related administrative tasks, monitoring and reporting, compliance with FM and audit, procurement, fiscal and legal aspects, as well as guidance, supervision and reporting on the implementation of the ESSs. The OCU will train, support, and supervise the personnel of the Regional Funds to secure compliance with the project's E&S management instruments. The project supervision will be conducted in compliance with the COVID-19 mitigation strategy included in the OM as relevant throughout the implementation period and across the project areas. Tools that facilitate remote supervision such as GEMS will be used by CONECTA as necessary and opportune, supported by the World Bank team. Technical personnel of the CC agencies are also expected to provide related support through designated focal points e.g. to contribute to environmental assessment and management of the subprojects. The OM includes the description of the personnel, including the position grade according to the internal structures of INECC and FMCN.
3. **Three Regional Funds, supervised by the OCU, and FMCN in Chihuahua, will be responsible for the administration, implementation support and supervision of the selected subprojects.** FONCET in Chiapas, FONNOR in Jalisco, and FGM in Veracruz have been established by FMCN to support coordination with local stakeholders. They will be trained in the design, implementation support and monitoring of the subprojects in compliance with project's E&S management instruments. The Regional Funds have different levels of experience, and it will be a key responsibility of FMCN to secure each of them comply with the applicable project requirements in each situation. The Regional Funds will be responsible for (i) socializing the IWAPs and aligning public and private incentives for their implementation under Component 1; (ii) the main outreach on the call for proposals, the selection process, as well as the follow up, administration and supervision of the selected proposals under Component 2 and subprojects under Component 3; and (iii) promoting social participation, coordination of stakeholders and exchange of learning in each watershed under Component 4. Depending on the watersheds where PLATs and subprojects are selected, on average



each Regional Fund will have a Coordinator, a Technician and an Accountant hired for CONECTA-related tasks. The main functions of the Regional Funds are to (i) ensure that the activities and the use of resources meet the objectives in accordance with the applicable project documents; (ii) report to the CC and TC in a timely manner; (iii) ensure adequate compliance with the ESMF, technically supporting the stakeholders involved; (iv) with support of the TC, identify opportunities for accessing subsidies, investments or activities present in the watersheds; (v) promote interinstitutional coordination and agreements with institutions capable of supporting CONECTA's objectives at state and local levels; (vi) support and strengthen learning communities; and (vii) participate in the leveraging of additional funds for CONECTA. Depending on the number of proposals and subprojects in each state, FMCN will determine the amount of resources to be channeled to each Regional Fund and sign respective contracts (Regional Agreements) with them.

#### **Key Moderate Risks and Implementation Measures**

4. **The implementation support strategy for the project was developed based on the risks and mitigation measures related to the operation and aims to provide flexible and efficient implementation support to FMCN and INECC.** The principal Moderate risks of CONECTA relate to its technical design and stakeholders as presented below, associated with the ambition of reaching landscape-level outcomes.

#### **Technical design of project**

5. **At the regional and local levels, given the several layers of organization, roles and responsibilities may not get clearly implemented.** The participating states and municipalities may have limited capacity to particularly enforce environmental regulations. Insufficient training and control over the participating PLATs and LCLOs may also imply problems. These risks will be mitigated through: (a) the development of interinstitutional agreements laying out the roles and responsibilities of each agency; (b) the creation of two interagency committees, over which INECC will preside, including representation of decision makers of the involved federal agencies; (c) the securing of environmental, organizational, and monitoring capacity of the Regional Funds through training by the project as needed; (d) the implementation of a strong selection process, whereby PLATs and LCLOs need to meet adequate technical profiles to offer TA to beneficiaries; and (e) the provision of necessary training to PLATs and LCLOs to adequately address project needs when necessary.
6. **The number of agencies involved** could present coordination challenges, affecting implementation. To mitigate this risk, CONECTA will promote institutional sustainability through: (a) effective flow of funds and clearly differentiated platforms for decision-making, strategic advice and collaboration and KM; (b) establishment of a CC to strengthen collaboration between federal-level environmental, agricultural, water, and rural finance agencies participating as project partners; (c) enhanced local participation and ownership to promote conservation and sustainable natural resource management in productive landscapes; and (d) decentralized execution of activities involving regional and local authorities and PGs.
7. **CONECTA seeks to prevent the risk of further land conversion/forest degradation yet increases in productivity due to adoption of sustainable livestock practices may simultaneously foster expansion of ranching.** The essence of the proposed regenerative ranching approach is based on the notion that farmers learn to embrace the environment. CONECTA will support training and capacity building as well as incentives linked to key environmental conditions. The calls for proposals under Components 2 and 3 will also communicate clearly that the eligible beneficiaries will need to commit to longer-term improvements in their productive/processing/commercial activities, and the same will be reflected in the agreements they sign with the responsible PLAT/LCLO. Further, Components 1 and 4 will work toward



wider policy/program changes, awareness raising, and generation of knowledge to consolidate an enabling environment for longer-term, transformational behavioral changes.

8. **Changing climatic conditions could affect the success of adaptation measures to be demonstrated during implementation.** Climate variability and change may take different forms (more or less severe and different in specific aspects such as impact on rainfall totals, regularity, intensity, etc.) or occur more slowly than anticipated. Further, the chosen adaptive practices may prove less effective than anticipated in reducing impacts of climate variability and change to farmers, or farmers might not adopt the promoted practices due to lack of inputs, financing, or TA. To identify and mitigate these risks, the project was screened for key climate risks and it incorporates a transversal focus on reducing climate vulnerability and promoting climate-smart practices.
9. **M&E.** Measuring impacts of sustainability of biodiversity and environmental services in livestock production landscapes is often challenging. However, FMCN has strong experience and practices with M&E of similar indicators through other GEF-funded projects. The Regional Funds will be supported and supervised closely to incorporate sound indicators and monitoring arrangements in the selected project sites. Overall, the project will seek to strengthen monitoring capacities at different levels.

### **Stakeholders**

10. **A sustained adoption of land uses most beneficial for biodiversity and other environmental interests may prove to be less appealing for producers from a production and economic interest perspective.** The project will address financial sustainability through: (a) the design and implementation of local PES mechanisms financed by service users that will offer long-term payments for the promoted sustainable production practices; (b) the provision of comprehensive TA to ensure profitability of sustainable cattle ranching and agroforestry production with a moderate short-term impact on farm productivity, but offering clear economic returns in the mid to long term and greater environmental services; and (c) support from other market-based instruments to provide farmers with potential funding flows. FMCN has substantial experience in setting and implementing PES programs. The project has also prioritized and will further prioritize the areas of intervention to maximize results in terms of global environmental benefits and be able to customize incentive arrangements for the selected PGs.
11. **Public agencies or private companies may be unwilling to share information or change their BAU practices.** The project will assume information and knowledge generation, management, and dissemination as key deliverables. Open access and the mutual benefits of information sharing will be core values for project-related work as they are for the FOLUR Global Platform. Through the latter, CONECTA will access directly related contributions from external organizations with information, data, and access where useful. Project messaging will be targeted to different stakeholder groups, strategic alliance will be sought at different levels, and the promoted practices will be showcased in various ways throughout the project implementation period to create awareness and build capacity and credibility among the interest groups.
12. **The World Bank implementation support strategy:** Further to the above referred measures to manage the principal project risks, the World Bank implementation support strategy considers the lessons learned from the C6 project and focuses primarily on the implementation of risk mitigation measures as follows:
  - (a) **Interinstitutional coordination.** To ensure coordination between the number of contributing federal-level agencies, and those at state and local levels, the World Bank team will carry out close implementation



support planning and results monitoring. It will include but will not be limited to semiannual missions.

- (b) **Technical support.** The World Bank technical and fiduciary teams will have continuous dialogue with FMCN and INECC and, specifically, the OCU and TCU to support implementation, including of the ESSs, and close reporting mechanisms. Implementation support will include contributions from the World Bank-led FOLUR Global Platform to help resource and guide the implementation of this Mexico CP and the related policy dialogue at federal, state, and local levels.

#### Financial Management Assessment

13. **Country issues relevant to the Project. Overall public FM of the Mexican Federal Administration relies on strong budgeting, treasury, accounting, and control systems.** These FM country systems will be partially applied to the Project. Moreover, specific harmonized financial reporting and auditing arrangements for projects financed by the multilateral financial institutions in Mexico, which also will be applied for the Project, have been agreed upon with the Government, through Ministry of Public Administration (*Secretaría de la Función Pública*, SFP).

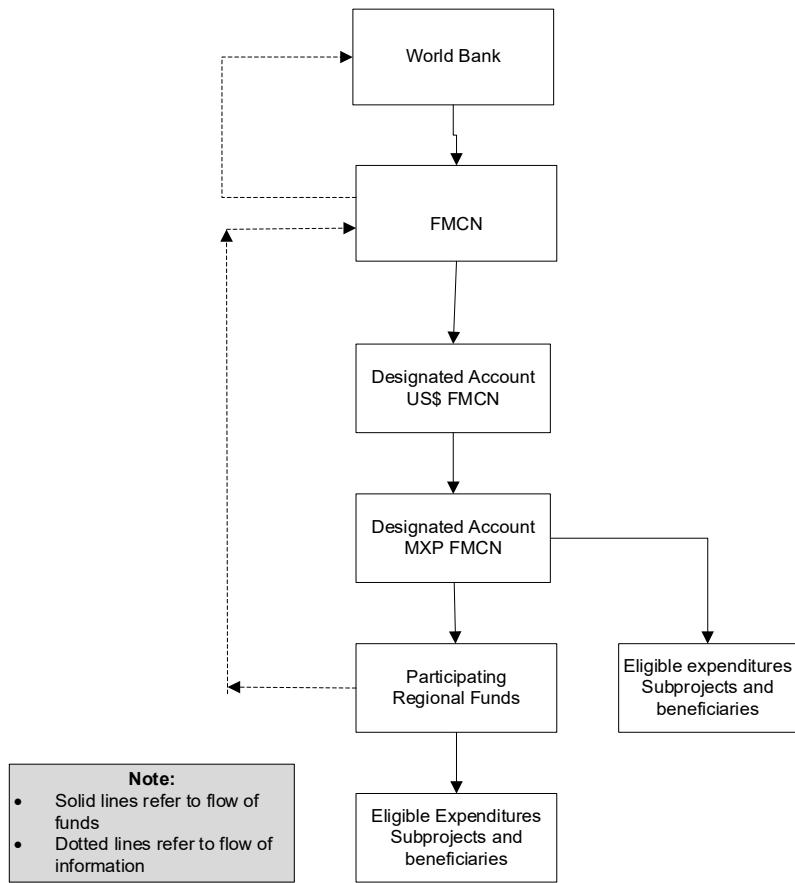
**Project investment components and financing are as follows:**

Project Components	GEF Trust Fund	GEF Project Financing in US\$
1. Development and Promotion of Integrated Landscape Management	GEF	1,630,652
2. Strengthening of Business Skills for Sustainable Livestock and Agroforestry	GEF	2,304,467
3. Conservation, Restoration and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes	GEF	7,649,917
4. Project Coordination, Collaboration and Knowledge Management <sup>52</sup>	GEF	2,176,432
<b>Total Project Cost</b>		<b>13,761,468</b>

14. **Regarding the implementation of the subprojects under Component 3, payments to the beneficiaries will be made primarily by FMCN.** Some decentralized payments will be made by FGM, FONNOR, and FONCET under defined operational guidelines, approved by the Bank, which include among other controls, three-level subprojects selection as well as their online M&E through the respective FMCN SISEP. SISEP is a suitable Information Technology platform with the capacity to control all subproject-related processes, administered by FMCN, including payments to the beneficiaries, monitoring, and financial and technical reporting. 6,077,505
15. **Staffing arrangements.** FMCN has adequate capacity to carry out the tasks in terms of FM, given its long-standing experience in executing projects financed through the Bank. It also has a sound internal control environment as well as a suitable organizational structure, which allows for proper segregation of FM-related functions.

<sup>52</sup> In the GEF Datasheet, the GEFTF contribution to Component 4 is US\$1,521,124, and a separate amount of US\$655,308 is allocated for project management cost.

16. **FMCN will be responsible for project-related FM tasks, including budgeting, accounting, financial reporting, and disbursements.** While these tasks will be managed from the regional FMCN's office based in Xalapa, Veracruz, all payments and overall financial control, including bank reconciliations of all project accounts, will be carried out by FMCN's headquarters located in Mexico City, based on the information captured through the institutional Enterprise Resource Planning (ERP) system. Both offices have suitable organizational structures with trained personnel that possess the required experience and credentials to ensure a responsible and competent project management. FGM, FONNOR, FONCET also have experienced and suitable organizational structure to carry out FM on financial resources.
17. **At the time that FMCN transfers the resources to the Regional Funds, they will receive the funds in a dedicated and segregated bank account in Mexican pesos.** Regional Funds will also have a budget for executing the project funds, keeping the corresponding accounts for the project, and preparing financial reports to complement the general financial report that FMCN will submit to the Bank, as it was done in the C6 project.
18. **Budgeting arrangements.** All project budget funds will be controlled and managed by FMCN through a system called LOVIS, which is an integrated online FM system that includes modules of budgeting, accounting, and treasury. LOVIS was developed during the implementation of the previous C6 operation, closely followed up by the World Bank FM Specialist, deemed strong, and considered acceptable to the Bank.
19. **Accounting system.** FMCN will consolidate and maintain accounting records through the LOVIS system, adequate to reflect project operations and financial conditions in compliance with local requirements applicable to private and non-profit entities (*Normas de Información Financiera*), issued by the Mexican Council of Financial Information Standards, A.C. (*Consejo Mexicano de Normas de Información Financiera CINIF*). FMCN is currently looking for an even more advanced ERP tool with advanced functionalities to expand its administrative capabilities and may implement a new system during CONECTA implementation.
20. **Internal control and internal auditing.** FMCN does have an internal control unit that reports to the Executive Board of the Institution. It has a solid operational set of guidelines, as well as a clear segregation of main FM-related functions, including the application of the internal control framework of the Committee of Sponsoring Organizations (COSO).
21. **Flow of Funds.** The description of the funds flow is presented in the following diagram, where the solid lines represent the flow of money and the dotted lines represent the flow of information. Regarding the subprojects, advances will be paid by FMCN to the Regional Funds on a grant basis for eligible expenditures and beneficiaries, and directly to the eligible beneficiaries under Component 3 in case of Chihuahua. The relevant documentation will be processed by FMCN and the Regional Funds using a specific SOE format included in the OM.



- (1) The Bank advances the authorized amount into a project Designated Account (DA), administered by FMCN.
- (2) FMCN will transfer part of the funds to participating Regional Funds to pay for eligible expenditures, subprojects, and beneficiaries, while processing payments to the project consultants and providers.
- (3) Regional Funds will be responsible for some payments corresponding to eligible project expenditures and operations.
- (4) Eligible expenditures will be aggregated and summarized by FMCN in SOEs to be formally submitted to the Bank to document the advance and/or to request the DA's replenishment.
- (5) The Bank will replenish the documented amount to the DA based on submission of eligible expenditures to final beneficiaries and suppliers.

**22. Disbursement arrangements.** The grant disbursement arrangements are summarized below.

Disbursement method	<ol style="list-style-type: none"> <li>1. Reimbursements corresponding to the transfers to the subprojects and other expenditures in the case of retroactive expenditures.</li> <li>2. Advance to a pooled DA, to be administered by FMCN, in US dollars in JP Morgan for financing of eligible expenditures.</li> <li>3. Direct payment.</li> </ol>
DA and timing of documentation	The DA ceiling is U\$S2.5 million. The funds advanced to the DA will be documented on a quarterly basis.
Supporting	<ol style="list-style-type: none"> <li>1. Records evidencing eligible expenditures.</li> </ol>



documentation	2. Traditional SOE <sup>53</sup> for all components; customized SOE formats, if deemed necessary, have been agreed as part of the OM.
Limits	The recommended minimum value of applications for advances is US\$400,000.
Retroactive expenditures	<p>There could be retroactive financing up to US\$2,752,294 (20 percent of the total grant), in case needed and if fulfilling the following conditions:</p> <ul style="list-style-type: none"> <li>✓ Made by the Recipient prior to the signature of the Grant Agreement but on or after January 1, 2021 (but in no case more than one year before the date of the Grant Agreement).</li> <li>✓ Be subject to the same systems, controls and eligibility filters described above in the present FM Assessment. These expenditures will also be subject to the regular project external audit.</li> </ul>

23. **Financial reporting and external audit.** FMCN will prepare calendar semester unaudited IFRs with an agreed format like SFP-defined formats for financial reports and with additional information included for the Regional Funds. External audits of project financial statements and eligibility of expenditures incurred by FMCN will be conducted by an independent audit firm based on the ToR acceptable to the Bank, as was the case with the previous C6 operation.
24. **The audit reports will also be subject to the World Bank Policy on Access to Information.** After grant effectiveness, the following financial reports will be presented to the World Bank:

Report	Entity	Periodicity	Due date	Comments
Unaudited IFRs	FMCN	Semi-annual	February 15 and August 15	Mandatory
Audited financial statements	FMCN	Annual	June 30, or six months after the end of audit period	Mandatory

25. **Written procedures.** FMCN has a general operational manual that has been complemented with a project OM, which includes detailed operational descriptions covering the applicable institutional, FM, disbursement, and procurement arrangements, among other relevant sections, when different from the FMCN general arrangements.
26. **Supervision strategy.** The scope of project supervision includes a review of the implementation of the FM arrangements and FM performance, identification of corrective actions if necessary, and monitoring of fiduciary risks. It will take place on a semiannual basis and include: (a) desk review of project IFRs and audit reports and follow-up on any issues raised by auditors, as appropriate; (b) participation in project implementation support missions at least twice a year, looking into the operation of the control systems and arrangements described in the present FM Assessment; and (c) updating of the FM performance and risk rating in the FM Implementation Support and Status Report (FMISSR), as pertinent.

#### Procurement

27. **Procurement will be conducted per the World Bank's 'Procurement Regulations for IPF Borrowers'**, dated July 2016 and revised on November 2017 and August 2018 ("Procurement Regulations"), included in the OM. Procurement activities under Components 1, 2, and 4 will be undertaken by FMCN and the Regional Funds as detailed in the OM. The World Bank's Standard Procurement Documents will govern the procurement of World Bank-financed Open International Competitive Procurement, yet it is not expected under the project. When approaching the national

<sup>53</sup> All SOE supporting documentation will be available for review by external auditors and Bank staff at all times during project implementation, until at least the later of: (a) one year after the Bank has received the audited financial statements covering the period during which the last withdrawal from the DA was made and (b) two years after the Closing Date. The Recipient and the Project Implementing Entity shall allow the Bank's representatives to examine these records.



market, as agreed in the Procurement Plan dated March 19, 2021, an adapted version of the harmonized procedures and documents will be used as agreed by the World Bank with the SFP and the Inter-American Development Bank (IDB).

28. **Procurement under Component 3 will be conducted by the selected LCLOs under the supervision of the Regional Funds.** LCLOs will need to comply with minimum organizational and capacity filters, with specific support from the corresponding Regional Fund and FMCN as pertinent in each case.
29. **Procurement Arrangements.** A PPSD, dated March 19, 2021, includes the appropriate selection methods as well as market approach and type of review by the World Bank as presented below:
30. **Goods and non-consulting services** will be procured following Request for Bids, Request for Quotations, and Direct Selection methods. Under the Open International Competitive Procurement approach, the Bank's Procurement Standard Documents will apply.
31. **Consulting services** will be procured following Quality and Cost Based Selection, Fixed Budget Based Selection, Least Cost Bases Selection, Quality Based Selection, Consultant's Qualification Based Selection, Direct Selection, and Individual Consultants methods. Under the International Market approach, the World Bank's Request for Proposals Standard Document will apply. When approaching the national market, an adaptation based on the harmonized Request for Proposals agreed by the World Bank with the SFP and the IDB will be used.
32. **Procurement for subprojects under Component 3** will be conducted by the selected, formally organized LCLOs under supervision of the Regional Funds. The eligible activities and consequent expenditures will be listed in the OM and presented in the call for proposals/bids. In collaboration with the Regional Funds, FMCN will be responsible for monitoring and supervising the procurement activities conducted by the LCLOs. This implies the designation of a responsible person for procurement in each Regional Fund to support, supervise, and monitor the procurement activities. It is expected that the Global Water Watch Mexico, A.C. will be hired by FMCN on a single source basis (direct selection) for five years to develop community water monitoring for the project under Component 1.

**Table A1.1: Procurement Improvement Action Plan**

Risks – Areas for Improvement	Mitigation Actions	When
A PPSD and a project Procurement Plan	A comprehensive PPSD and a detailed Procurement Plan have been prepared.	By Appraisal
Responsibilities related to the procurement activities	The project's OM shall contain:  A clear definition of the processes, roles, and responsibilities of the personnel related to the implementation of the procurement activities.  With respect to commercial practices and customer due diligence (CDD), the final OM shall include: - Capacity assessment methodology for the selected LCLOs, which will be conducted by FMCN. - Eligible expenditures under Components 2 and 3. - Procurement methods that will apply under Component 3	Before Negotiations

	<p>subprojects.</p> <ul style="list-style-type: none"> <li>- Templates for simplified procurement methods.</li> <li>- Supervision arrangements under subprojects.</li> <li>- Audit arrangements.</li> </ul>	
Personnel with expertise in procurement	A Procurement Specialist with a ToR acceptable to the World Bank shall be incorporated to each one of the Regional Funds.	As agreed in the Procurement Plan
Procurement activities through beneficiaries of subprojects	<p>The Subproject Agreements signed between FMCN/Regional Fund and each selected LCLO shall include a statement in which the LCLO agrees that the procurement of non-consulting works and goods will be carried out in accordance with the procedures set forth in the OM.</p> <p>Training will be provided to the selected LCLOs by the Regional Funds and FMCN.</p>	During project implementation

**ANNEX 2: Selection and Key Characteristics of the Project Sites**

1. **Meat and milk production for domestic and coffee for international markets are key economic activities in the project area and have potential for more and better growth.** Livestock is an important activity in the eligible watersheds, covering 70 percent of the territory in Chihuahua, between 40 to 60 percent in Jalisco and Veracruz and 31 to 40 percent in Chiapas. The states of Veracruz and Jalisco are the first and second producers of beef with 13 and 12 percent of the 2018 national production. The national beef industry in Mexico continues to supply largely domestic markets as only 13.5 percent of beef production is destined to exports.<sup>54</sup> Mexico's cow-calf industry exports around 1 million live cattle to the US, and Chihuahua is the top exporter.<sup>55</sup> Mexico is a net importer of milk (liquid and powder) as national production is not enough to meet demand. Jalisco and Chihuahua are among the top national producers of milk representing 9.4 and 20 percent of the national total respectively. Milk production in Veracruz and Chiapas accounts for 6 and 3.6 percent and has significant potential to increase their participation in the national market.<sup>56</sup> Chiapas and Veracruz are also the top coffee producers in the country producing 39 and 30 percent. General market failures identified in Mexico's agri value chains include (i) lack of transparent and effective information to support decision making; (ii) limited access to credit and improved technologies/practices to make value chains more efficient and sustainable; and (iii) poor linkages between producers, small and medium processing enterprises and markets.
2. **Agricultural production in the targeted livestock and coffee value chains is characterized by small and medium production units.** Most livestock production units are small (less than 30 heads) and based on extensive and inefficient production systems.<sup>57</sup> Producers face difficulties maintaining profitability due to low productivity, limited access to technologies, TA and credits (78.5 percent of the rural production units), as well as fragile links to the market.<sup>58</sup> Consequently, small and medium livestock producers often resort to clearing more forest land as they cannot afford the investment needed to adopt sustainable technologies on their existing lands. The use of vaccines in small-holder production systems is also a challenge as only 30 to 40 percent of the production units apply them.<sup>59</sup> Coffee production is also driven by smallholders, 85 percent of them indigenous. Although the coffee value chain is well integrated in the national and global markets, producers still face significant challenges due to poorly equipped farms to handle adverse weather, climate and disease events combined with limited access to credit and TA, while some producers still lack integration in the value chain.<sup>60</sup> Women play an important role in the targeted value chains with activities that are a significant and important source of the family income. Women participate at all levels of dairy production from ownership of livestock to processing of milk or small and artisan dairy production and commercialization of dairy products mainly for local consumption. Participation of women in agroforestry activities is mostly focused on harvesting and production of artisan products. Women's participation is mainly at small scale, geared to family consumption and thus non-remunerated. They face additional challenges as most do not have land titles or rights, which hinders their access to credit, technical support or other services that require land titles as collaterals or requirement to access government programs. See Annex 4 for more details on gender.

<sup>54</sup> [https://comecarne.org/wp-content/uploads/2020/07/Compendio\\_Estad%C3%ADstico\\_2019\\_-\\_Comecarne.pdf](https://comecarne.org/wp-content/uploads/2020/07/Compendio_Estad%C3%ADstico_2019_-_Comecarne.pdf)

<sup>55</sup> [https://www.ers.usda.gov/webdocs/outlooks/37416/6818\\_ldpm20601.pdf?v=5585.9](https://www.ers.usda.gov/webdocs/outlooks/37416/6818_ldpm20601.pdf?v=5585.9)

<sup>56</sup> [https://nube.siap.gob.mx/gobmx\\_publicaciones\\_siap/pag/2018/Infografias-2018](https://nube.siap.gob.mx/gobmx_publicaciones_siap/pag/2018/Infografias-2018)

<sup>57</sup> [http://www.cedrssa.gob.mx/files/b/8/79Ganader%C3%ADa\\_familiar\\_M%C3%A9jico\\_enfoque\\_sustentabilidad.pdf](http://www.cedrssa.gob.mx/files/b/8/79Ganader%C3%ADa_familiar_M%C3%A9jico_enfoque_sustentabilidad.pdf)

<sup>58</sup> [https://www.transparenciapresupuestaria.gob.mx/work/models/PTP/Reingenieria\\_Gasto/imagenes/Ventanas/Ramo\\_8/08S260.pdf](https://www.transparenciapresupuestaria.gob.mx/work/models/PTP/Reingenieria_Gasto/imagenes/Ventanas/Ramo_8/08S260.pdf)

<sup>59</sup> <https://comadsa.mx/category/ganaderia/>

<sup>60</sup> Deforestation and Shade Coffee in Oaxaca, Mexico, Allen Blackman, Heidi Albers, Beatriz Avalos-Sartorio and Lisa Crooks (2005) Resources for the Future.



3. **Introduction of environmental objectives in livestock policies and programs at the national and subnational level is evolving.** AGRICULTURA has implemented programs (Livestock Credit Program<sup>61</sup> and Production for Wellbeing<sup>62</sup>) to address improvements in grassland management in livestock systems and coffee production, but the respective public expenditures are still small compared to conventional productive programs. A recent high-level environment-agriculture agreement between the Ministry of Environment and Natural Resources (SEMARNAT) and AGRICULTURA strengthens intersectoral collaboration and coordination to consolidate an enabling and effective institutional and policy environment to support sustainable production in Mexico.<sup>63</sup> There are also state-level initiatives to improve livestock practices and promote private sector initiatives to support small milk producers to improve their productive practices and gains e.g. in Jalisco, but they remain limited in scope.<sup>64</sup> FIRA<sup>65</sup> has established a "Pro-Sostenible" credit line financed by AFD to facilitate access to credit for investment projects in rural areas generating environment benefits and/or improving capacity to climate mitigation or adaptation. FIRA's portfolio of sustainable development projects at the end of 2019 totaled an estimated US\$450 million, representing 4.2 percent of the total balance of the institution. However, upfront costs of implementing new practices continue to be a main obstacle for adoption of sustainable management practices (SMPs) despite yielding important benefits over the long-term, for example implementing soil conservation measures such as construction of terraces and building of drainage ditches and use of organic fertilizers.<sup>66</sup> Mainstreaming SMPs would require stable support programs for producers to explicitly encourage their uptake. A related challenge is a general lack of farmer organizations, while conservation experiences in Mexico have shown that creation of groups of neighbors, producer associations and local committees has proved useful to allow joint production of inputs like compost and organic pesticides and/or reduction of costs of necessary inputs.<sup>67</sup>
4. **The criteria and inputs for selecting the intervention territories were agreed between INECC and FMCN** through a series of workshops based on data provided by consultants conducting an Environmental and Socioeconomic Diagnostic for Promotion of Regenerative Ranching in the four project states. In each, a spatial analysis was conducted. The information related to the watersheds of each state was overlapped with the map of priority regions for biodiversity conservation to identify the watersheds that hold highest biodiversity according to the national maps developed by CONABIO. As next, the municipalities with the highest livestock production were overlapped with the watersheds of highest importance for biodiversity conservation. From the watersheds/sub-watersheds resulting from this exercise, INECC and FMCN prioritized those with highest vulnerability to climate change and highest potential for GHG sequestration due to prevailing degradation. To target project activities strategically, INECC and FMCN developed criteria that will be used to identify potential areas of intervention within each watershed/sub-watershed.

<sup>61</sup> Note that the program may had had a different name in prior administrations. <https://www.gob.mx/agricultura/acciones-y-programas/preguntas-frecuentes-del-tramite-sader-01-001-a-programa-de-credito-ganadero-a-la-palabra>

<sup>62</sup> This was previously under the ProAgro and ProCampo. <https://www.gob.mx/produccionparaelbienestar>

<sup>63</sup> Capacity Building Strategy of Secretariat of Agriculture and Rural Development's Well-Being Program 2020, page 15

<sup>64</sup> Sustainable Milk Supply Strategy to Improve the Quality of Life in Jalisco financed by Inter-American Development Bank, see: <https://www.iadb.org/en/project/ME-T1385>

<sup>65</sup> For institutional information on FIRA, see <https://www.fira.gob.mx/Nd/IndiceEn.jsp>

<sup>66</sup> Ubertino, Simone & Mundler, Patrick & Tamini, Lota. (2016). The Adoption of Sustainable Management Practices by Mexican Coffee Producers. Sustainable Agriculture Research.

<sup>67</sup> Cotler, H., & Cuevas, M. L. (2019). Adoption of soil conservation practices through knowledge governance: the Mexican experience. *Journal of Soil Science and Environmental Management*, 10(1), 1-11.



## Eligible Watersheds/Sub-watersheds within the Project States of Chiapas, Chihuahua, Jalisco, and Veracruz

### Selection criteria

- i. Delimitation of a watershed/sub-watershed.
- ii. High presence of biodiversity.
- iii. High level of cattle production.
- iv. Vulnerability to climate change and potential contribution to GHG emission reductions relevant to other areas in the country.
- v. High risk of land degradation.

### Inputs (data source)

- i. Delimitation by watersheds of CONAGUA, National Institute of Statistics and Geography (INEGI), and INECC.
- ii. Priority Regions for the Conservation of Biodiversity by CONABIO.
- iii. Data from AGRICULTURA.
- iv. National Atlas of Vulnerability to Climate Change by INECC.
- v. Soil Erosion and Vegetation Series by INEGI.

## Potential Areas of Intervention within the Eligible Watersheds/Sub-watersheds

### Selection criteria

- i. Priority municipalities for cattle raising.
- ii. Number of producers.
- iii. Level of organization of producers: high, medium, and low.
- iv. Number and area of livestock production units (LPU).
- v. Type of vegetation and land use per LPU.
- vi. Type of management (extensive, intensive livestock, among others).
- vii. Degraded area (soils and vegetation cover) according to the Soil Erosion and Vegetation Series of INEGI.
- viii. Presence of previous regenerative/sustainable/alternative/climate-smart livestock interventions.
- ix. Productive Value Chains.

**Table A2.1: Key project-related characteristics of the 15 eligible watersheds**

State & watershed*	Area (ha) and % of the total per state	Commodity	Type of production	Key environmental degradation pressure	Expected results based on data provided for the GHG analysis
<b>Chiapas</b>					
<i>Coapa</i>	31,091.81	Upper watershed: coffee. Mid watershed: beef. Lower watershed: shrimp complemented with beef-milk. Also, maize, cacao, and palm oil.	Extensive cattle ranching dual purpose milk-beef. Small producers with less than 20 heads of cattle. Mix coffee production systems with maize and other	Deforestation due to expansion of livestock production particularly in upper watershed displacing shaded grown coffee. Forest degradation and overgrazing.	Restoration: 1,500 ha Indirect prevention of loss of grass and shrublands and forest areas (considers 10 percent of the vegetation cover in the watersheds considered in the calculation): 5,870 ha Agroforestry: 1,000 ha Silvopastoril: 300 ha
<i>Novillero</i>	43,316				
<i>Pijijiapan</i>	25,817				



<b>Total</b>	100,224.81 (1 percent)		crops.		8,670 ha
<b>Chihuahua</b>					
Santa María	2,137,915.83	Export live cattle to the US.	Extensive cattle ranching and small subsistence production units in private and/or communal lands.	Expansion of commercial irrigated agriculture and water scarcity that leads to overexploitation of aquifers, grassland degradation due to overgrazing, and grassland fires.	Restoration: 1500 ha Indirect prevention of loss of grass and shrublands and forest areas (considers 10 percent of the vegetation cover in the watersheds considered in the calculation): 219,681 ha Sustainable grasslands: 400 ha
Del Carmen	1,600,780.88				
<i>Casas Grandes</i>	2,496,129.12				
Carrizos y Otros	2,219,344.89				221,581 ha
<b>Total</b>	<b>8,454,170.72</b> 84 percent				
<b>Jalisco</b>					
Pitillal	43,519.40	Dairy products and beef. Other production includes maize, beans, sugarcane, sorghum, tobacco, rice, tomatoes, and other horticulture, as well as fruits.	Rotational grazing, where livestock grazes in pastures during most of the year and on fallow agricultural land after harvest during the dry season.	Forest degradation from livestock production, overgrazing and forest fires.	Restoration: 1500 ha Indirect prevention of loss of grass and shrublands and forest areas (considers 10 percent of the vegetation cover in the watersheds considered in the calculation): 32,834 ha Agroforestry: 1000 ha Silvopastoril: 400 ha
Cuale	26,870.76				
<i>Las Juntas</i>	33,011.05				
El Tuito	44,814.57				
Ameca-Mascota	275,228.71				
<b>Total</b>	<b>422,444.49</b> (4 percent)		Family-type businesses with typical dairy production of 6.5 l/cow.		35,734 ha
<b>Veracruz</b>					
Jamapa	384,984	Coffee, beef, and dairy, as well as maize. Some live cattle export to the US.	Extensive cattle ranching for dual purpose milk-beef production and small family production units.	Expansion of agriculture and livestock.	Restoration: 1500 ha Indirect prevention of loss of grass and shrublands and forest areas (considers 10 percent of the vegetation cover in the watersheds considered in the calculation): 51,465 ha Agroforestry: 2500 ha Silvopastoril: 400 ha
<i>La Antigua</i>	175,010				
Tuxpan	510,640				
<b>Total</b>	<b>1,070,634</b> (11 percent)				55,868 ha
<b>Total</b>	<b>10,047,474.02</b>				<b>321,450**</b>

\* The watersheds that were included in the calculations for the GHG analysis are marked with Italic.

\*\* Note that the 321,450 hectares in this table correspond to the expected intervention area based on the data used



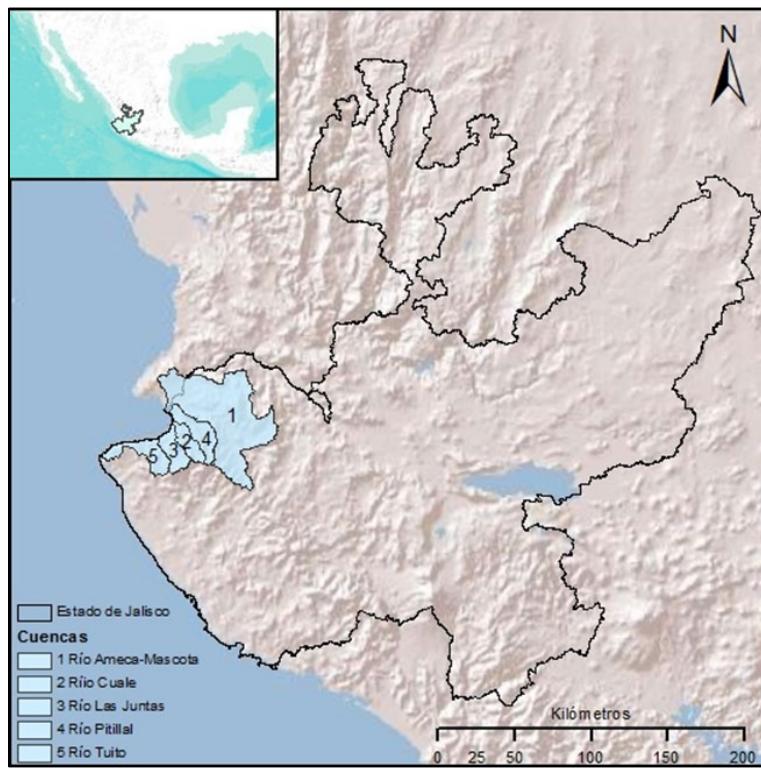
for the GHG analysis. This estimate differs from the target of 450,000 ha of the first PDO indicator “Area of landscape under improved climate-smart practices”, as the GHG analysis only considers area with vegetation cover, while the PDO indicator includes other areas of intervention, specifically with the implementation of the IWAPs under Component 1 and areas to be benefited under Component 2.

### **Targeted Watersheds per State**

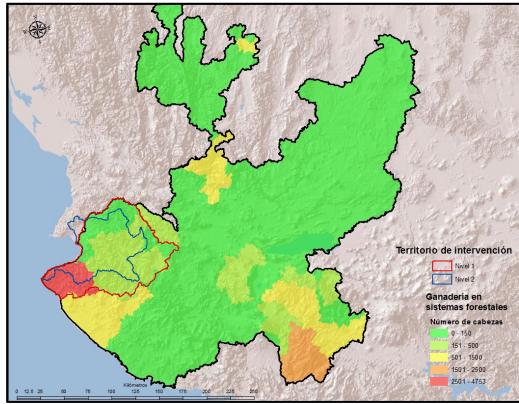
#### **Jalisco**

5. **Jalisco has an extension equivalent to four percent (8 million hectares) of the total surface area of Mexico.** It is an important state in terms of biodiversity because it contains close to 7,000 species of vascular plants, approximately 25 percent of the Mexican flora.
6. **Jalisco is the second state of Mexico in beef production and first in milk production.** In 2018, Jalisco registered 76,082 LPUs (PNG, 2018), 3,206,495 heads of cattle (SIAP, 2018) and 104,718 farmers, of which 16,000 are milk producers, and 88,718 produce beef (UGRI, 2019).
7. **In Jalisco, the average milk production in family-type businesses is 6.5 l/cow/day.** 46 percent of the producers are profitable, while 40 percent are unprofitable (Cervantes et al., 2016). The primary processing and industrial milk plants are in Guadalajara and belong to the companies Purity, Parmalat, Nestlé, 19 Brothers, Lala, and Alpura.
8. **Livestock grazes in pastures in the upper and middle parts of the watersheds during most of the year and on fallow agricultural land after harvest during the dry season.** The expansion of livestock in the municipalities of the region has been the main factor of land-use change and degradation of forests and deciduous oak forest in the last 40 years. Livestock is also a form of private appropriation of communal forest lands, given the prevailing concentration of the cattle herd in a few hands.
9. **The eligible watersheds of intervention are Ameca-Mascota, Pitillal, Cuale, Las Juntas, and El Tuito, located on the northern coast of Jalisco** (Figure A2.1), prioritized based on the importance of biodiversity, livestock, and climate change considerations (Figures A2.2 and A2.3). These watersheds comprise 422,444.49 hectares and 5,277 cattle farmers, 64.7 percent of which are small producers (<20 head of cattle), 33.5 percent medium-scale farmers (20-100 head of cattle), and 1.8 percent large producers (>100 head of cattle) (SADER, previous to AGRICULTURA, 2018).

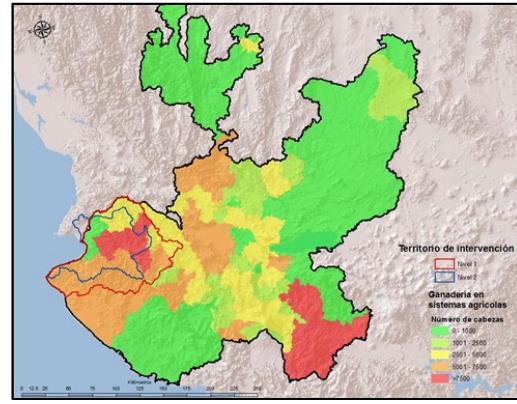
**Figure A2.1:** Eligible watersheds in Jalisco based on the importance of livestock, biodiversity, climate change considerations, and existing productive alliances in livestock.



**Figure A2.1 a)** Municipalities with more livestock in forest systems.

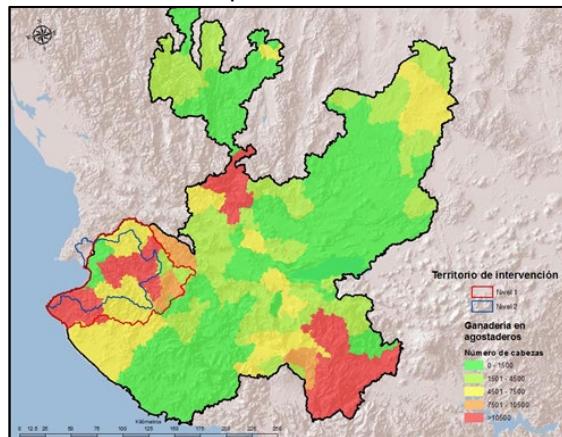


**Figure A2.1 b)** One of the four municipalities with more livestock in agricultural systems.





**Figure A2.1 c)** Two of the six municipalities with more heads of cattle in pastures.



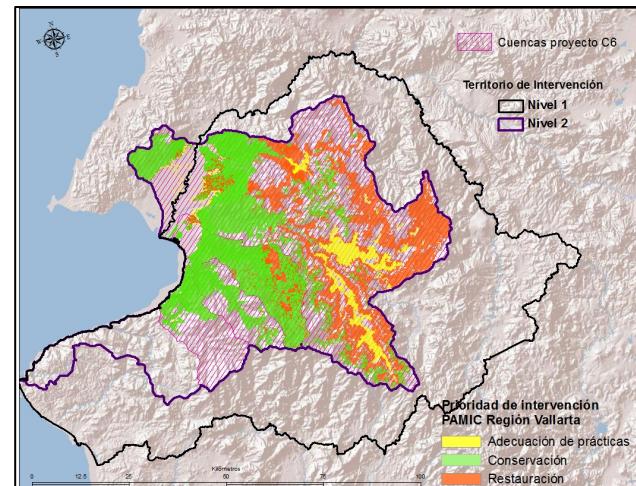
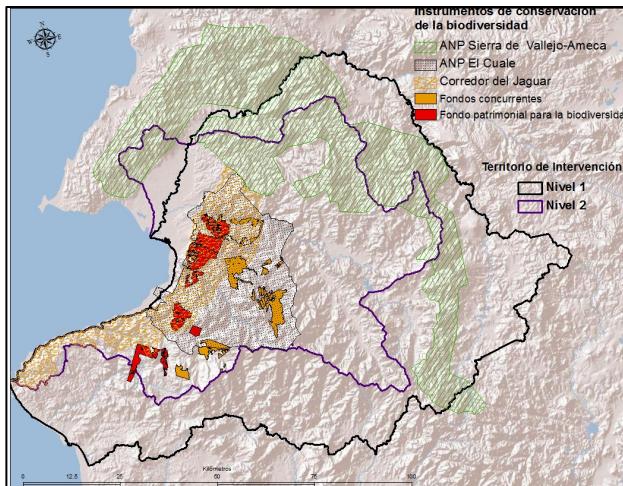
**Figure A2.2:** Site selection based on the importance of livestock production.

### Instruments that allow conservation of biodiversity and environmental services:

- Natural protected areas
- Jaguar Corridor
- Payment program for concurrent environmental and biodiversity services

### Tools that incorporate climate change:

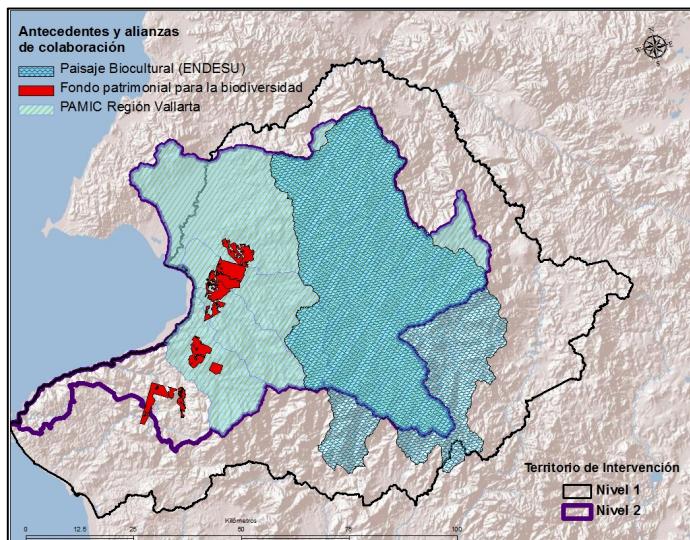
- C6 project watersheds
- Priority sites for implementation of actions of the IWAPs



### Background and alliances of collaboration with livestock:

- Biocultural Landscape
- Biodiversity Endowment Fund
- IWAP of the Vallarta region Intermunicipal Environment Board

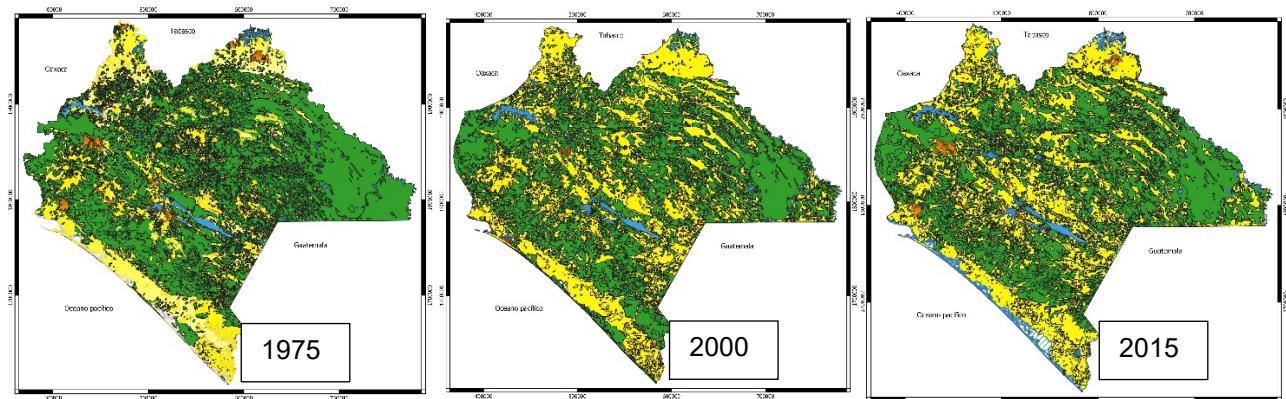
**Figure A2.3:** Site selection based on biodiversity, climate change considerations, background, and collaborative partnerships with livestock.



### Chiapas

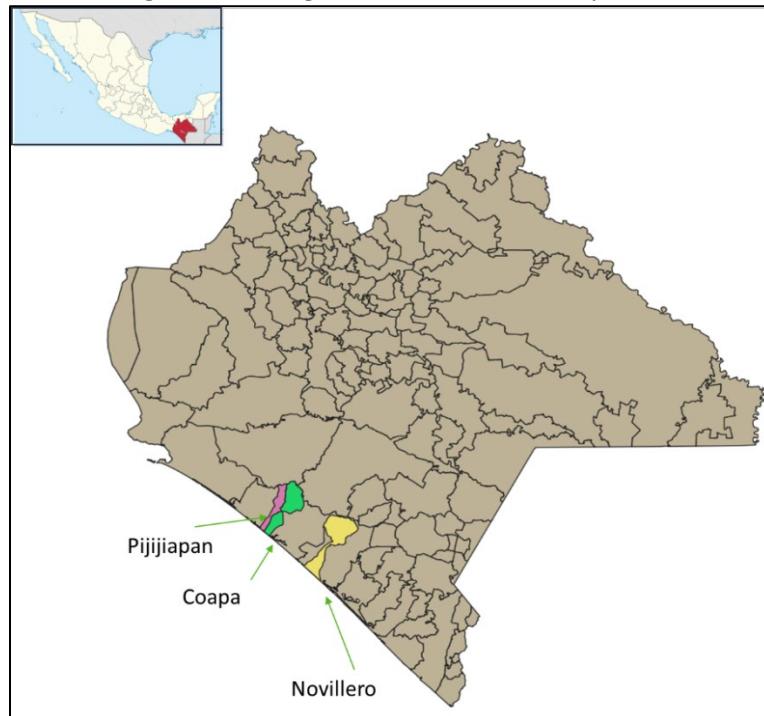
10. **Chiapas has an extension equivalent to 3.8 percent (7.3 million hectares) of the total surface area of Mexico.** Its mountainous zones create different altitudinal gradients, microclimates, ecotones and transitional spaces favorable for the development of exceptional biodiversity with 11,223 species, including endemic species and a unique ensemble of cloud and temperate forests, natural and cultivated pastures, as well as humid and sub-humid rain forests (CONABIO, 2013).
11. **Chiapas is the third state of Mexico in terms of beef production and occupies the ninth position in milk production.** About 1,589,849 heads of cattle (PNG, 2019) occupy 33 percent of the state territory (2.9 million hectares) within 75,096 LPUs (INEGI, 2018). Most of these livestock activities are described as subsistence economy, dominated by self-consumption, with the active participation of family labor.
12. **The dominant system of livestock production is extensive rearing of calves with permanent milking and sale of weaning calves (dual-purpose).** This production system is characterized by its simplicity, stability, flexibility, and daily liquidity, which allows cattle farmers to face adverse economic, social, and climatic conditions. The conventional model of agricultural production has caused loss of vegetation cover, mainly in the coastal and central watersheds of the state (Borja and Moreno, 2009; Padilla, 2009) (Figure A2.4).

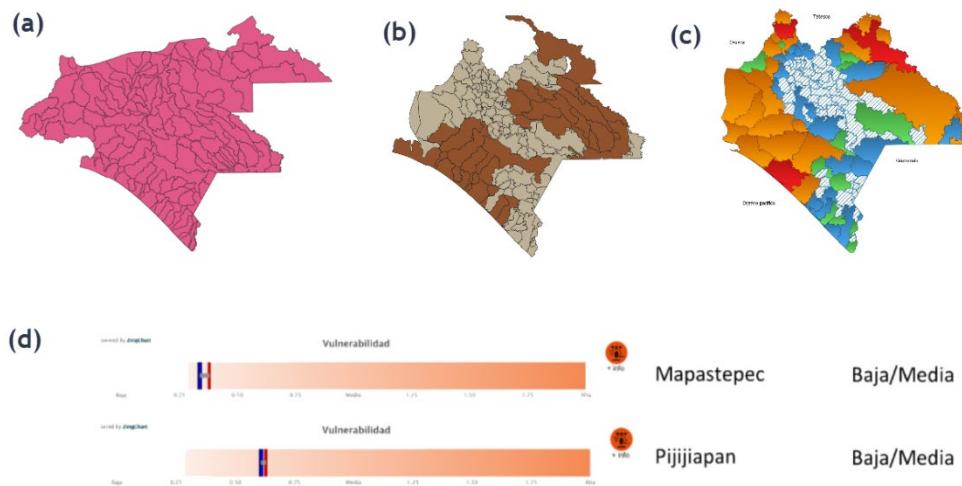
**Figure A2.4:** Changes in the vegetation cover (green) to establish agricultural lands and cattle pastures (yellow) from 1975 to 2015.



13. **Cattle management is semi-stabled, with cattle grazing freely in cultivated pastures** with *Cynodon spp*, *Brachiaria spp*, *Digitaria spp*, *Panicum spp*, *Pennisetum spp*, and other grass species, as well as occasionally feeding on fodder trees in the pastures. Cattle is only confined in enclosed spaces outdoors during milking. However, most of the livestock areas are associated with low quantity and poor quality of the available forage (Martínez, 2012). The cattle need to receive additional nutritional supplement especially in the dry season.
14. **The eligible watersheds for intervention are Pijijiapan, Coapa, and El Novillero** (Figure A2.5), located on the southern coast of Chiapas, prioritized based on the importance of biodiversity, livestock, and climate change considerations (Figure A2.6).

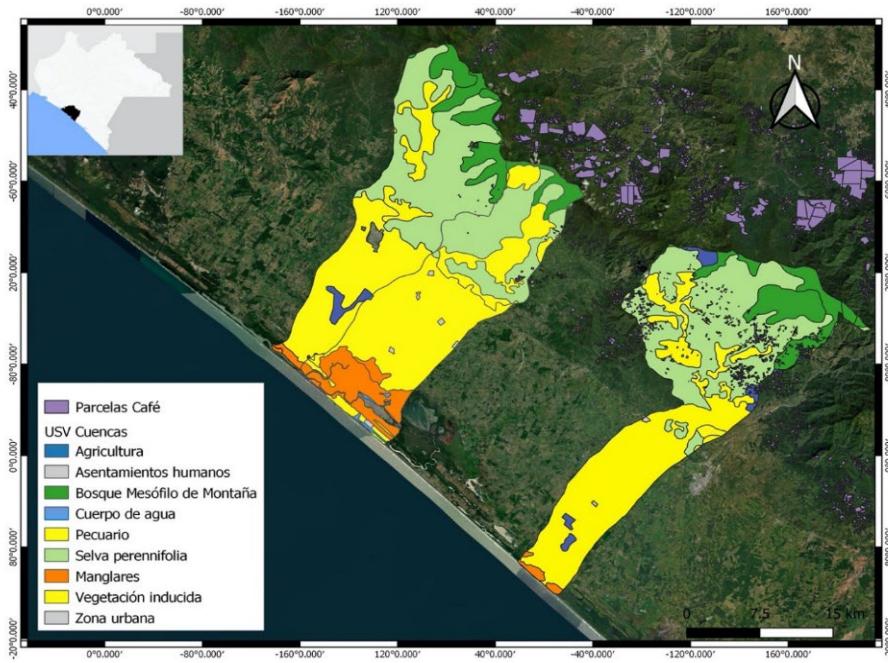
**Figure A2.5:** Eligible watersheds in Chiapas.





15. These watersheds **comprise 100,224.81 hectares and embrace different ecosystems** (Figure A2.7) from grasslands to deciduous forests, mangroves, cloud forests, high and medium tropical forests, and secondary vegetation (Figure A2.7).

**Figure A2.7:** Land-use and vegetation in the Pijiapan, Novillero, and Coapa watersheds.



16. **About 1,669 cattle farmers live in these watersheds**, 80.8 percent of which are small producers (<20 head of cattle), 16.8 percent medium-scale farmers (20-100 head of cattle), and 2.4 percent large producers (>100 head of cattle) (SADER, 2018). Most of them have low educational levels, consisting of truncated elementary school or high school. Some have a university degree, but few are specialized in livestock production.

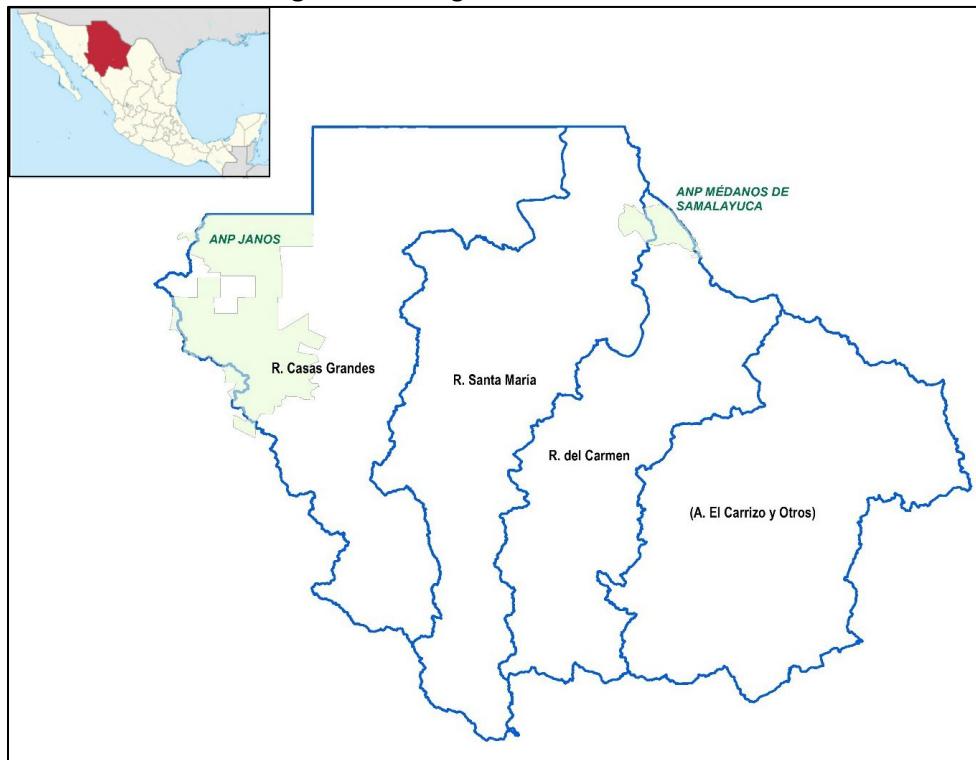


17. In these watersheds, extensive systems of grazing for dual-purpose production predominate, covering milk commercialization and fattening of growing bulls for sale with intermediaries. The average area of livestock farms is 22.5 hectares, with a herd of 50.5 animals. One of the main problems of livestock production in this region is the low prices in the purchase of products of the LPUs and theft of growing cattle, which is why the producers tend to reconvert pastures to oil palm plantations or other land uses.
18. In these watersheds, there are also different instruments of public policy and local efforts that support conservation of biodiversity and environmental services, i.e. protected areas such as the "El Triunfo Biosphere Reserve" and "La Encrucijada Biosphere Reserve". Moreover, a Management Plan is implemented in the watersheds of Coapa, prepared by the Coastal Basins Interagency of Chiapas, and initiatives such as an Environmentally Friendly Productive Systems project of the Mesoamerican Biological Corridor of CONABIO, and project by The Nature Conservancy, "Innovative Mechanisms for a Cooperative Program on Adaptation to Climate Change in the Coast of Chiapas, Mexico".

### **Chihuahua**

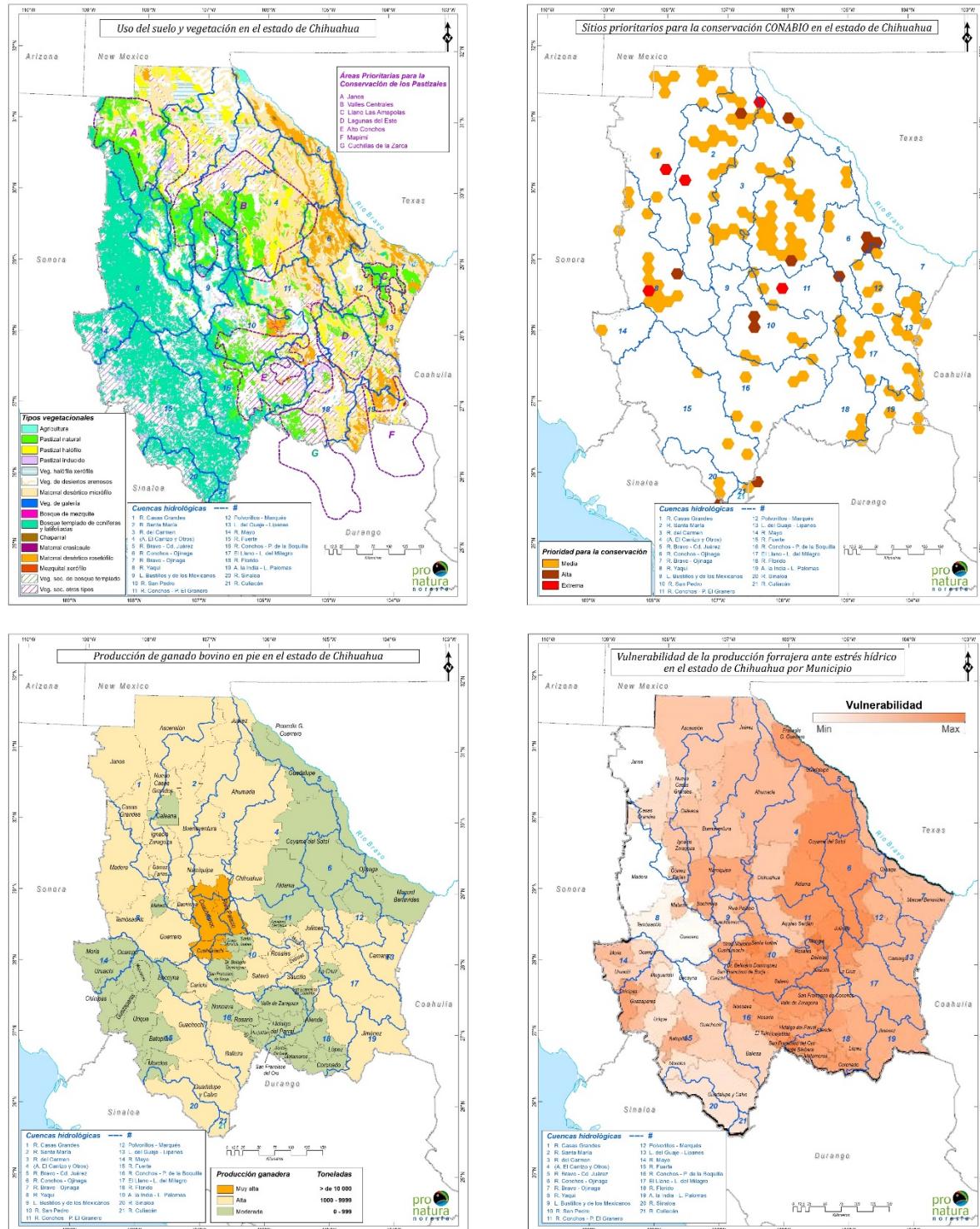
19. With an extension of 24.7 million hectares (12.6 percent of the country's surface), Chihuahua is the largest state in Mexico. The diversity of climates, altitudes, geology, and soils in the region has led to the development of three types of ecosystems: forests, grassland and shrublands, and one of the desert areas with the most exceptional biodiversity in the world (CONABIO, 2014; Olson and Dinerstein, 1998).
20. Chihuahua is the sixth state of Mexico in terms of beef production and the fourth in milk production. About 2,388,411 heads of cattle (SIAP, 2018) occupy an area of approximately 12.6 million hectares (51 percent of the state territory). Livestock activities take place in extensive natural grasslands located mostly in the northeast and, on a smaller scale, in the center, east and south arid and semi-arid regions of Chihuahua.
21. The arid climate, water scarcity, and periods of intense drought in the state are not suitable for fattening of livestock (UACH 2010) since the average annual precipitation in Chihuahua is 427 millimeters. Thus, cattle are produced for export to the USA (Sanchez-Granillo 2010), with ranchers selling between 50 and 75 percent of their calves each year. In the first trimester of 2019, Chihuahua exported 188,476 animals to the USA (SIAP, 2019).
22. The eligible watersheds of intervention are Santa María, El Carrizo y Otros, Del Carmen, and Casas Grandes (Figure 8), located in the northern part of Chihuahua, prioritized based on their importance in terms of biodiversity, livestock, and vulnerability to climate change (Figure A2.9).

**Figure A2.8:** Eligible watersheds in Chihuahua.





**Figure A2.9: Site selection based on the importance of (a) land-use, (b) biodiversity conservation, (c) livestock production, and (d) vulnerability to climate change.**

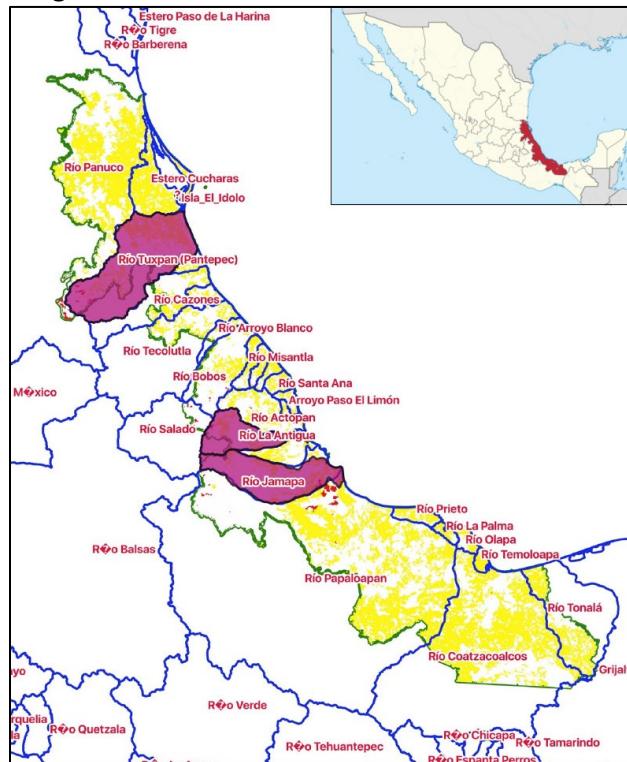




23. **These watersheds comprise 8,454,170.72 hectares and 13,397 LPUs, 89.8 percent of which correspond to small producers** (production value <\$1,000,000 pesos) and 10.2 percent to large ranchers (production value >\$1,000,000 pesos). In these watersheds, the most used production system is free grazing for fattening, primarily for beef production. Nevertheless, one of the main problems is water availability since only nine of the 15 aquifers present have availability.
24. **The more significant part of the income of the producers comes from agriculture, but they also obtain income from other activities.** Moreover, based on the application of 70 surveys, some ranchers (43 percent) even use loans from commercial banking, Multiple Purpose Financial Societies (SOFOM for the acronym in Spanish; companies contemplated in Mexican legislation whose main objective is the granting of credit), and Shared Risk Trust of AGRICULTURA (*Fideicomiso de Riesgo Compartido*, FIRCO) or subsidies and grants (40 percent) from AGRICULTURA, and CSO and LCLOs for livestock production, especially for infrastructure, machinery and equipment (46 percent) and cattle breeding (30 percent). Those who have not asked for a loan claimed not needing one (21 percent); that the process to obtain one was difficult (25 percent), or they do not meet the applicable requirements (32 percent).
25. **In these watersheds, there are also different instruments of public policy and local efforts that support conservation of biodiversity and environmental services.** 554,754 hectares (6.5 percent) are part of the Janos Biosphere Reserve and the Protection Area of Flora and Fauna “Médanos de Samalayuca”.

#### **Veracruz**

26. **Veracruz has an extension equivalent to 3.7 percent (7.2 million hectares) of the total surface area of Mexico.** Its landscape is agricultural, with almost 80 percent of the total land area of the state devoted to livestock and crop production. The natural vegetation represents less than one-fifth of the territory and includes tropical, temperate, and cloud forests, as well as mangroves. Veracruz ranks third in terms of diversity of species after the states of Chiapas and Oaxaca.
27. **Veracruz is the first state of Mexico in beef production and the thirteenth in milk production.** About 4.3 million heads of cattle occupy 44 percent of the state territory (3.2 million hectares) within 162,403 LPUs (PNG, 2019). Most of the livestock activities have developed extensively in pastures with non-native forage grasses (Poaceae) and, to a lesser extent, legumes (Fabaceae).
28. **The eligible watersheds for intervention are Tuxpan, La Antigua, and Jamapa** (Figure A2.10), based on the importance of biodiversity, livestock, and climate change considerations (Figure A2.11).

**Figure A2.10:** Prioritized watersheds in Veracruz.**Figure A2.11:** Site selection based on the importance of grasslands.

29. **These watersheds comprise 1.07 million hectares, including 314,000 hectares of grasslands.** There are 11,076 LPUs in 602,742 hectares, holding around 961,960 heads of cattle (INEGI 2017; SIAP 2019; SADER 2019; PGN 2019).
30. **In these watersheds, extensive systems of grazing for dual-purpose (milk and beef) predominate.** In general, livestock production is based on cattle being fed almost exclusively with grasses of low forage value, which is entirely dependent on seasonality and changes in climate throughout the year (Salazar et al., 2015). Thus, the cattle need to receive additional nutritional supplement especially in the dry season.
31. **The management of the pastures in these watersheds is carried out mainly by livestock owners with the help of their families,** usually the father and sons. Women also participate, and especially in processing milk to dairy products such as cheese, cream, and butter.



### Biodiversity in the project area

32. **The eligible watersheds host 24 protected areas and rich biodiversity.** The protected areas have a total surface of 677,922 ha, around six percent of the eligible area. These areas include Biospheres Reserves (BR), National Parks (NP), Natural Resources Protected Areas, Flora and Fauna Protected areas (FFPA), Ecological Reserves (ER), State Parks, Scenic and Recreational value zones (SRVZ) and Voluntary Conservation Areas (VCA). The protected areas are: (i) Chiapas: BR La Encrucijada, BR El Triunfo, and VCA Las Nubes; (ii) Chihuahua: Médanos de Samalayuca FFPA, BR Janos; (iii) Jalisco: BR Sierra Vallejo, Watershed caption irrigation district 042, Cañada Larga VCA, Penas Blancas VCA, Arroyo Texas VCA, Vallejo VCA; and (iv) Veracruz: Pico de Orizaba NP, ER Tembladeras Laguna-Olmeca, Arroyo Moreno ER, Punta Canales o Isla del Amor SRVZ, ER Rio Atoyac, Cofre de Perote NP; Molino de San Roque, Cerro Macuitlapetl ER, Francisco Javier Clavijero Park, Predio Barragán SRVZ, Cerro de las Culebras ER, and Sierra de Otontepec ER. Approximately 29 percent of these areas are protected at the federal level, 42 percent at the state level, and 29 percent are VCAs. Table A2.2 and Appendix A of the project's ESMF present key characteristics of the CONECTA watersheds including in terms of biodiversity.

**Table A2.2. Characteristics of the CONECTA watersheds**

State	Watersheds	Municipalities	Watersheds' Area (ha)	# Protected Areas in the Watersheds	Portion of Protected Areas in the Watersheds (ha)	Global Relevant Species in the Watersheds #	National Relevant Species in the Watersheds #
Chihuahua	Casas Grandes Del Carmen Santa María Carrizos	15	8,454,170.72	2	551,217	19 19 birds	16 3 amphibians 7 birds 5 mammals 1 reptile
Veracruz	Tuxpan Antigua Jamapa	68	1,070,634	13	16,560 14 amphibians 9 birds 2 mammals 1 plant	26	48 23 plants 16 birds 12 mammals 12 reptiles 5 amphibians
Jalisco	Ameca- Mascota El Tuito Pitillal Las Juntas Cuale	7	422,444.49	6	73,407 2 plants	2	22 7 birds 6 mammals 5 reptiles 4 amphibians
Chiapas	Pijijiapan Coapa Novillero	2	100,224.81	3	29,312 54 birds	54	24 8 mammals 8 reptiles 4 plants



State	Watersheds	Municipalities	Watersheds' Area (ha)	# Protected Areas in the Watersheds	Portion of Protected Areas in the Watersheds (ha)	Global Relevant Species in the Watersheds #	National Relevant Species in the Watersheds #
							3 birds 1 amphibian
Total	15	92	10,047,474.02	24	670,496	101 <sup>68</sup>	110 <sup>41</sup>

**33. Conservation efforts beyond the protected areas extend to the following terrestrial priority conservation areas:**

14 regions and 112 sites (83 medium, 19 high, and 10 extreme priority sites) with important physical and biotic characteristics; 800 priority aquatic sites (475 medium, 184 high, and 141 extreme priority sites); 10 areas of importance for bird conservation; eight Important Bird and Biodiversity Areas (IBAs); three mangroves sites with biological relevance; four sites under the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR); and three priority areas under the Alliance for Zero Extension. Endowment provided by *Kreditanstalt für Wiederaufbau* (KfW)—the German development bank—and CONANP funds will support complementary management activities in protected areas. CONECTA will promote sustainable management of living natural resources, including due attention to animal health and well-being by the beneficiary ranchers. It is expected to contribute to conservation of the species listed in Table A2.3, but presenting specific biodiversity benefits to be reached is not possible during project preparation, as the actual landscapes where the project will work depend on the results of demand-based calls for proposals. Results of biodiversity monitoring under Component 3 will be reported at mid-term and closure.

**Table A2.3: Species at risk of extinction in Mexico**

Species group	Number of species at risk
Plants	987
Reptiles	443
Birds	392
Mammals	291
Fish	204
Amphibians	194
Invertebrates	49
Fungi	46
<b>Total</b>	<b>2,606</b>

**34. CONECTA's biodiversity conservation efforts will focus on the protection of priority species for Mexico.** Based on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, the 15 watersheds host 97 species of global conservation importance. 60 percent of them are listed as of least concern, 13 percent as endangered, 10 percent critically endangered, 6 percent vulnerable, and 5 percent near threatened. 80 percent of these species represent birds followed by amphibians (14 percent), plants (three percent) and mammals (two percent). 80 percent of them are in Important Bird Conservation Areas and 20 percent registered under the Alliance for Zero Extinction. From a national perspective, considering the Official Mexican Standard on Environmental

<sup>68</sup> The values represent the total species found in the 15 eligible watersheds. Some species identified in the IUCN Red List of Threatened Species and NOM-059-SEMARNAT-2010 were present in more than one watershed.



Protection-Native Species of Mexico of Wild Flora and Rauna-Risk Categories and specifications for Inclusion, Exclusion or Change-List of Species at Risk (NOM-059-SEMARNAT-2010), 98 additional species of national conservation importance are present in the 15 watersheds: 33 percent are birds, 27 percent reptiles, 21 percent mammals, 12 percent amphibians, and seven percent plants. 30 percent of the 98 species are classified in danger of extinction. The detailed lists of the referred species are provided in Tables 11 and 13 in Appendix A of the ESMF.

35. **Approximation to the baseline biodiversity loss in the project area.** Despite the progress made in the construction and development of biota inventories, calculating the rate of loss of species of flora and fauna is a complex task that involves long-term studies, often on organisms with almost no available information (Llorente-Bousquets and Ocegueda, 2008). In the absence of baseline data, the lists of species at risk have been used as indicators of biodiversity status. Therefore, the species classified within some category of risk represent the actual or potential reduction in the biodiversity of a country or region. At least 127 species have become extinct in Mexico, including 38 fish, 29 amphibians, 26 plants, 19 birds, and 15 mammals, of which 58 percent were endemic (CONABIO, 2017). There are another 2,606 species that are at risk of disappearing (NOM-059-SEMARNAT-2010):
36. **In Chihuahua, at least 195 species are in danger of extinction:** 43 birds, 22 mammals, 16 fish, 33 reptiles and amphibians, as well as 81 species of cactus, tree, herbaceous, and shrub plants. In particular, grassland birds are suffering one of the largest declines in the hemisphere, being impacted by a population loss of more than 70 percent in the last 50 years (Pennisi, 2019). Experts estimate that if the conversion of grasslands to agricultural fields in the Chihuahua's Desert continues at the current rate of 6 percent annually, these grasslands will disappear completely by 2025, affecting all its associated biodiversity.
37. **In Chiapas, at least 653 species are threatened or in danger of extinction:** 204 birds, 60 mammals, 14 fish, 145 amphibians and reptiles, and 231 vascular plants. In 2019, Chiapas lost 67,500 hectares of natural forests (Global Forest Watch, 2020), affecting a wide range of environments and types of habitat, but above all, species that are a priority due to their limited distribution at the national level.
38. **In Jalisco, at least 311 species are in danger of extinction:** 88 birds, 21 mammals, 20 fish, 75 reptiles and amphibians, as well as 107 species of vascular plants. According to data from the University of Guadalajara (UdeG), 1.5 percent (30,000 hectares) of jungles and forests are lost each year. This deforestation affects, firstly, the low deciduous forest, secondly, the oak forests and, in little proportion, the pine forests of the high mountain areas. While a wide variety of animals and birds found homes in these forests, their populations dwindle as humans continue to remove the trees and use the land for other purposes.
39. **In Veracruz, at least 505 species are threatened or in danger of extinction:** 170 birds, 64 mammals, 144 amphibians and reptiles, 11 fish, and 116 plants. In 2019, the loss of natural forests was equivalent to 34,600 hectares (Global Forest Watch, 2020). Due to restricted location, the most threatened is the tropical mountain cloud forest, the most diverse type of vegetation per unit area with high rates endemism of flora and fauna (Vázquez-García, 1995).
40. **The major causes of biodiversity loss in the 15 eligible watersheds are of anthropogenic nature.** Particularly, pervasive change in land-use and land cover is the largest driver of biodiversity loss due to fragmentation, degradation, and reduction of available habitable areas for food, shelter, and breeding sites. The conversion of forests and natural grasslands to extensive animal husbandry and farming also causes soil's compaction and erosion, decline in soil fertility, loss of riparian vegetation, siltation of rivers, pollution with agrochemicals toxic to the environment and human health, introduction of invasive alien species, and increased frequency of forest fires and extreme hydro-meteorological events caused by climate change, all affecting negatively on the remnant species.



41. **CONECTA will devise net positive impacts on biodiversity within the intervention areas** over the project's lifetime through reducing pressure on land use change, protecting remnant ecosystems, and restoring degraded environments to increase connectivity between habitats and create wildlife corridors. It will also enhance climate-smart production practices to recover and increase biodiversity within the agricultural and agroforestry landscapes.
42. **The application of climate-smart management practices for cropping and ranching is expected to increase yields while conserving biodiversity.** The GEF Sub-indicator 4.1 "Area of landscapes under improved management to benefit biodiversity" that CONECTA will report to the GEF measures the hectares of land that result with a reduced pressure on deforestation and forest degradation through project activities, including the implementation of IWAPs and policy alignment under Component 1. This approach helps to recover soil, reduce habitat fragmentation, support that at least 50 percent of all native species found in forests also occur in agricultural landscapes, and provide refuge, feeding areas, accessibility, and suitable corridors for species mobility. Some of the biodiversity-friendly management practices that will be eligible for support by CONECTA are: (i) land sparing to recover natural vegetation; (ii) establishment of protective areas and buffer zones around a farm/ranch; (iii) creation of corridors between farms/ranches and forested areas; (iv) conservation, reforestation, and restoration of natural habitats close to a ranch/farm; (v) protection of riverine areas and recovery of riparian strips; (vi) establishment of living fences with native species; (vii) implementation of integrated pest management plans; (viii) reduction of soil tillage; (ix) reduction of use of inorganic (synthetic) chemical inputs; and (x) use of organic fertilizers. Thus, providing TA, capacity building and initial financing to farmers and ranchers to apply biodiversity-friendly management practices may break the degradation cycle while improving production systems. Moreover, such shift in productive practices will allow ranchers and farmers to participate in certification markets and receive PES in the future.
43. **CONECTA will conduct biodiversity monitoring that will contribute to the SNMB<sup>69</sup> through BIOCOMUNI, a protocol for community monitoring of biodiversity** developed in collaboration with CONAFOR, FMCN and the USFS to strengthen shared efforts for sustainable use of natural resources. The SNMB collects periodic information on the structure and representativeness of biodiversity in Mexico through two complementary data collection protocols (SAR-MOD and SAC-MOD) and collaboration by CONAFOR, protected areas and CSOs. CONABIO receives, stores, and analyzes the data to calculate the index of ecosystem integrity at the national level. BIOCOMUNI builds on this experience and offers a monitoring protocol focused on "ejidos" and agrarian communities. It is ideal for projects due to its easy application and low cost and allows assessing changes in species resulting from project activities, as well as the effectiveness of the measures taken to maintain or enhance identified high-value biodiversity present in a project area. CONAFOR and CONANP use BIOCOMUNI, and new partners/initiatives as CONECTA are joining the effort. To ensure continuity and linkage between different efforts to monitor biodiversity in Mexico, BIOCOMUNI is designed to contribute real time information also to other national platforms, such as aVerAves of CONABIO. CONECTA also plans to at least pilot the use of the B-INTACT developed by the FAO.
44. **CONECTA will foster the protection of species at risk listed in the NOM-059-SEMARNAT-2010**, e.g. the pronghorn, bison, prairie dog, and golden eagle in Chihuahua; tapir, spider monkey, quetzal, and the rare homed guan in Chiapas; the lynx, coyote, armadillo, chachalaca, woodpeckers, parrots, and owls in Veracruz; and the jaguar, ocelot, and jaguarundi in Jalisco, among others. For further information on how CONECTA will manage and protect biodiversity, see Section 8 of its ESMF on the livestock and agroforestry principles to be promoted.

<sup>69</sup> Developed by CONABIO, CONAFOR, CONANP and FMCN with a US\$2.1 million grant from the Gordon and Betty Moore Foundation.

**Table A2.3. Characteristics of the CONECTA watersheds**

State	Watersheds	Municipalities	Watersheds' Area (ha)	# Protected Areas in the Watersheds	Portion of Protected Areas in the Watersheds (ha)	Global Relevant Species in the Watersheds #	National Relevant Species in the Watersheds #
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<b>Veracruz</b>	Tuxpan Antigua Jamapa	68	1,070,634	13	16,560	26 14 amphibians 9 birds 2 mammals 1 plant	48 23 plants 16 birds 12 mammals 12 reptiles 5 amphibians
<b>Jalisco</b>	Ameca-Mascota El Tuito Pitillal Las Juntas Cuale	7	422,444.49	6	73,407	2 2 plants	22 7 birds 6 mammals 5 reptiles 4 amphibians
<b>Chiapas</b>	Pijijiapan Coapa Novillero	2	100,224.81	3	29,312	54 54 birds	24 8 mammals 8 reptiles 4 plants 3 birds 1 amphibian
<b>Total</b>	<b>15</b>	<b>92</b>	<b>10,047,474.02</b>	<b>24</b>	<b>670,496</b>	<b>101<sup>70</sup></b>	<b>110<sup>41</sup></b>

<sup>70</sup> The values represent the total species found in the 15 eligible watersheds. Some species identified in the IUCN Red List of Threatened Species and NOM-059-SEMARNAT-2010 were present in more than one watershed.

**ANNEX 3: Economic and Financial Cost Analysis****A. Overview**

1. **The economic analysis presents an incremental analysis of the economic (welfare) benefits generated by the proposed financing**, including key benefit streams related to environmental goods and services and carbon sequestration. This incremental term is related to the additional benefit generated by carrying out the project, which creates a concept of additionality that stipulates an added value generated to the project. Especially, healthy watersheds provide a myriad of ecosystem services that produce many life-sustaining benefits such as biodiversity conservation, water quality enhancement, carbon sequestration, and soil improvement, among others.<sup>71, 72</sup> Also, these services are deterministic drivers of the main economic activities, for example, agriculture, livestock, forestry, and fisheries, for the local communities. In that way, the importance of their sustainability transcends from the local to the global economy and social well-being.
2. **The project is designed to protect the watershed health and sustainability of ecosystem services while improving productive economic activities** such as cattle ranching and farming based on silvopastoral, agropastoral, and agroforestry systems, with a regenerative approach, in the states of Chiapas, Chihuahua, Jalisco, and Veracruz. Among these activities, existing literature for Mexico shows that SPS generate higher income for producers as an integrated land use practice that combines trees, forage, and livestock through improved sustainability and quality of pasture.<sup>73, 74</sup> In particular, this activity allows the intensification of cattle production based on an integrated approach to sustainable land use.<sup>75</sup> Therefore, SPS promote beneficial ecological interactions that manifest themselves as increased yield per unit area, improved resource use efficiency, and enhanced provision of environmental services both at small and large scales.<sup>76, 77</sup>
3. **The project will operate in most of the 15 eligible watersheds of the states of Chiapas, Chihuahua, Jalisco, and Veracruz, where cattle ranching and farming activities are carried out.** Particularly, livestock activity predominates in these states with more than 8 million cattle farmers who are dedicated to milk and beef production. However, the land-use practices such as grazing and open field systems increase environmental impacts in these areas that are related to six natural ecosystems: pine-oak forests, mesophilic forests, high and medium forests, low forests, coastal dunes, and mangroves. For this reason, watershed conservation and sustainable practices are crucial for the development of the economic activities of the local communities and, therefore, for the alleviation of poverty in these states. It is expected that the project will generate multiple and incremental benefits from local to national and up to global level.

<sup>71</sup> Montagnini, F. 2005. *Environmental Services of Agroforestry*. Food Products Press, Binghamton, NY.

<sup>72</sup> Jose, S. 2009. "Agroforestry for Ecosystem Services and Environmental Benefits: An Overview." *Agrofor. Syst.* 76: 1–10. DOI: <https://doi.org/10.1007/s10457-009-9229-7>.

<sup>73</sup> González, J. M. 2013. "Costs and Benefits of an Intensive System Silvopastoral (ISS) Based on *Leucaena leucophala* (Case study in Tepalcatepec, Michoacán, Mexico)." *Avances de Investigación Agropecuaria* 17 (3): 35-50.

<sup>74</sup> Ávila, S., and Revollo. 2014. D. "Análisis Financiero y percepción de los servicios ambientales de un sistema silvopastoril: un estudio de caso en los Tuxtlas, Mexico." *Revista Iberoamericana de Economía Ecológica* 22 (17-33).

<sup>75</sup> Nair, P. K. R., B. M. Kumar, and V. D. Nair. 2009. "Agroforestry As A Strategy for Carbon Sequestration." *Journal of Plant Nutrition and Soil Science* 172: 10–23. DOI: <https://doi.org/10.1002/jpln.200800030>.

<sup>76</sup> Chará, J., E. Reyes, P. Peri, J. Otte, E. Arce, and F. Schneider. 2019. *Silvopastoral Systems and their Contribution to Improved Resource Use and Sustainable Development Goals: Evidence from Latin America*. FAO, CIPAV, and Agri Benchmark, Cali.

<sup>77</sup> Jose, S., and J. Dollinger. 2019. "Silvopasture: A Sustainable Livestock Production System." *Agroforest Syst* 93: 1–9. DOI: <https://doi.org/10.1007/s10457-019-00366-8>.

**B. Additionality of the Project**

4. **In the absence of the project, beneficiaries would likely remain without access to financing and other support to transition to practices that support ILM in the eligible watersheds.** The watersheds would continue on a decreasing track of ecosystem health and sustainability of the ranching and farming activities that would lead to further pressure on the agricultural frontier; conventional extensive cattle grazing would continue with low tree cover on pasture lands and thus limited capacity to absorb carbon; a limited number of sustainable forest operations would be incorporated into the economic activities of local communities; and, therefore, land-use conversion would remain subject to ranching and farming activities with intensive use of water and even illegal activities.
5. **For this analysis, a BAU baseline case is used that assumes that future development trends follow those of the past and no changes in policies and practices will take place.** In developing countries, land-use patterns are changing quickly, so in this analysis as well, it is more relevant to use recent past trends than long-term past trends. Thus, this analysis uses recent trends instead of long-term trends as the recent changes seem to be more representative of the current evolution. In the BAU scenario, the following average deforestation rates are assumed in the four project states: 0.71 percent in Chiapas, 6.25 percent in Chihuahua, 0.55 percent in Jalisco, and 1.70 in Veracruz.
6. **The project creates additionality** by: (a) enhancing the social and natural capital in the project sites; (b) fostering the transformation and value aggregation of economic activities through strengthening access to markets; and (c) linking local, regional, and federal actors to PGs to derive benefits of information and knowledge exchange on biodiversity, sustainable productive practices, and related legislation and programs to generate behavioral changes in the implementation of value chains in productive economic activities. Thus, these incremental benefits strengthen both the environmental basis and the beneficiary PGs' capacities for productivity improvements, including potential access to credit among beneficiaries in the beef, milk, and agroforestry related value chains such as coffee, cacao, and pepper.
7. **Table A3.1 below summarizes the additionality of the proposed project activities in relation to the deviation from the baseline scenario;** it also shows the expected environmental and socioeconomic benefits resulting from transitioning toward more sustainable production patterns. The analysis in the following pages focuses on assessing the economic and financial benefits of moving from the baseline toward more sustainable systems and enterprises.

**Table A3.1 Productive activities and benefits (additionality) by type of sustainable landscape management**

Productive systems	Proposed activities supported under the project	Deviation from baseline scenario and expected benefits	
		Environmental benefits	Socioeconomic benefits
Forest Management (conservation activities in forest and grassland areas)	<ul style="list-style-type: none"> <li>• Develop and execute forest management plans.</li> <li>• Develop associative forms that make forest management more efficient through ILM.</li> <li>• Incorporate criteria for the conservation of biodiversity (especially species at risk) in production landscapes.</li> <li>• Identify and establish appropriate practices in the stages of preparation, use, and abandonment of the sites.</li> <li>• Carry out measures to prevent, control, and fight fires, pests, and zoonotic diseases in forest and grassland areas.</li> <li>• Establish and execute restoration actions.</li> <li>• Strengthen forest performance monitoring systems.</li> <li>• Incorporate the management of diverse ecosystems in forest management.</li> <li>• Promote agreements with landowners for establishment of voluntary areas for conservation.</li> </ul>	<ul style="list-style-type: none"> <li>• Contribute to maintaining or improving habitat connectivity.</li> <li>• Maintain or improve the heterogeneity of the landscape.</li> <li>• Protect critical ecosystems, such as bodies of water.</li> <li>• Maintain the structural complexity of the forest.</li> <li>• Establish limits of the susceptible areas of management.</li> <li>• Prevent the disappearance, reduction, or fragmentation of habitats and loss of biodiversity.</li> <li>• Prevent deforestation and loss of grass and shrublands and maintain/improve continuity of landscapes.</li> <li>• Recover forest and grassland areas.</li> <li>• Guarantee the integrity of ecosystems.</li> </ul>	<ul style="list-style-type: none"> <li>• Contribute to strengthening economic growth, productivity, and profitability of producer organization, forestry communities, and producers.</li> <li>• Improve activities and processes related with community economy.</li> <li>• Strengthen local capacities and social and cultural participation in support of conservation.</li> <li>• Increase capacities to access differentiated markets.</li> <li>• Increase competitive capacities in the management of natural resources at the community level.</li> </ul>
Agroforestry System (coffee, cacao, and pepper)	<ul style="list-style-type: none"> <li>• Provide training and TA to PGs in the process to be formalized, dedicated to agroforestry systems.</li> <li>• Improve the application of technologies that promote climate change mitigation and adaptation.</li> <li>• Promote agroecological practices to conserve soil</li> </ul>	<ul style="list-style-type: none"> <li>• In situ conservation of agrobiodiversity and the evolution of native species.</li> <li>• Reduction of pest and disease damage.</li> <li>• Avoid the risk of ecosystem services deteriorating or diminishing.</li> </ul>	<ul style="list-style-type: none"> <li>• Improve food security and diets.</li> <li>• Conserve the social value of native cultivations</li> <li>• Recognize traditional knowledge.</li> <li>• Decrease risk due to climatic events, alongside increased</li> </ul>



Productive systems	Proposed activities supported under the project	Deviation from baseline scenario and expected benefits	
		Environmental benefits	Socioeconomic benefits
	<p>and restore degraded (pasture) lands.</p> <ul style="list-style-type: none"> <li>Eradicate agricultural practices that cause environmental degradation.</li> <li>Improve the connectivity of agroforestry landscapes with livestock.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce or avoid deforestation and increase tree cover in productive landscapes.</li> </ul>	<p>income, and productivity for producers.</p> <ul style="list-style-type: none"> <li>Improve links to more diverse markets for surplus production.</li> </ul>
SPS (sustainable milk and beef production)	<ul style="list-style-type: none"> <li>Increase food production based on diversification of pasture areas.</li> <li>Incorporate food processing technologies.</li> <li>Semi-established herd structure.</li> <li>Incorporate living fences and divide pastures to manage pasture area and rotate grazing animals.</li> <li>Manage and conserve water sources.</li> <li>Monitor the incorporation of agroforestry practices.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce the use of fire in paddocks.</li> <li>Reduce GHGs.</li> <li>Intensify animal production by increasing yield (and thus reducing paddock area).</li> <li>Incorporate various species in livestock management.</li> <li>Incorporate trees (at low density) in deforested areas.</li> <li>Reduce impacts on soil from overgrazing.</li> <li>Reduce deforestation and other habitat losses in areas adjacent to pastures.</li> <li>Manage streams and waterways.</li> <li>Increase resilience to effects of climatic events.</li> </ul>	<ul style="list-style-type: none"> <li>Increase income and wealth (more assets in animal production units).</li> <li>Increase sustainable productivity.</li> <li>Increase need for labor, which generates employment.</li> <li>Stronger technical capacity to manage natural resources and livestock.</li> <li>Reduce production costs.</li> <li>Diversify income from by-products derived from silvopastoral production (sales of fodder and seed, sales for milk and beef, etc.).</li> </ul>

Source: Own elaboration by the World Bank Task Team.

- The GEF incremental support will assist the GoM in strengthening the watersheds' health with sustainable practices, and their long-term economic and financial sustainability. The GoM budget is limited, but the project will support alternative instruments to overcome any further limitation, involving new cross-sectoral actors to address policies related to the ILM. Without the project, the budget forecast to be allocated for watershed conservation by the GoM (the baseline scenario) will be very limited. The proposed GEF investment will leverage additional resources from other partners over the same period. This financing will help develop the necessary institutional capabilities, set up policy frameworks for sustainable watershed ecosystems, and develop mechanisms for sustainable productive systems.



### C. Methodology, Main Assumptions, and Cost Factors

9. **Component 1 promotes ILM by developing new and improving existing land-use instruments named IWAPs in 10 of the 15 eligible priority watersheds.** Also, it promotes partnerships for the implementation of IWAPs. These IWAPs will be geared to, among other benefits, promote sustainability in managing natural resources for conservation, restoration, and productive uses. Components 2 and 3 are focused on improving business skills and the sustainability of productive activities and thus landscape connectivity. Component 4 aims to enhance stakeholder participation and inclusion at the watershed and/or sub-watershed level by strengthening existing local stakeholder platforms and developing a new NLC for regenerative ranching.
10. **To simplify the incremental economic analysis of the project, assumptions were used considering the possible benefits in the project sites.** The project is expected to provide three economic benefit streams: (a) the first related to ecosystem services provided by watershed management, (b) the second linked with carbon storage and sequestration by ILM, and (c) the third associated with activities at the producer level enabling them to transition to sustainable management activities that have positive social and private returns. In direct terms, all the three relate the most with Component 3, while Component 1 will aim at producing equally the first and second benefits. However, as Component 1 is geared to create the necessary enabling environment among relevant stakeholders, its contributions will be more indirect and depend on the impact it will achieve in related decision making among the relevant stakeholders at different levels. Component 2 will contribute mostly to the third benefit.

### Economic Benefits Generated by the Project

11. **Watershed benefit stream by ecosystem services.** For this benefit stream, healthy watersheds provide many ecosystem services that are necessary for social and economic well-being. These services include water filtration and storage, cleaning of air, nutrient cycling, soil formation, recreation, food, and timber.<sup>78</sup> Much of the Mexican state's economy depends on the natural resources, products, and productive activities developed in the watersheds.<sup>79</sup> Particularly, economic activities such as agriculture and cattle ranching are benefited by the watershed conservation. To estimate the benefits associated with this benefit stream, the total hectares of landscapes with vegetation cover and avoided loss of grass and shrublands and forest areas as indirect impact of the implementation of the IWAPs are considered, as defined in Table 3 of Annex 5 'Greenhouse Gas Accounting Analysis'. It is assumed that the total area is homogenously divided and is based on the triangular number distribution for five project years,<sup>80</sup> that is, the project divided by 15 to obtain the factor that is each year added to the growth of the previous year (shown in Figure A3.1).<sup>81</sup>

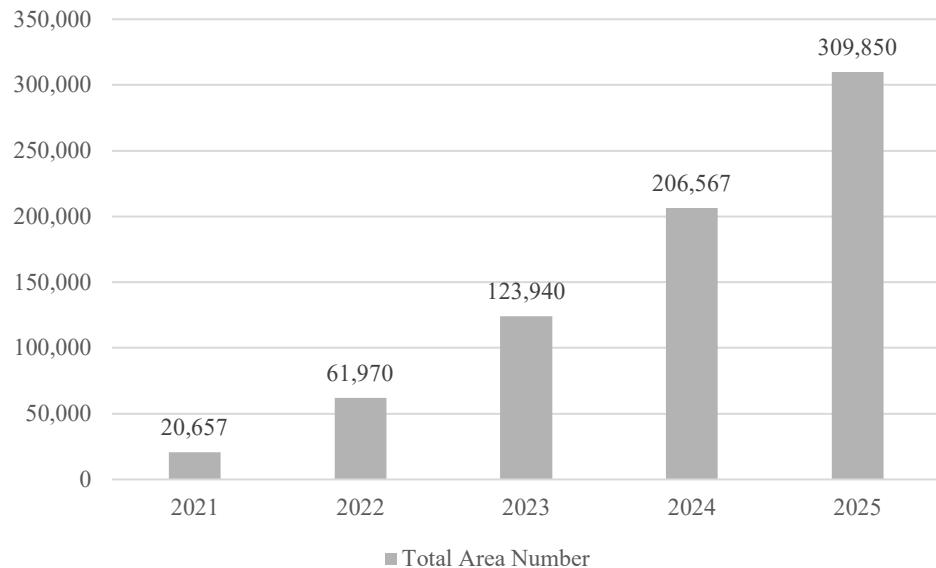
<sup>78</sup> EPA (United States Environmental Protection Agency). 2012. *The Economic Benefits of Protecting Healthy Watersheds*.

<sup>79</sup> Valdez-Zamudio, D. and P. Ffolliott. 2000. *Agroforestry Systems in the Sonora River Watershed, Mexico: An Example of Effective Land Stewardship*. In Ffolliott, Peter F.; Baker Jr., Malchus B.; Edminster, Carleton B.; Dillon, Madelyn C.; Mora, Karen L. Land Stewardship in the 21<sup>st</sup> Century: The Contributions of Watershed Management; 2000 March 13-16; Tucson, AZ. Proc. RMRS-P-13. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. P. 343-345.

<sup>80</sup> The triangular number is  $n(n+1)/2$ , and for five project years  $5 \times 6 / 2$ .

<sup>81</sup> The formula for year n is therefore:  $n \times n(n+1) / 2$ .

**Figure A3.1 Distribution of the increase of areas under deforestation pressure reduction (in ha)**



Source: Own elaboration by the World Bank Task Team.

12. **Monetary values associated with ecosystem service is taken from recognized studies** that assessed the incremental economic benefits of the ecosystem services in Mexico. Two meta-analyses are considered here—an upper bound and a lower bound. The upper bound is from Lara-Pulido, Guevara-Sanginés, and Arias (2018) who provide specific estimates for Mexico based on 106 studies.<sup>82</sup> The lower bound is taken from Siikamäki et al. (2015) who provides global estimates based on 123 robust analytical studies and project estimates per country, including Mexico.<sup>83</sup>
13. **Table A3.2 shows two different bounds that are assumed as the ecosystem services valuation:** the lower bound depicts the ecosystem services value by Siikamäki et al. (2015), such as recreation (US\$28.1/ha/year), habitat (US\$3/ha/year), climate (US\$26.2/ha/year), non-wood forest products (NWFPs, US\$26.2/ha/year), and water (US\$86.4/ha/year), giving a total of (US\$143.70/ha/year); and the upper bound represents an aggregate value of ecosystem services (US\$293) valued by Lara-Pulido et al. (2018), which includes the conservation of coastal zones (US\$252/ha/year), wetlands (US\$315/ha/year), cultivated areas (US\$212/ha/year, for provisioning), and forest (US\$291/ha/year). Both studies are methodologically sound, focused on Mexican territory, and relevant for the present analysis.

<sup>82</sup> Lara-Pulido, J., A. Guevara-Sanginés, and C. Arias. 2018. "A Meta-analysis of Economic Valuation of Ecosystem Services in Mexico." *Ecosystem Services*.

<sup>83</sup> Siikamäki, J., J. N. Sanchirico, S. Jardine, D. McLaughlin, and D. F. Morris. 2012. *Blue Carbon: Global Options for Reducing Emission from the Degradation and Development of Coastal Ecosystems*. Washington, DC: Resources for the Future.

**Table A3.2: Overview of study estimates on economic values of ecosystem services in Mexico (per hectare)**

Ecosystem Services (Mexico)	Lower Bound US\$	Ecosystem Services (Mexico)	Upper Bound US\$
	Siikamäki et al. (2015)		Lara-Pulido et al. (2018)
Recreation	28	Coastal	252
Habitat	3	Wetlands	315
NWFPs	26	Cultivated (for provisioning)	212
Water	86	Forest	291
<b>Total</b>	<b>143</b>	<b>Total (Aggregate value)</b>	<b>293</b>

Source: Own elaboration by the World Bank Task Team.

14. **Carbon Storage Benefit Stream.** Improved management of forest and agriculture by ILM leads to a reduction in carbon emissions, in other words, this activity develops carbon storage and sequestration function. This function helps to maintain ecosystem services provided by watersheds, and therefore, alleviate global climate change. The social cost of carbon (SCC) is a commonly estimated measure of the economic benefits of GHG emission reductions (EPA 2010).<sup>84</sup> In this project, the SCC represents the marginal social benefits of emissions reductions by avoided loss of grass and shrublands and forest areas and sustainable productive activities in 11 of the 15 eligible watersheds of Mexico.
15. **The total tons of carbon sequestered by the project was estimated using the EX-ACT of the FAO, as presented in Annex 5 ‘Greenhouse Gas Accounting Analysis’.** Said estimation considers all the carbon sequestration from avoided loss of grass and shrublands and forest areas as indirect contributions, and from sustainable landscape management associated with cattle ranching, agroforestry, and SPS as direct contributions. It is estimated that 81,261 tons per year will be avoided in the total area intervened in the project (including the reduction of degradation and loss of ecosystems and sustainable productive practices) over 20 years.
16. **Monetary values were taken from the World Bank (2017) that estimates the carbon social price.**<sup>85</sup> Here US\$60 is used as an upper bound and US\$40 is used as a lower bound. Additionally, the value of voluntary carbon market of US\$3.01 t/C, which does not include that social part, was added in the analysis as an alternative case (Forest Trend’s Ecosystem Marketplace 2019).<sup>86</sup> According to the High-Level Commission on Carbon Prices, it is recommended that the project’s economic analysis use a low and high estimate of the carbon price and take a value that is consistent with achieving the core objective of the Paris Agreement of keeping temperature rise below 2 degrees. For the last reason, a higher value (US\$60) was taken as an objective indicator in the economic analysis.
17. **Producer Level Benefit Stream.** Major activities under this section are related to investments on improved/sustainable productive practices for local beef, dairy, and agroforestry PGs. Therefore, these activities supported under each component bring social, financial, and environmental benefits. The benefit of PGs activities is found by comparing the situation with and without the project.

<sup>84</sup> EPA (United States Environmental Protection Agency). 2010. *The “Social Cost of Carbon” Made Simple*.

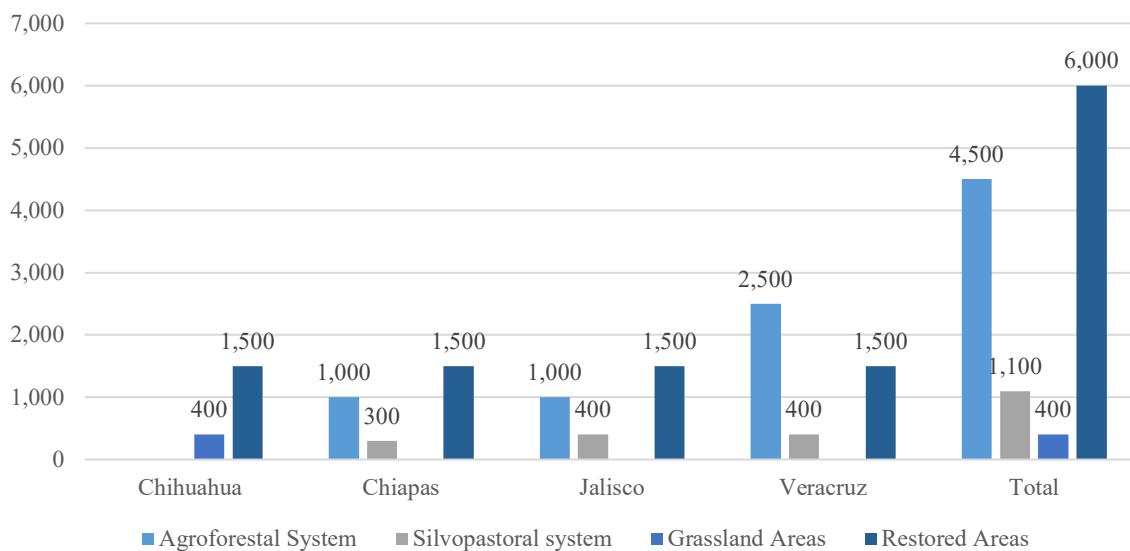
<sup>85</sup> World Bank. 2017. *Guidance Note on Shadow Price of Carbon in Economic Analysis*. Washington, DC.

<sup>86</sup> Forest Trends’ Ecosystem Marketplace. 2019. *Financing Emission Reduction for the Future: State of Voluntary Carbon Markets 2019*. Washington, DC: Forest Trends.



18. In simple terms, there are two ways to assess economically this benefit stream: (a) estimating the difference of benefits between conventional (current or baseline scenario) and regenerative production practices (sustainable practice scenario) or (b) taking a percentage that represents an improvement in benefits for adopting regenerative production practices compared to conventional practices. The second approach is adopted in the present analysis, given the project's RF has a specific target on productivity for the activities. The benefit of the second approach is that it allows to re-assess the economic benefits ex post; after the project is implemented. In addition, only 70 percent of the beneficiary PGs were considered for the economic analysis due to the increase in their productivity by at least 10 percent, as assumed in the RF.
19. It is considered that four types of activities are going to be financed at the producer level: (a) agroforestral system, (b) SPS, (c) grassland areas, and (d) conservation activities for land restoration. These four activities were chosen because they are related to the sustainable management of land use, especially in wooded, agrarian, and grassland areas, given the objectives of the GEF project for the Mexican states of Chiapas, Chihuahua, Jalisco, and Veracruz. Figure A3.2 shows the distribution of PG activities per state and the number of intervened areas.

**Figure A3.2 Distribution of PG activities per state and the number of intervened areas (in ha)**



Source: Own elaboration by the World Bank Task Team.

20. In this case, it is assumed that the total area for each type of activity is also homogenously divided and is based on the triangular number distribution<sup>87</sup> for five project years (see table A3.3).<sup>88</sup>

<sup>87</sup> The triangular number is  $n(n+1)/2$ , and for five project years  $5 \times 6 / 2$ .

<sup>88</sup> The formula for year n is therefore:  $n \times n(n+1) / 2$ .



**Table A3.3: Distribution of the increase of areas under landscape management through sustainable agroforestry practices and SPS and in other types of land use (in ha)**

Producer level activities	2021	2022	2023	2024	2025 (result)
1. Area of landscapes under agroforestral system (cumulative)	300	900	1,800	3,000	<b>4,500</b>
2. Area of landscapes under SPS (cumulative)	73	220	440	733	<b>1,100</b>
3. Area of landscapes under grassland areas (cumulative)	27	80	160	267	<b>400</b>
4. Area of landscapes under conservation and restoration (cumulative)	400	1,200	2,400	4,000	<b>6,000</b>
<b>Total area</b>	<b>800</b>	<b>2,400</b>	<b>4,800</b>	<b>8,000</b>	<b>12,000</b>

Source: Own elaboration by the World Bank Task Team.

21. **Lara-Pulido et al. (2014)<sup>89</sup> provided the four types of selected activities:** agroforestral system, SPS, and other activities related to grassland areas, and restored areas by conservation are taken from The last two activities are associated with forest management and conservation activities.
22. **Lara-Pulido et al. (2014) provides the socioeconomic value of these activities for Mexico and not just the private return.** The direct and indirect costs and benefits and externalities were quantified. Direct costs and benefits are generated by the operation of activity and generally translate into monetary flows, for example, income from the sale of a forest product. The indirect ones are costs and benefits that are generated by the operation of the project and that affect it but that generally are not monetized; for example, unsustainable agricultural practices generate erosion, which eventually translates into a decrease in productivity, but the producer does not consider this.
23. **Specifically, these economic values were obtained from different agricultural products of Mexican states, considering their characteristic benefits and costs.** For the forest management and conservation activities indicator, they used mahogany as the wood product of the state of Yucatán. The benefits were the value of wood production and deforestation avoided while the costs were the implementation of management programs, training, and recovery of areas, among others. Regarding the agroforestry system, they used data of coffee and palm from the state of Chiapas. The benefits were the coffee and palm production sale and their costs were the value of fertilizers and herbicides. For the SPS, they included the establishment of a protein bank that allows increasing the animal load in the state of Yucatán. The benefits were the scrap cows, heifers, and steer for sale, and the costs were associated with the maintenance of the establishment, medicines, and wages. It is worth specifying that these indicators were taken as a proxy for the activities to be carried out in the four Mexican states (Chiapas, Chihuahua, Jalisco, and Veracruz) due to the limited literature related to these activities.
24. **Table A3.4 provides the social annual flows (which include both social and private returns) for all the economic activities assessed.** Here the values of forest management and conservation activities (US\$78.35/ha/year), agroforestral system (US\$7.05/ha/year), and SPS (US\$211.56/ha/year) were taken into consideration. The economic activities' values were converted from Mexican pesos to US dollars at the April 2020 exchange rate as per the Federal Reserve Board of Governors of the United States.<sup>90</sup>

<sup>89</sup> Lara-Pulido, J., A. Guevara, and R. Alba. 2014. *Costos y Beneficios de diferentes tipos de uso de suelo en Mexico*. USAID, M-REDD+, The Nature Conservancy, Rainforest Aliance, Woods Hole Research Center, Espacios Naturales y Desarrollo Sustentable AC.

<sup>90</sup> April exchange rate in currency units per U.S. dollar was 24.39.

**Table A3.4: Overview of cost-benefit analysis of different types of land-use activities in Mexico**

Activities	Has	Years	NPV (Mexican pesos, thousands)	Equivalent Annual Flow (Mexican pesos, thousands)	Equivalent Annual Flow per hectare (Mexican pesos, thousands)	Equivalent Annual Flow per hectare (US\$)
Forest Management and Conservation Activities	1,000	60	15,914.91	1,911.92	1911	78.35
Agroforestry System	200	50	285.82	34.42	172	7.05
SPS	5	40	212.67	25.79	5160	211.56

Source : Own elaboration based on Lara-Pulido et al. (2014, p. 55).

#### Distribution of Costs and Benefits Over Time

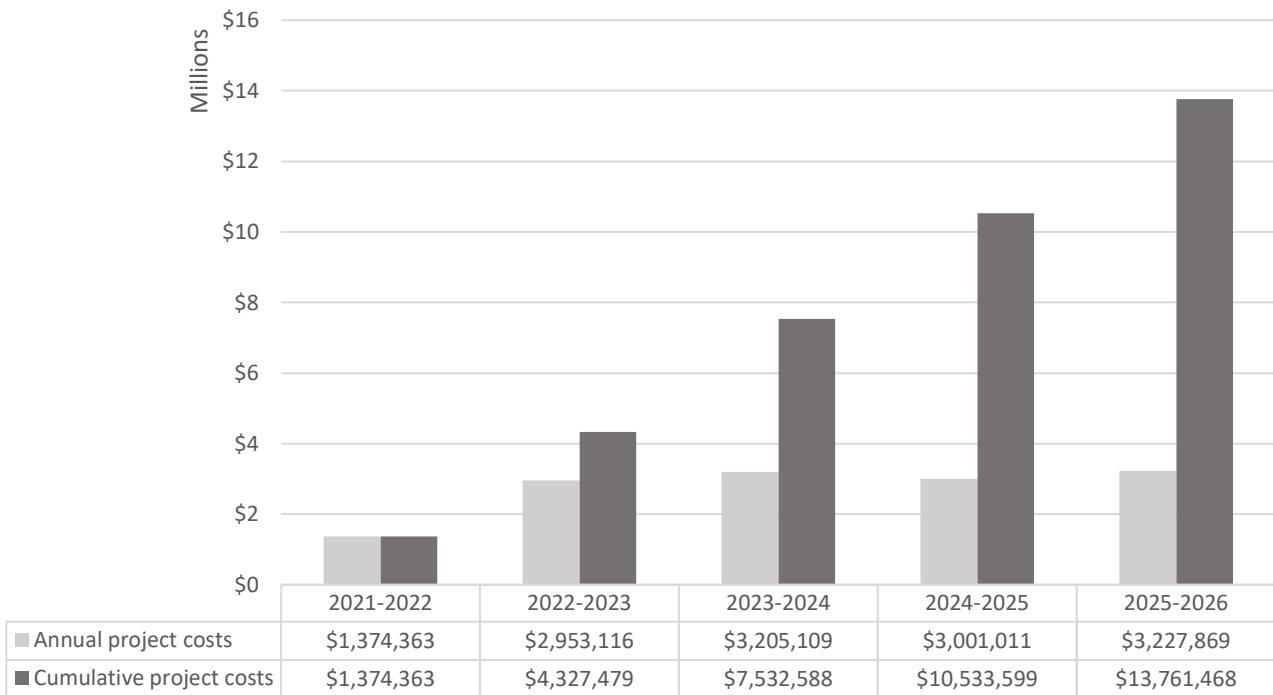
25. **A 20-year period is assumed to assess the economic feasibility of the project.** It is also assumed there are no further incremental changes of project-generated benefits beyond the 20-year project evaluation period. While the project costs are only assumed to emerge for the five years of project implementation, the benefits and opportunity costs are assumed to be generated beyond the implementation period. The distribution of benefits (an increase of areas under improved landscape management and sustainable practices) is based on the triangular number<sup>91</sup> for five project years, that is, the project divided by 15 to obtain the factor that is each year added to the growth of the previous year.<sup>92</sup> The rationale for this assumption regarding the growth pattern is that to reach strengthened landscape management initially requires more time than at a later point in the project.
26. **Similarly, the distribution of project costs follows the same pattern, having lower investment costs in the early years and increasing project investments in later project years,** as can be seen in Figure A3.3. Project costs over the implementation period are approximated considering the project financing of US\$13.76 million by the GEF. Also, the opportunity costs of traditional agricultural production (US\$54.65) and traditional cattle ranching (US\$120.99) in the intervened areas taken from Lara-Pulido et al. (2014),<sup>93</sup> and an assumption of 2 percent as additional operating cost, were added along with the projection of a 20-year project evaluation that will be added for the incremental economic analysis.
27. **A sensitivity analysis is applied for the main simulation parameters, notably the discount rate and project horizon, to assess project robustness.** For the discount rate, alternative rates of 6 percent and 9 percent are applied. In addition to varying discount rates, simulation results are tested against changing the project horizon (10 and 20 years). This set of sensitivity assessments enables a comprehensive analysis of the economic robustness of the project in relation to the changing or differentiated value parameters. All sensitivity analyses are run for all discount rate scenarios.

<sup>91</sup> The triangular number is  $n(n+1)/2$ , and for five years  $5 \times 6 / 2$ .

<sup>92</sup> The formula for year n is therefore:  $n \times n(n+1) / 2$ .

<sup>93</sup> Number converted from Mexican pesos to U.S. dollars at April exchange rate, which is equivalent to 24.39 currency units per U.S. Dollar.

**Figure A3.3: Distribution of Project Costs**



Source: Own elaboration by the World Bank Task Team.

#### D. Results

28. **Most of the results are positive suggesting that the project creates more benefits than costs.** Table A3.5 shows baseline results as well as a sensitivity analysis. The first panel shows the 20-year baseline scenario. The second panel decreases the project lifetime from 20 years to 15 years. The third panel further reduces project lifetime to 10 years. Only the lower bound scenario using a carbon price of US\$3.01 presents a benefit-cost less than 1 but this is an extreme case to verify the robustness of the results. At the same time, increasing the discount rate from 6 percent to 9 percent, reducing the SCC by 33 percent (from US\$60 to US\$40) as well as adopting the value of voluntary carbon market (US\$3.01), and using more conservative estimates regarding the value of ecosystem services provided (upper bound and lower bound, mentioned in Table A3.1) do not substantially affect the estimates.

**Table A3.5: NPVs (US\$) and benefit-cost ratio under different scenarios****a. Robustness Check 1, project implementation of 20 years and project costs included**

		Upper Bound		Lower Bound	
		NPV, US\$	BC Ratio	NPV, US\$	BC Ratio
Carbon Price (US\$60)	Discount rate 6%	\$73,469,404	2.12	\$31,327,752	1.48
	Discount rate 9%	\$55,973,847	2.09	\$42,554,976	1.47
Carbon Price (US\$40)	Discount rate 6%	\$54,624,367	1.83	\$12,482,714	1.19
	Discount rate 9%	\$40,875,360	1.79	\$42,554,976	1.17
Carbon Price (US\$3.01)	Discount rate 6%	\$20,147,250	1.31	(\$21,994,403)	0.67
	Discount rate 9%	\$13,436,119	1.26	\$42,554,976	0.64

**b. Baseline Scenario, project lifetime 15 years and project costs included**

		Upper Bound		Lower Bound	
		NPV, US\$	BC Ratio	NPV, US\$	BC Ratio
Carbon Price (US\$60)	Discount rate 6%	\$59,295,808	2.08	\$25,285,255	1.46
	Discount rate 9%	\$34,113,667	1.96	\$20,385,363	1.45
Carbon Price (US\$40)	Discount rate 6%	\$43,307,401	1.78	\$9,296,848	1.17
	Discount rate 9%	\$23,421,011	1.66	\$7,022,396	1.15
Carbon Price (US\$3.01)	Discount rate 6%	\$14,113,622	1.26	(\$19,896,931)	0.64
	Discount rate 9%	\$4,130,352	1.12	(\$17,207,003)	0.62

**c. Robustness Check 2, project implementation 10 years and project costs included**

		Upper Bound		Lower Bound	
		NPV, US\$	BC Ratio	NPV, US\$	BC Ratio
Carbon Price (US\$60)	Discount rate 6%	\$40,328,339	1.98	\$17,199,032	1.42
	Discount rate 9%	\$34,113,667	1.96	\$14,736,979	1.42
Carbon Price (US\$40)	Discount rate 6%	\$28,162,748	1.68	\$5,033,440	1.12
	Discount rate 9%	\$23,421,011	1.66	\$4,044,323	1.11
Carbon Price (US\$3.01)	Discount rate 6%	\$6,039,268	1.15	(\$17,090,040)	0.59
	Discount rate 9%	\$4,130,352	1.12	(\$15,246,335)	0.57

**E. Conclusions**

29. This incremental economic analysis for the CONECTA project in Mexico shows substantial benefits for beneficiaries in the project areas, as well as substantial benefits for Mexican society. Overall, the NPV is projected to reach US\$31 million (lower bound), and US\$73 million (upper bound) in the baseline scenario (20

years, SCC of US\$60, and 6 percent discount rate). The investments evaluated for the economic and financial analysis will generate a Benefit-Cost ratio between 1.48 and 2.12 and an IRR between 47.73 percent and 91.28 percent. The economic and financial analysis thus shows that if project implementation is effective and efficient, project-supported investments will bring substantial financial and economic benefits to agriculture and livestock producers in the project area and to Mexican society in general.

30. **The results of the quantitative simulations are robust in terms of sensitivity analyses, assuming different project years and discount rates.** The Benefit-Cost ratio varies between 0.57 and 2.12, and an IRR between 45.10 percent and 91.28 percent. Throughout the analysis, the benefit assumptions were based on recognized studies on values of ecosystem services and carbon sequestration in Mexico.
31. **Estimates shown correspond to a lower bound as they represent the benefit streams derived from Components 1, 2, and 3, applying a very conservative approach.** The economic value of Component 3 is likely to be higher since the analysis did not include in the calculations other non-economic global and local benefits such as the value from reduced pressure on forest land or the resulting improvement in food security, among other benefits. Certainly, it is expected that Components 2 and 4 will have additional benefits, but they are difficult to measure due to the social and environmental qualitative approach based on project management. Worth noting, both components are needed to carry out the main components and the overall project activities efficiently to thus achieving the desired results through the strengthening of business skills for sustainable rural production and project coordination, monitoring, and evaluation.
32. **Additional incremental benefits can be associated with incremental economic benefits arising from better public service delivery** resulting from the IWAPs and capacity building at different levels embedded in all the project components. While this approach is likely to undervalue the project impacts systematically, it provides a high degree of robustness. If additional project benefits are considered, results are expected to be even stronger. In summary, CONECTA will benefit the sustainable development of Mexico, providing long-term benefits to local communities and global public goods.



## ANNEX 4: Summary of the CONECTA Gender Analysis and Gender Action Plan

### A. Overview and Context

1. **Gender equality and economic empowerment are critical to ensure inclusive growth.** In 2017, women constituted 48.6 percent of Mexico's total population (INEGI, 2017), making evident that investments on women are instrumental for the inclusive economic growth and development of the country. However, despite recent progress, gender differences in endowments, economic opportunities, and agency are still a challenge in Mexico, particularly among rural, less well-educated indigenous women. Mexico ranks 76 out of 162 countries in the Gender Inequality Index (GII), which reflects gender equality gaps in three dimensions: reproductive health, empowerment and labor market.<sup>94</sup> High levels of teenage pregnancy and maternal mortality, low educational attainment and learning are prevalent among rural women, especially in lagging areas of the country. This has led to only around 46 percent female participation rates in the labor force, one of the lowest in the region, high levels of informality, low-productivity and entrepreneurship, and low access to productive inputs. Overall, and because of the accentuated gender gaps in Mexico, there has been an economic loss of up to 22 percent of income per capita because of low female labor force participation.<sup>95</sup> Mexico also has high levels of GBV. Among women aged 15 years or more, 66 percent have experienced at least one violent incident, 44 percent have suffered intimate partner violence, and 34 percent of women have experienced sexual violence in a public space (National Survey on the Dynamics of Household Relationships, 2016).
2. **Women's economic empowerment and participation in economic activities in rural areas of Mexico is challenged by land rights, significant participation in non-remunerated activities, and low educational endowments.** Various factors limit women's participation in decisions at the community level, potentially directly affecting them and their families, while many social norms define gender roles and stereotypes and are detrimental to gender equality. Land rights in Mexico are important, particularly under communal and collective structures, as they are tied to the right of participating and voting in decision making spaces, e.g. at *Asambleas Ejidales*. Most women part of *comunidades* and *ejidos* don't have land titles or rights and therefore cannot participate or vote in the mentioned decision-making spaces. For instance, in 2013, only 18 percent of the 4.2 million members of communal structures (*comunidades*) with land titles were women. Furthermore, only 12.5 percent of women held any administrative position in decision making bodies such as *Asambleas*. Table A4.1 compares land rights and participation in decision making bodies between men and women in agricultural and livestock farming activities. These situations also impact the possibilities of rural women in Mexico in accessing credits, technical support or other services that require land titles as collaterals or are considered criteria to participate in or to access these programs. By the same token, in rural areas, women are usually responsible for tasks within the household, for example taking care of children and elders. These tasks are usually non-remunerated and associated to women because of their gender. Low levels of educational attainment and learning also directly impact women's economic participation and advancement in rural economies in Mexico.

<sup>94</sup> The GII shows the loss in potential human development due to disparity between female and male achievements. Overall, it reflects how women are disadvantaged in the referred three dimensions. See: United Nations Development Program, Gender Inequality Index.

<sup>95</sup> The World Bank Group's Mexico CPF 2020–2025, Report No. 137429-MX, informed by a gender assessment and covers policies that may help reduce gender gaps.



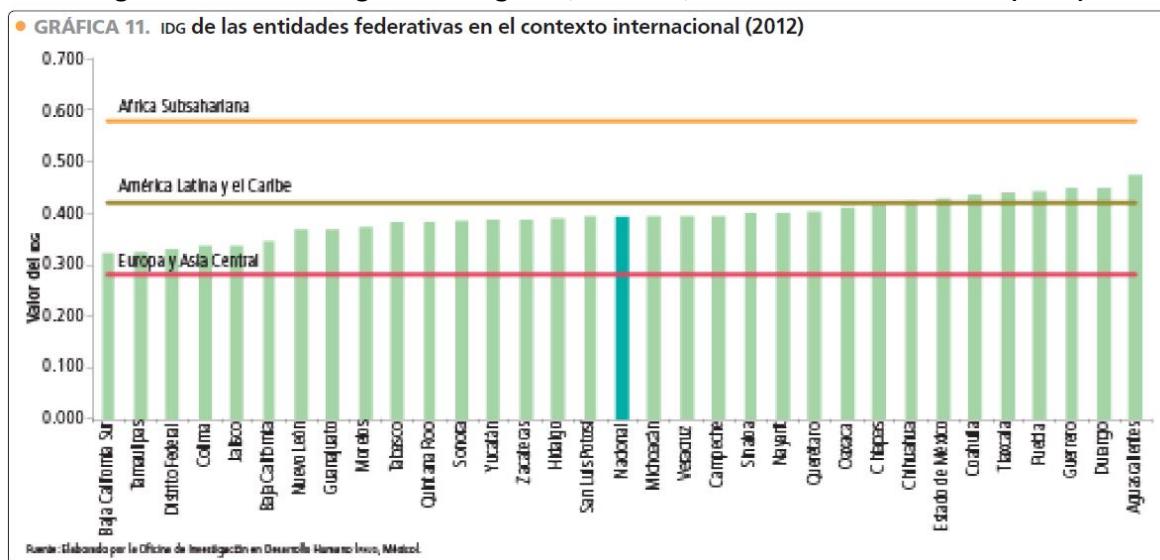
**Table A4.1: Land rights and participation in decision making bodies between men and women in agricultural and livestock farming activities**

	Total	Male	Female
<i>Ejidatarios and comuneros</i>	4,210,830	3,377,035	833,795
<i>Ejidatarios with an individual piece of land</i>	3,392,126	2,780,931	611,195
Land ownership in <i>Ejidos</i>	1,442,807	1,111,237	331,570
<i>Avecindados in Ejidos</i>	2,447,226	1,423,298	1,023,928
* <i>Avecindados</i> are not allowed to vote or participate in decision making bodies at the community level.			
President of a decision-making body at the <i>Ejido</i>	31,514	30,716	798
President of a decision-making body at the <i>Ejido</i> who speaks an indigenous language	N/A	16.5%	0.2%

#### B. Women in CONECTA's states and supported production activities

3. In the states where CONECTA will be implemented, gender disparities are more pronounced in Chiapas and Chihuahua. Mexico is better positioned in terms of gender equality (GII) than countries in the Latin American and the Caribbean Region (average). However, if disaggregated at the state and municipal level, gender inequality levels in Chiapas and Chihuahua are like those in the LAC region, while GII levels in Veracruz are similar to the national average and Jalisco's levels are closer to Europe and Central Asia (Figure A4.1). This is important considering that 51 percent of the total population in the eligible CONECTA watersheds are women (CONAPO, INMUJERES).

**Figure A4.1: GII average at the regional, national, and state level in Mexico (2012)**



4. In the CONECTA states, and particularly in the targeted value chains, the described gender gaps and barriers impact women's income, participation in decision making, access to technology and participation in more



**productive activities.** As for most of the agriculture sector, women's participation in livestock and agroforestry activities also evidences significant gender gaps and inequalities. Women's labor in agriculture is usually non-remunerated as it is considered part of family or community work. Furthermore, income derived of agriculture activities is paid for daily work or *jornales* and administered by the heads of family (men). In the livestock value chain, women mostly participate in dairy production activities, where women make decisions about profits and management of the production activities, yet at a very small scale. In other activities, such as beef production, women participate mostly in administrative and non-managerial activities, and if they own land, they usually rent it. Overall, these factors also limit women's participation in decision making even at the household level, which in turn limits their access to technology, credits and productive assets and deepens the gender gaps identified.

5. **Table A4.2 describes in more detail the characteristics of women's participation** in the various value chains supported by CONECTA.

**Table A4.2: Women's participation in livestock and agriculture production in CONECTA's watersheds**

Economic Activity	Men's participation	Women's participation
Commercial Agriculture	<ul style="list-style-type: none"><li>-Ownership of lands and crops</li><li>-Overall management and decision making over production and commercialization</li><li>-Transport of goods and usually acting as intermediaries</li><li>-Management of profits resulted from production activities</li><li>-Producer organizations</li></ul>	<ul style="list-style-type: none"><li>-Harvest of crops. If family or communal land, this work is usually non remunerated</li><li>-Income derived of participation in productive activities is usually handed (<i>if jornales</i>) to family heads (usually men), and administered by them</li><li>-Decision making is only allowed in activities developed in the backyard (<i>traspatio</i>)</li></ul>
Livestock (beef)	<ul style="list-style-type: none"><li>-Ownership of livestock and management and decision making over the whole process of commercialization, including participation on exhibition, and selling events</li></ul>	<ul style="list-style-type: none"><li>-Women that own land usually rent it. Some women (in an exceptional basis) participate in intermediate activities in the value chain, for example packing</li><li>-Most women participate in administrative activities with few possibilities of holding management positions</li><li>-Chihuahua and Jalisco have a higher level of women owing cattle heads</li></ul>
Livestock (dairy)	<ul style="list-style-type: none"><li>-Men usually make decisions associated with cattle breeds</li><li>-Men also commercialize dairy products, including acting as intermediaries between small producers and established buyers (e.g. Nestle, Liconsa)</li></ul>	<ul style="list-style-type: none"><li>-Participation in the dairy business either at a small-medium scale (<i>if done by organized producer organizations</i>) or in an artisan way (<i>if individual producers</i>)</li></ul>



Economic Activity	Men's participation	Women's participation
Agroforestry	-Ownership of land and control over resources	-Participation in commercialization activities and in cases mostly focused on local and family consumption  -Participation in artisan business for local markets

### C. Gender Action Plan

6. CONECTA has developed a GAP that details specific activities through which the project will address gender gaps in the project watersheds. The GAP includes specific indicators to monitor progress of the mentioned activities besides the gender-sensitive indicators already included in the project's RF. These indicators will be included in the CONECTA's OM to ensure regular monitoring and checking. Analytical activities are also envisioned to better understand women's participation in the project-supported production activities. Table A4.3 details the activities to be implemented as part of the GAP, including the corresponding monitoring indicators. The full GAP is available in Spanish.<sup>96</sup>
7. The principal project activities will be framed within the following overall gender strategies:
  - Provision of technical and advisory support in agriculture, agroforestry, and livestock value chains to enhance women's managerial and technical skills in these value chains, including support to backyard activities (*actividades de traspatio*) and other activities where women are already participating.
  - Promotion of creation and strengthening of PGs with women as participants and women's participation in managerial positions.
  - Promotion of participation of women in decision making processes at the farm level and within the participating LCLOs and PLATs. Specifically, CONECTA will prioritize proposals that benefit women producers and PGs with female leaders.
  - Alleviation of time with double burden, offering options for childcare during workshops and training sessions.
  - Implementation of sensitization activities on gender equality through the development of a communication plan for awareness raising in a gender sensitive way that uses communication channels that address women's needs and promotes the use of inclusive language.
  - Promotion of equal remuneration of women and men in project activities, including at the farm level as possible.
  - Reduction of administrative requirements to participate in the project, including demonstration of land ownership as a condition to access project benefits when it is not legally required.
  - Management of GBV risk by provision of related training and information on service providers as part of referral path to the LCLOs and PLATs participating in CONECTA.

<sup>96</sup> <https://www.dropbox.com/sh/i2ouig7be27ga1c/AAAAgSYmv5mWhadxTeYqSoTWa?dl=0>

**Table A4.3: Gender Action Plan activities and indicators**

<b>Activity</b>	<b>Indicator</b>	<b>Estimated Budget</b>
1. Hiring to serve the project, conducted by the OCU at FMCN, will be based on competences, skills, and objective criteria as to address gender bias in hiring processes. 2. Payment and salary parity regardless of gender.	Number of individuals hired by the project disaggregated by sex	N.A.
3. Gender disaggregation of all project indicators as relevant.	Project information and indicators disaggregated by gender	N.A.
4. Subproject indicators disaggregated by gender.	Subproject information and indicators disaggregated by gender	US\$2,000
5. Gender Assessment and Analysis conducted as part of the TA under Component 2 and regenerative and sustainable productive subprojects under Component 3, including differentiated impacts based on gender, barriers women face to move along project supported value chains, gender roles at the family level and impacts on women as decision makers in production activities, and participation of women in decision making spaces. 6. Provision of gender training. 7. Implementation and supervision of the recommendations.	Gender Assessment and Analysis	Assessment: US\$230,405 (including US\$192,405 of parallel financing ["GEF co-financing"] from the GCF-funded RÍOS project)
<b>Component 1: Development and Promotion of Integrated Landscape Management</b>		
8. Promote women's participation in events related with the IWAPs at the community level to ensure women can participate in these forums. Participation will be incentivized by disseminating information, using communication channels used by women, designing the events in a way that is gender sensitive, and encouraging women's overall participation, including expressing their views.	Participants in the IWAP events disaggregated by gender	US\$500
<b>Component 2: Strengthening of Business Skills for Sustainable Livestock and Agroforestry</b>		
9. PLATs (consultants, consulting firms or LCLOs) composed of or including female professionals will be encouraged to submit calls for proposals	Submitted PLAT proposals disaggregated by gender in terms of the contributing professionals	N.A.
10. Encourage the participation of PLATs with female leadership to support female champions and promote positive examples of gender roles	PLAT selection disaggregated by gender in terms of the contributing professionals	
11. Capacity building and sensitization on gender approaches to PLATs.	PLATs who have received and applied gender approaches disaggregated by gender	US\$2,400 (4 workshops)



12. Proposals with women participants as beneficiaries will be prioritized.	Number of proposals that include women participants and leaders submitted and selected	N.A.
13. Project activities (workshops) will be conducted considering women's needs (E.g. schedules, places).	Number of participants in project events disaggregated by gender	US\$500
14. Promote child-care activities in the context of the project activities to facilitate participation by women.		
15. Promote women's participation in decision-making processes, including in community groups.		
16. Disseminate information on service providers for GBV cases.	Number of beneficiary producers who have received information on GBV service providers	N.A.
<b>Component 3: Conservation, Restoration, and Implementation of Climate-smart Productive Practices in Cattle and Agroforestry Landscapes</b>		
17. Communicate project activities and requirements through communication channels, in places and at times, that meet women's needs.	Submitted subproject proposals disaggregated by gender in terms of the contributing professionals	US\$1,000
18. Reduce administrative requirements to participate in project activities and hand hold if needed.	Subproject selection disaggregated by gender in terms of the contributing professionals	
19. Communicate and disseminate that land ownership is not a requirement to participate in project activities.		
20. Include as eligible activities those in which women are more likely to participate (e.g. tree nurseries).		
21. Ensure and monitor payment parity even among temporary workers.		
22. Selection of the LCLOs to execute Component 3 will prioritize organizations with female members/leaders.		
23. Capacity building and sensitization on gender approaches to CSOs.	The LCLOs that have received and applied gender approaches Subprojects with gender indicators	US\$2,400 (8 workshops related with E&S risk management)
24. Project activities (workshops) will be conducted considering women's needs (e.g. schedules, places) and using inclusive language.	Participants in workshops under Component 3 disaggregated by gender	N.A.
25. Promote child-care activities to facilitate women's participation in project activities.		

26. Promote women's participation in decision-making processes, including in community groups.		
27. Disseminate information on service providers for GBV cases.	Percentage of beneficiaries who have received information on GBV service providers	N.A.
28. Codes of conduct and referral paths to prevent cases of sexual exploitation and abuse and harassment.		
<b>Component 4: Project Coordination, Collaboration and Knowledge Management</b>		
29. Capacity building and training for all personnel in the OCU and TCU on gender approaches.	Project personnel in OCU and TCU trained on gender approaches (percentage)	US\$2,000
30. Gender-related capacity building and training for all personnel in the three Regional Funds.	Project personnel in the Regional Funds trained on gender approaches (percentage)	US\$4,000
31. Promote participation of women in activities focused on KM and dissemination of lessons learnt in the project-related learning communities at different levels and supported by the FOLUR Global Platform.	Number of participants in project activities focused on KM and dissemination of lessons learnt in the project-related learning communities supported by FOLUR Global Platform (disaggregated by gender)	US\$35,000 (2 workshops)
32. Active participation in activities focused on gender engagement and equity within the framework of the FOLUR Global Platform.		
Total cost		US\$280,205
Parallel financing by the GCF-financed RÍOS project		US\$192,405
<b>Total cost for CONECTA</b>		<b>US\$87,800</b>

## ANNEX 5: Greenhouse Gas (GHG) Accounting Analysis

### Background and Methodology

1. **In its 2012 Environment Strategy, the World Bank (WB) adopted a corporate mandate to conduct GHG emissions accounting for IPF<sup>97</sup>.** The quantification of GHG emissions is an important step in managing and ultimately reducing them and is becoming a common practice for many international financial institutions. The WB adopted the EX-ACT tool, which was developed by the FAO in collaboration with the WB in 2010. EX-ACT is an automated tool aimed at measuring the impact of agricultural and forestry investment lending on GHG emissions and carbon sequestration. It is a land-based accounting system measuring carbon stocks, stock changes per unit of land, and CH<sub>4</sub> and N<sub>2</sub>O emissions expressed in t CO<sub>2</sub>-e per hectare and year. Generic Intergovernmental Panel on Climate Change (IPCC) methodologies are used to account conversions between categories in five pools: above-ground biomass, below-ground biomass, soil, deadwood, and litter. The main output of the tool is an estimation of the C-balance that is associated with adoption of alternative land management options, as compared to a BAU scenario.
2. **The CONECTA project aims to promote and increase the connectivity of cattle and agroforestry landscapes in selected watersheds in the states of Chiapas, Chihuahua, Jalisco, and Veracruz.** The project is designed to support the protection of watersheds and sustainability of ecosystem services while improving productive economic activities for cattle ranching and coffee farming based on SMPs to prove their benefits both environmentally, social, and economically. It will also support the preparation of IWAPs to promote sustainability in managing natural resources for conservation, restoration, and productive uses. CONECTA will also strengthen entrepreneurial skills of producers, producer organizations, and local micro and small processing businesses to enhance connectivity to local and regional markets and access to finance. At the broader level, an exchange knowledge platform will be created to reach out to multiple value chain stakeholders to promote development of sustainable beef, dairy and coffee value chains
3. **Mexico's NDC includes an unconditional reduction contribution from the agriculture and livestock sector of 86 million tCO<sub>2</sub>e by 2030 as part of its economy-wide targets.** The NDC also includes a target to reduce the gross emissions from land use, land use change and forestry (LULUCF) by 14 million tCO<sub>2</sub>e by 2030. Mexico has also submitted a forest emission reference level (FREL) related to REDD+ under the UNFCCC, which includes deforestation and emissions caused by fires. In addition, Mexico included a target to reach 0 percent deforestation rate by 2030 as part of the adaptation component of its NDC.<sup>98</sup> In order to ensure consistency across these commitments, the present analysis was carried out in close collaboration with INECC, FMCN and the Regional Funds. This collaboration ensured that the assumptions and variables used are consistent with the relevant information available in the country and the situation on the ground. The analysis benefited from substantial technical guidance provided by the INECC mitigation team in charge of the national GHG inventories to ensure that the EF and key assumptions are aligned to the national mitigation agenda and international commitments mentioned above. Particularly, careful attention was paid on the assumptions on the level of avoided grass and shrubland and forest losses. The analysis followed a process in which various filters were considered to ensure that the results are appropriate and agreed upon with the GoM. Thus, the results presented herewith were

<sup>97</sup> Although the World Bank corporate mandate does not apply to GEF/trust funded projects, the GEF requests GHG analysis when relevant.

<sup>98</sup> México (2015): Intended nationally determined contribution. Submission under the UNFCCC: <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Mexico/1/MEXICO%20INDC%2003.30.2015.pdf>



verified and confirmed with both the INECC adaptation and mitigation teams.

### **Application of EX-ACT**

4. **Project boundaries.** The GHG accounting analysis considers activities under Components 1 and 3. Component 1 promotes ILM developing new and improving existing land use instruments named IWAPs covering at least 10 of the 15 eligible watersheds in the project states. The IWAPs aim to reduce degradation and loss of vegetation in the selected watershed, safeguard conservation areas and improve biodiversity, ecosystem and hydrological services through coordination and alignment of projects, programs, and public policies. Component 3 includes activities to promote sustainable cattle and farming systems through the application of sustainable practices including regenerative ranching approach and agroforestry and silvopastoral systems, among others.<sup>99</sup>

5. **Basic assumptions.** Mexico has diverse climatic zones that span throughout its territory. The climate varies in the different intervention sites of the project ranging from warm, temperate, and dry climates to tropical moist climates. For the GHG analysis, each state was treated separately to try to capture the unique climatic and agroecological diversity. The selected dominant soil type for the project is LAC (Low Activity Clay). The project implementation period will be five years, and additional 15 years of capitalization is included for a total analysis period of 20 years.<sup>100</sup> The “without project” scenario is assumed to be equal to a “BAU” scenario. This default assumption is deemed reasonable as changes in agricultural activity crucially depend on information, knowledge, and technology available to beneficiaries, which are expected contributions of the project.

6. **Inputs to the analysis.** Based on demand and strategic selection of proposals to secure enough impact at landscape level, CONECTA will implement activities in 10-15 watersheds in the four project states. Based on the project description, the potential GHG benefits identified were: 1) reduction of degradation and loss of grass and shrublands and forested areas, 2) restoration of degraded ecosystems, and 3) implementation of SMPs in productive livestock and agroforestry systems.

7. **Component 1 is mainly expected to result in reduction of degradation and loss of grass and shrublands and forested areas** in the watershed areas covered by an IWAP through coordination and alignment of projects, programs and public policies and overall better governance supported by a participatory approach promoted among key stakeholders. The project assumes that the IWAPs would reduce deforestation pressure in 10 percent of the vegetation in the watersheds, in an estimated area of 309,850 ha. Based on national observations, it was agreed that the reduction of degradation and loss of referred ecosystems derived from implementation of the IWAPs will be around 10 percent of the annual deforestation rate associated to each watershed. The annual deforestation rates were provided based on the Environmental and Socioeconomic Diagnostics on Regenerative Livestock that FMCN contracted in the project states and eligible watersheds, carried out by the Regional Funds<sup>101</sup> as summarized in Table A5.1.

<sup>99</sup> The project's ESMF includes an initial list of eligible interventions under Component 3.

<sup>100</sup> The period of the GEI analysis matches with the period analyzed in the EFA.

<sup>101</sup> FONCET in Chiapas, FONNOR in Jalisco, and FGM in Veracruz.

**Table A5.1: Annual deforestation rates applied per state**

State	Annual deforestation rate without Project, %	Annual deforestation rate with project, %
<b>Chiapas</b>	0.71	0.64
<b>Chihuahua<sup>102</sup></b>	6.25	5.63
<b>Jalisco</b>	0.55	0.5
<b>Veracruz</b>	1.70	1.53

8. **For Component 3, the following activities were considered:** landscape restoration, sustainable ranching practices through regenerative approach, and agroforestry and SPS linked to sustainable coffee production or a mix of them. Table A5.2 provides detailed information on the assumptions and data inputs used in the GHG accounting analysis.

**Table A5.2: Assumption and data inputs used in the GHG accounting analysis**

Activities		Description
<b>Component 1: Indirect contributions from IWAPs</b>		
Avoided deforestation		Development of ILM through elaboration of new and improvement of existing IWAPs with a participatory approach and providing related capacity building are expected to indirectly contribute to reduce drivers for degradation and loss of grass and shrublands and forested areas. It is assumed that “with project” the annual loss rate will be reduced by 10 percent compared to “without project” scenario.
<b>Component 3: Direct contributions</b>		
Productive Systems	Landscape restoration	Sustainable management of vegetation found in ecosystems in the areas of intervention.
	Perennial agroforestry systems (i.e. coffee)	Agroforestry systems will be introduced mostly linked to shade-grown coffee and to replace annual crops.
	Regenerative livestock production and management	SPS are expected to replace annual crops.  Regenerative livestock production and management is assumed to reduce degradation of pastures, apply mitigation practices and techniques to improve livestock feed and breeding and better management of reproductive practices. <sup>103</sup>  Heard management: It is assumed that the project will have 100 percent improvements in feeding compared to 0 percent in without project scenario and 100 percent breeding improvements compared to 0 percent without project.

<sup>102</sup> Grassland from Pool et. al 2014.

<sup>103</sup> Smith, P., D. Martino, Z. Cai, D. Gwary, H.H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O’Mara, C. Rice, R.J. Scholes, O. Sirotenko, M. Howden, T. McAllister, G. Pan, V. Romanenkov, U. Schneider, S. Towprayoon, M. Wattenbach, and J.U. Smith, 2007a: Greenhouse gas mitigation in agriculture. Philosophical Transactions of the Royal Society, B., 363. doi:10.1098/rstb.2007.2184



9. **Table A5.3 presents the expected distribution of area with supported project activities** based on assumptions by FMCN and Regional Funds.

**Table A5.3: Distribution of area (ha) per state and activity**

State	Reduction of degradation and loss of ecosystems (ha)	Agroforestry (ha)	Silvopastoril (ha)	Landscape restoration: shrubland vegetation (ha)	Livestock # heads	Landscape restoration (ha)
Chihuahua	219,681	0	0	400	772	1,500
Chiapas	5,870	1,000	300		1,402	1,500
Jalisco	32,834	1,000	400		615	1,500
Veracruz	51,465	2,500	400		1,420	1,500
<b>Total</b>	<b>309,850*</b>	<b>4,500</b>	<b>1,100</b>	<b>400</b>	<b>4,213</b>	<b>6,000</b>

\* This is the total area in the watersheds (10 percent) where reduction of degradation and loss is expected as indirect impact of the implementation of the IWAPs.

10. **Characteristic of the vegetation in the CONECTA watersheds:** The Regional Funds provided a synthesis of the typology of vegetation found in the 15 watersheds, disaggregated by primary and secondary vegetation. This classification was made in accordance with the classification used by the 2018 National Greenhouse Gas Inventory Report (NIR).<sup>104</sup>

11. **Calculation of degradation and loss of ecosystems:** The percentage of the vegetation cover in the watersheds was used to determine the distribution (ha) of vegetation in 309,850 ha. Using the weighted annual average of deforestation rate, the areas of shrubland, grassland and forest loss with and without project were calculated as presented in Table A5.4. This data was used in the EX-ACT module of Land use change under the submodule of Deforestation.

**Table A5.4: The loss areas (ha) with and without project per state and type of vegetation**

Vegetation	Chiapas		Chihuahua		Jalisco		Veracruz	
	with	With out	With	With out	with	With out	with	With out
<i>Primary vegetation</i>								
Pine forest			538	597	61	68	375	417
Oak forest			8,063	8,959	293	325	322	358
Deciduous forest					17	18	268	298
Mountain forest	17	19			6	6	563	626
Evergreen forest	69	77					858	954
Sub-deciduous forest					144	160	27	30
Grasslands (natural, planted)	92	102	18,814	20,904	33	37	80	89
Xerophilic shrubland			20,426	22,696				
Hydrophilic vegetation woody	9	10					107	119
Xerophilic shrubland non woody			3,225	3,584				

<sup>104</sup> <http://cambioclimatico.gob.mx:8080/xmlui/handle/publicaciones/226> and <https://unfccc.int/documents/199243>



Vegetation	Chiapas		Chihuahua		Jalisco		Veracruz	
	with	Without	With	Without	with	Without	with	Without
Hydrophilic vegetation non-woody							80	89
Riparian vegetation			3,225	3,584				
<b>Secondary vegetation</b>								
Pine forest			80	89	29	32	729	810
Oak forest			1205	1339	138	153	625	694
Deciduous forest					8	9	521	578
Mountain forest					3	3	1,093	1,215
Evergreen forest							1,666	1,851
Sub-deciduous forest					68	75	52	58
Grasslands			2,811	3,124	16	17	156	174
Xerophilic shrubland			3052	3391				
Hydrophilic vegetation woody							208	231
Xerophilic non woody			482	535				
Hydrophilic vegetation non-woody							156	174
Riparian vegetation			402	446				

12. **Agroforestry and silvopastoril production systems.** The assumption was that these systems will elicit Other land use change by converting original annual crop land to silvopastoril or agroforestry systems.

13. **Livestock management.** Estimates were also made on the climate benefits of improved livestock management in the EX-ACT module of Grasslands under the submodule of Livestock. The livestock GHG benefits are attributed to Component 3 specifically in areas under silvopastoril/pasture systems (1,500 ha). This benefit aims to capture the benefit from improved feedings and animal well-being associated with silvopastoril systems.

14. **As the project will focus on livestock activities for dual-purpose milk/meat production, this was represented assuming 50 percent dairy cattle and 50 percent beef cattle in the EX-ACT.** It was assumed that the silvopastoril systems would support better livestock management and reduction in enteric fermentation emissions. For this, it was assumed that 100 percent of best practices in feeding and reproduction would be implemented in the situation with project compared to the BAU situation and without project. Table A5.5 summarizes the expected number of cattle heads per state. Note that the cattle herd is larger in the area, but the attribution on GHG reduction is only to cattle under improved management in the 1,500 ha. The other variables used to calculate the livestock impact are found in Table A5.6.

**Table A5.5: The expected impact under the scenarios in the number of heads under improved management/state**

Scenario	Chiapas	Chihuahua	Jalisco	Veracruz
BAU/without project No improvements	64,985	156,855	83,480	434,273
With project: No improvements Improvements*	63,578 1,407	156,083 772	82,865 615	432,853 1,420

\*The estimated numbers of cows of the beneficiary producers in silvopastoral systems with which the project will work.

**Table A5.6: Other variables used to calculate the livestock impact per state**

	Heads	Average temperature C	Dairy average weight, kg	Average milk production kg/head/year	Excrete rate dairy kg per head per day
Chihuahua	40	18.2	510	915	82
Chiapas	400	24.5	369	902	59
Jalisco	170	20.8	425	916	68
Veracruz	600	23.6	415	985	67

14. **Landscape Restoration.** The impact of this section was calculated manually using the available restoration information and adsorption factors from the NIR. It was assumed that without project there would be "0" restoration compared to with project situation. The measurement is based on above-ground and below-ground biomass factors. In the case of grassland ecosystems, information from the Mexico's Second Biennial Update Report (BUR II) to the UNFCCC provided an estimation of soil absorption related to sustainable management, which was also considered in the accounting.

15. **Emission factors:** Tier 2 emission factors from the NIR 2018 were applied to calculate carbon from biomass pools from below- and above-ground and in terms of dead material and litter according to vegetation cover. Soil pool factors for most available vegetation categories were provided by the INECC mitigation team in annual basis, which were projected to the total period of 20 years as presented in Tables A5.7-10. For Deciduous, Sub-deciduous and Evergreen forest the same soil carbon pool factor as used as only one value was available. The data was used in EX-ACT to carry out the calculations with exception of the forest and grassland restoration that were carried out manually.

**Table A5.7: Emission factors utilized for accounting avoided loss of grass and shrubland and forested areas**

Type of Vegetation	Tons of C per ha				
	BA	BS	Litter	Dead wood	Soil
<b>Primary</b>					
Pine forest	32.85	7.86	1.88	6.20	49.80
Oak forest	20.10	5.04	1.53	2.61	27.80
Xerophilic shrubland	2.02	0.59	0.34	1.23	1.80
Mountain forest	45.31	10.65	3.40	10.45	42.80
deciduous forest	11.77	3.18	0.86	3.50	27.80
Evergreen forest	34.90	8.70	2.75	12.30	27.80
Sub-deciduous forest	25.85	6.61	1.62	6.86	27.80
Hydrophilic vegetation wo	15.50	3.97	0.21	5.61	21.40
Xerophilic non woody	0.22	0.06	0.24	0.48	1.80
Riparian vegetation	2.35	0.63	0.05	2.11	0.00
Grasslands (natural, planted)	6.68	1.73	0.66	3.17	1.30
<b>Secondary</b>					
Pine forest	21.75	5.34	1.66	3.75	49.80
Oak forest	14.67	3.73	1.19	2.28	27.80
Xerophilic shrubland	1.59	0.45	0.25	1.64	1.80
Mountain forest	21.01	5.07	3.07	6.53	42.80
Deciduous forest	8.90	2.44	0.72	2.75	27.80
Evergreen forest	15.42	3.97	1.54	7.36	27.80
Xerophilic non woody	0.22	0.06	0.24	0.48	1.80
Hydrophilic vegetation non woody	2.35	0.63	0.05	2.11	0.00
Sub-deciduous forest	14.53	3.83	1.48	5.07	27.80
Grasslands (natural, planted)	6.68	1.73	0.66	3.17	1.3
Riparian vegetation	12.44	3.25	0.00	5.04	21.40

BA = Aerial Biomass; BS = Below-ground biomass

**Table A5.8: Emission factors utilized to calculate benefits of landscape restoration**

Restoration Emission Factors	% coverage secondary vegetation	estimated ha to restored	EF BA tC/ha/ano	EF BS tC/ha/ano
Vegetation				
Pine forest	8%	504	1.06	0.25
Oak forest	20%	1190	0.85	0.21
Mountain forest	10%	588	1.85	0.44
Xerophilic shrubland	15%	880	0.25	0.06
Evergreen forest	15%	882	1.11	0.27
Sub-deciduous forest	5%	279	1.06	0.27
Deciduous forest	5%	305	0.55	0.14
Hydrophilic vegetation woody	2%	111	1.15	0.29
Riparian vegetation	3%	198	0.36	0.34
Xerophilic shrubland non woody	2%	139	0.01	0.11
Grasslands (natural, planted)	15%	1324	0.82	0.21

**Table A5.9: Emission factors utilized to calculate livestock management impact**

Enteric fermentation kg CH <sub>4</sub> head/year	Manure management kg CH <sub>4</sub> head/year	Dairy excretion factor kg N 1000 kg live weight/day	Manure management N <sub>2</sub> O kg N <sub>2</sub> O-N (kg nitrogen/excreted)	% volatization NH <sub>3</sub> and NOx slurry management	EF indirect N <sub>2</sub> O kg N <sub>2</sub> O-N (kg nitrogen/excreted)
Dairy livestock					
Chihuahua	99	71			
Chiapas	128	93			
Jalisco	117	78			
Veracruz	128	85			
Beef livestock					
Chihuahua	56	11			
Chiapas	56	18			
Jalisco	56	13			
Veracruz	56	15			

\*Note that in EX-ACT the livestock categories are labeled differently due to tool restrictions, but Tier 2 coefficients reflect the dairy and beef cattle.

**Table A5.10: Emission factors utilized to calculate impacts from silvopastoril and agroforestry systems**

Production System	Initial Land Use	EF biomass tC/ha	Soil carbon tC/ha	Fire	Final Land Use	EF BA* tC/ha	EF BS tC/ha
Silvopastoril	Annual Crop	1.1	22.6*** 20.30**	no	0.477	22	0.1
Agroforestry - shade grown coffee		2.1	22.6	no	2.43	24	0.5

\*1st year, \*\*Jalisco, \*\*\*Veracruz and Chiapas

## Results

16. **Net carbon balance.** The net carbon balance quantifies GHGs emitted or sequestered because of a “project” compared to the “without project” scenario. **Over the period of 20 years, the project is expected to constitute a net carbon sink of 1.64 million tCO<sub>2</sub>e;** 1.2 percent of the NDC mitigation target for the Agriculture, Forestry and Other Land Use (AFOLU) sector by 2030.<sup>105</sup> The total estimated direct emission reductions during the project lifetime are 1,359,412 tons of CO<sub>2</sub>eq and the estimated indirect emissions are 284,728 tons of CO<sub>2</sub>eq. The indirect emissions are the result of avoided deforestation resulting from Component 1. Direct emissions are the results of activities under Component 3. On average, the annual GHG emission reduction is estimated at 82,207 tCO<sub>2</sub>e. The largest contributors to the expected emission reduction come from installation of agroforestry and silvopastoril production systems followed by restoration of secondary vegetation. Reservoirs from above-ground and below-ground biomass contribute 92 percent of the benefit, while soil reservoirs comprise 7 percent and livestock only 0.4 percent of the total climate benefit.

**Table A5.11: Results of the GHG accounting analysis**

	Chiapas	Chihuahua	Jalisco	Veracruz	Total 20 years
<i>Component 1 – Avoided loss of grass and shrublands and forested areas</i>					
Primary vegetation	2,856	182,610	8,369	31,987	225,822
Secondary vegetation		19,003	3,082	36,821	58,906
<i>Component 3 – Interventions</i>					
Agroforestry/ Silvopastoril	181,657	0	194,828	442,877	819,362
Cattle	8,829	3,882	3,568	8,911	25,208
Restoration of secondary vegetation	128,710	128,710	128,710	128,710	514,842
<b>Total</b>					<b>1,644,138</b>

\*In case of Chiapas, disaggregated level data was only available for primary vegetation.

<sup>105</sup> The CONECTA cost of mitigation is US\$ 8.5/tCO<sub>2</sub>e; low compared with the range of US\$30-40 of the shadow price of carbon in economic analysis used by the World Bank and in the EFA of CONECTA.

**ANNEX 6: Summary of the CONECTA Linkages with the FOLUR Global Platform**

1. **The GEF-7 Food Systems, Land Use and Restoration (FOLUR) Impact Program (IP) has two main elements: (i) a Global Knowledge to Action Platform Project and (ii) 27 Country Projects until May 2021.** The design of the FOLUR IP reinforces that the global project and the CPs need to work together so that the whole of FOLUR achieves impacts that are "greater than the sum of the parts".
2. **To achieve transformation in food systems and commodity production practices at a global scale, the country level efforts and global efforts need to work together on key issues and strategies,** engage key private and public sector actors, and advise on policies that shift producers' incentives toward sustainability. This two-level approach facilitates innovations and collaborations that can reach further with greater impact than either the global engagement or the country engagement alone. For example, working together, regional/commodity groups of countries can work with the GP to influence value chain policies and practices from the top down and the bottom up. The GP and CPs can work together to influence financial institutions at the global level to have impacts on the sustainability practices of producers at the commodity and landscape level. Similarly, in global events, such as the Conferences of Parties of Multilateral Environmental Agreements or the UN Food Systems Summit, the FOLUR partners, both GP and CPs, will present a stronger vision and message backed by sound analysis and evidence built on concrete examples and experience from the field.
3. **The GP will act at global and regional levels, bringing parties together,** nurturing regional and multi-country partnerships, analyzing issues, and developing evidence for improved practices, and facilitating the flow of knowledge and lessons learned across boundaries. Working with the CPs, it offers capacity building, TA, policy dialogue and engagement, resource mobilization, and knowledge exchange to facilitate more concerted collective action, more coordinated and integrated interventions; scaled up investment with a faster pace and greater impact; the need for policy harmonization and subsidy repurposing, financial innovation and leverage, and outreach to existing and new stakeholders.
4. **The GP will also provide the oversight, coordination, monitoring, and reporting functions needed for the FOLUR IP to achieve its objectives.** It provides the means for involving the Core Partners<sup>106</sup>, IAs and CPs in a collaborative network to facilitate and scale-up implementation, two-way communication, and a flexible and adaptive work planning process. The GP team will manage the liaison and reporting to GEF Secretariat, including M&E of progress and results for the entire FOLUR IP. At the same time, CPs will be responsible for including appropriate M&E indicators in their design for reporting on progress to the GP regularly and in a timely manner; please see the CONECTA budgeted M&E plan for the applicable indicators.
5. **The World Bank as the GEF IA in case of CONECTA will be the focal point for liaison between the FOLUR GP and CONECTA.** Table A7.1 replicates closely the guidance received from the GP on areas where the CPs and the GP can work effectively together on cross-country learning, supporting regional commodity value chains, and aggregating messages to global venues and players. Table A7.1 presents the expected engagement opportunities for CONECTA to make the most of the interaction with the GP during implementation, while related budget needs have been incorporated in the CONECTA budget.

<sup>106</sup> IFC, FAO, the GGP of the UNDP, the Food and Land Use Coalition (FOLU) co-led by the WRI and the GLF.



6. **CONECTA will collaborate with existing initiatives that work on sustainable value chains to maximize synergies and impact**, including e.g. AMEBIN, which FMCN is co-chairing since end of 2020 together with Nestlé, TEEB MX; the Mexican Association for Fair Trade; MRSI that initiated its work in 2020; and relevant Nationally Appropriate Mitigation Actions (NAMA). A NAMA on sustainable livestock is currently under preparation by AGRICULTURA and the Inter-American Institute for Cooperation on Agriculture (IICA) and adopted in its early stages by the MRSI as one of its projects. Collaboration is expected also with the IFC that is identifying investment opportunities in the CONECTA intervention area supporting productive alliances between large, private sector companies and small-holder producers. The CONECTA CC will play a key role in coordinating and aligning relevant actions in the project area and beyond, particularly through AGRICULTURA and FIRA, the latter focusing on private sector actors.

7. **CONECTA will systematize a diverse set of relevant productive practices that have been tested and proved beneficial both in environmental and economic terms.** The initial set of these practices is identified and analyzed in the project's ESMF.<sup>107</sup> CONECTA will cover actions on strategic planning, capacity building, investment and coordination of policies and programs within SEMARNAT (INECC, CONANP, and CONAGUA), IMTA, CONAFOR and in close collaboration with AGRICULTURA, FIRA, and BIENESTAR that all form part of the CONECTA CC, and the other entities that have committed or are expected to commit parallel financing. Biodiversity, soil carbon, water and/or soil quality will be monitored according to nationally recognized methodologies, while internationally recognized technologies adjusted by the participating institutions for appropriateness in the project ecosystems will be outlined in the calls for proposals as defined in the ESMF. CONECTA will also provide space for new and innovative practices, while the CC will review, guide and validate all the technologies proposed for use under Components 2 and 3. Innovation will be embedded in: (i) promoting cross-sectoral coordination for ILM by ensuring inter-ministerial coordination from the project design to the implementation stage between the key agencies that form the CC and with other development partners and across federal, state and local governments; (ii) offering tailor-made TA to PGs through 4-year accompaniment strategies, going beyond traditional provision of TA; and (iii) promoting broad-based and active stakeholder engagement through cost-effective action by three Regional Funds that will contribute critical local knowledge and relations and facilitate active participation of local organizations and communities.

<sup>107</sup> CONECTA E&S risk management instruments are available at: <https://projects.worldbank.org/en/projects-operations/documents/P172079>

**Table A7.1: Expected engagement opportunities for CONECTA with the FOLUR Global Platform**

<b>CONECTA Opportunities for Strengthening Engagement between CPs and GP for Mutual Benefit in Achieving FOLUR IP Objectives</b>		
<b>FOLUR Activities</b>	<b>Global Platform Responsibilities &amp; Actions</b>	<b>CONECTA Responsibilities &amp; Actions</b>
<b>Pillar A: Program Capacity Strengthening</b>		
• Increase capacity to deliver on program objectives through training for CPs	• Identify training programs/products available. • Organize and promote training sessions to CPs or relevant value chain actors.	• Allocate personnel time to participate in trainings and capacity-building events. • Bring learning back to relevant audiences (CONECTA team, targeted landscapes, stakeholders, and commodity value chain actors). • Consider where CP learning or experts can contribute to global/ regional training events.
• Address key gaps and promote innovations through targeted TA to CPs	• Design and staff TA initiatives in areas where groups of CPs have identified demand and specific needs. • Link TA opportunities to global and regional gatherings for efficiency.	• Collaborate with the GP & other CPs to identify joint TA and training needs to fill gaps or implement innovations. • Respond to needs assessments on TA demands. • Share knowledge and lessons learned within project landscapes, value chain actors and relevant national audiences.
• Launch Communities of Practice (CoPs)	• Launch and organize CoPs and maintain online platform. • Launch CoPs on gender, commodities and other issues identified through demand.	• Participate in relevant CoPs by sharing knowledge and incorporating learning into project and sharing knowledge with project stakeholders and commodity actors.
<b>Pillar B: Policy and Value Chain Engagement</b>		
• Engage private sector agents and organizations on policies, practices, & financing toward sustainability outcomes, at global, regional, and country level	• Catalyze country level engagement with private sector to transform commitments into actions by providing dialogue opportunities, regular participation in roundtables. • Consult with Core Partners, IAs and CPs to align on strategic engagements and plan TA or advisory services to catalyze opportunities for scaling, leveraging, replicating. • Advance sustainability dialogue and practices through private sector forums, targeted analytics, and KM. • Leverage responsible investments through regular, regional finance forums, deal brokering.	• Identify and mobilize relevant partners at country level, link with global events and processes. • Lead on country level engagement with producers, small and medium enterprises (SMEs), local finance institutions to complement outreach and engagement at regional and global scale. • Collaborate with GP opportunities for engagement with national or multinational companies. • Participate in needs assessment surveys related to private sector engagement needs and opportunities.



FOLUR Activities	Global Platform Responsibilities & Actions	CONECTA Responsibilities & Actions
<ul style="list-style-type: none"><li>Participate in commodity roundtables to access private sector audiences</li></ul>	<ul style="list-style-type: none"><li>Lead on engagement with regional and global roundtables.</li><li>Highlight CPs' work strategically with roundtables and identify opportunities for training, outreach, and private sector partnerships.</li></ul>	<ul style="list-style-type: none"><li>Participate in relevant national or regional commodity roundtables and multi-stakeholder platforms.</li><li>Participate in the work of the MRSI.</li><li>Share results, findings and impacts with other CPs and the GP through CoPs and regular exchanges.</li></ul>
<ul style="list-style-type: none"><li>Advance country policy reforms and incentives toward achieving sustainability and restoration commitments.</li></ul>	<ul style="list-style-type: none"><li>Consult with Core Partners, IAs and CPs to align on strategic engagements.</li><li>Stimulate public sector investment through upstream planning plus investment mobilization, where opportunities at CP level are identified.</li><li>Advance country dialogue on sustainability and policy reforms toward improved production, restoration practices, standards, and incentives.</li></ul>	<ul style="list-style-type: none"><li>Identify and share key public sector issues limiting FOLUR agenda from scaling in-country through CoPs and regular dialogue with the World Bank, Core Partners, and the GP.</li><li>Identify and promote opportunities for policy reform or public sector engagement based on local knowledge and specific engagement/TA needs for global expertise available through the GP.</li></ul>
<ul style="list-style-type: none"><li>Targeted flagship reports on key issues for public and private sector engagement</li></ul>	<ul style="list-style-type: none"><li>Lead flagship studies addressing key issues and opportunities in FOLUR landscapes / commodities.</li><li>Collaborate with Core Partners, CPs, and external parties for data, successes, case studies.</li></ul>	<ul style="list-style-type: none"><li>Suggest relevant topics for reports.</li><li>Contribute case studies to reports.</li></ul> <p>Promote flagship report findings in-country through seminars and outreach.</p>
<ul style="list-style-type: none"><li>Create innovation funds on key issue areas like private sector and gender</li></ul>	<ul style="list-style-type: none"><li>Support the design phase of innovation funds.</li><li>Consult / survey CPs on practical needs for access to / use of innovation funds</li><li>Engage private sector / financial sector / and other relevant financial institutions in the mobilization of these innovative instruments</li></ul>	<ul style="list-style-type: none"><li>Contribute ideas for innovation fund topics.</li><li>Respond to surveys and follow up focus groups or comment processes to ensure the practicality and responsiveness of the instrument to CONECTA needs.</li><li>Promote innovation fund domestically, where relevant based on CONECTA aims and focus on sustainable livestock and agroforestry value chains.</li></ul>



Pillar C: Strategic Knowledge Management and Communications		
<ul style="list-style-type: none"><li>Conduct communication and outreach to manage and expand public outreach on FOLUR issues</li></ul>	<ul style="list-style-type: none"><li>Consolidate work on sharing of lessons and best practices, and outreach for strategic knowledge products.</li><li>Identify and prioritize evidence-based KM and communications products that CPs can use to engage policymakers with timely links to local decision processes.</li></ul>	<ul style="list-style-type: none"><li>Through the WB, share updates regularly with the GP Communications Officer.</li><li>Use communications and outreach materials for in-country engagement.</li><li>Participate in periodic needs assessment surveys and FOLUR IP Annual Meetings to guide knowledge and outreach product development.</li></ul>
<ul style="list-style-type: none"><li>Focused KM on prioritized issues and gaps</li></ul>	<ul style="list-style-type: none"><li>Establish technical working groups on regions, themes, and commodities with IAs / Core Partners</li><li>Provide direct KM and communications support on cross-cutting issues facing CPs - gender and private sector engagement.</li><li>Develop guidance notes and policy briefs on key technical approaches &amp; best practices.</li></ul>	<ul style="list-style-type: none"><li>Identify opportunities for communications support on gender and private sector engagement based on local and national context.</li><li>Review and feedback on development of guidance notes and integrate into implementation.</li></ul>
<ul style="list-style-type: none"><li>Engage strategically in events to strengthen linkages across partners and scales</li></ul>	<ul style="list-style-type: none"><li>Lead representation in global and regional events to strengthen linkages across partners, at country, regional, and global levels, and increase the overall reach of the Program.</li></ul>	<ul style="list-style-type: none"><li>Participate in regional and global events in coordination with the GP. Share suggestions for upcoming events where GP or CP participation can add value regionally/globally.</li></ul>
<ul style="list-style-type: none"><li>Document lessons learned and project achievements; produce and exchange Knowledge Products</li></ul>	<ul style="list-style-type: none"><li>Gather information from CPs and share via newsletter, website, other outreach materials.</li><li>Populate and cross-link website to cite / reference CP achievements.</li><li>Develop knowledge products to share lessons &amp; best practices, conduct outreach, use tools for scale up and replication through web presence and knowledge bank.</li><li>Synthesize success stories, achievements, and lessons learned from CPs for global events and outreach and across the CPs.</li></ul>	<ul style="list-style-type: none"><li>Develop, consult, edit and refine brief documents for lessons learned.</li><li>Regularly exchange information about lessons learned and provide feedback on relevance/format of knowledge products through CoPs, plus regular dialogue channels.</li><li>Document and share lessons, insights, and achievements regularly.</li></ul>
<ul style="list-style-type: none"><li>Ensure coordinated communications and outreach strategy and</li></ul>	<ul style="list-style-type: none"><li>Share comms strategy and branding guidelines with IAs.</li><li>Lead global social media presence.</li></ul>	<ul style="list-style-type: none"><li>Train relevant personnel in communications and branding guidelines. Cross link websites. Follow FOLUR social media channels.</li><li>Relay to GP communications officer proactively about any project press coverage to amplify or mitigate.</li></ul>



overall narrative of impact	<ul style="list-style-type: none"><li>Develop and share global narrative on FOLUR cumulative impact and integrate similar CP-level stories to demonstrate synergies.</li></ul>	<ul style="list-style-type: none"><li>Use CONECTA Communications Officer to create achievement stories regularly.</li></ul>
<b>Pillar D: Program oversight, Coordination and M&amp;E</b>		
• Annual meeting and work planning process	<ul style="list-style-type: none"><li>Plan and execute annual meeting.</li><li>Lead consultative annual work planning process with CP inputs through IAs and Core Partners.</li></ul>	<ul style="list-style-type: none"><li>Send CONECTA representatives to annual meeting.</li><li>Prepare planning inputs and assess needs in advance.</li><li>Constructively participate in work planning process through the WB and Core Partners.</li><li>Respond to surveys and needs assessments timely.</li></ul>
• Annual report development and dissemination	<ul style="list-style-type: none"><li>Engage with CPs to gather and document success stories to feature in the annual report.</li><li>Reflect the results reporting of CPs and amplify their ability to communicate with GEF, partner agencies, and the wider community about achievements and strategies.</li></ul>	<ul style="list-style-type: none"><li>Prepare CONECTA Annual Report and submit to the GP in a timely manner.</li><li>Respond to requests for information in a timely manner.</li><li>Disseminate annual report to relevant stakeholders.</li><li>Share similar CP Annual Reports through FOLUR website cross links.</li></ul>
• Regular check-in calls and field visits	<ul style="list-style-type: none"><li>Schedule and lead regular contacts for GP – CP engagement through IAs.</li><li>Conduct periodic visits (incl. virtual) to facilitate collaboration &amp; cross-country learning.</li></ul>	<ul style="list-style-type: none"><li>Dedicate personnel time to participate in coordination calls.</li><li>Identify opportunities or field sites relevant for showcasing CONECTA best practices, innovative approaches, or needs for TA and troubleshooting.</li></ul>
<b>Monitoring &amp; Evaluation</b>		
• M&E plan implemented with annual data collection and synthesis.	<ul style="list-style-type: none"><li>Provide guidance note on M&amp;E to all IAs/CPs.</li><li>Facilitate the reporting of CP progress and help ensure that this reporting is timely, adequate and allows for aggregation of data.</li></ul>	<ul style="list-style-type: none"><li>Include relevant FOLUR IP indicators in the design of CONECTA RF.</li><li>Implement M&amp;E plan and report on any issues or divergences in timely fashion.</li><li>Allocate personnel time to regular follow-up conversations with the GP M&amp;E coordinator.</li><li>Collect data to fulfill M&amp;E reporting requirements for all relevant field sites and participants.</li></ul>
• Data verification and formatting	<ul style="list-style-type: none"><li>Provide guidance on verifying and formatting data to CP M&amp;E officers.</li></ul>	<ul style="list-style-type: none"><li>Allocate personnel time to review and clean data before sharing with the GP and GEF.</li></ul>
• Aggregation and public reporting of data	<ul style="list-style-type: none"><li>Collect and review CP M&amp;E data.</li><li>Package data for public and funder review as part of annual report.</li></ul>	<ul style="list-style-type: none"><li>Share M&amp;E results with relevant stakeholders.</li></ul>

**ANNEX 7: Detailed Description of Component 4 and Private Sector Linkages**

1. **Every year, the project will organize an exchange of knowledge and experiences between and beyond the eligible watersheds and will systematically document and share good practices and lessons learned.** The NLC and local platforms will complement the project's participation in the FOLUR GP, led by the World Bank, which will provide access to practical solutions and strategic communication. The project will seek to address gender and social inclusion issues to reach out to women and IP<sup>1</sup> groups. Supported by the FOLUR GP, the design of the communication efforts will be tailored to the intended audience, from high-level political and PS forums through to smallholder farmers and producers. The project's TC, NLC, MRS, and forums in each watershed will ensure coordination between federal and state agencies.
2. **CONECTA will contribute to learning, lessons for wider replication, leveraging, and disseminating FOLUR IP actions and results** through the NLC and other existing national and local platforms such as the AMEBIN, TEEB MX, MRS, and state-level roundtables to scale up, mainstream, and incentivize demand for and application of improved practices for better landscape-level outcomes and greener commodity supply chains. As a complement to the quantitative reporting, the project will document success stories, and provide other inputs as contributions to annual overview progress reports of the FOLUR GP. The project leads will also participate in an annual face-to-face GP meeting with all FOLUR IAs, CPs and partners. The RF includes a relevant KM indicator: Members of FOLUR-supported Communities of Practice (Number; % female).
3. **CONECTA will generate, share, and scale-up knowledge through the following approach:** Under Component 1, CONECTA will promote wide stakeholder engagement in consultative activities to inform the IWAPs, including public, civil, private, and financial sectors. The stakeholders will co-develop the IWAPs to include data related to local information to improve their quality, ensure ownership of the IWAPs, and promote their implementation. Component 1 will also provide training to key actors including policymakers, CSOs, LCLOs, and PS to adopt IWAPs and align policies and subsidy programs. Through Components 2 and 3, the project will generate new knowledge by providing TA to beneficiaries through 4-year accompaniment strategies. CONECTA will seize the opportunity provided by the FOLUR IP through active participation in the FOLUR GP, including work through it to access relevant international actors and platforms like the Global Roundtable for Sustainable Beef (GRSB) to complement and reinforce domestic efforts and participation with the MRS. A KM approach with a budget and timeline for the key deliverables has been prepared for the OM, and a communication and KM strategy will be formulated as implementation starts to ensure effective outreach and dissemination and promote visibility among stakeholders.
4. **Component 4 will be instrumental in strengthening deforestation-free and sustainable value chains at three levels:**
  - (i) **At the watershed level:** Once PLATs, PGs, producers, and processors/traders have been selected; yearly meetings will take place that allow establishing links along CONECTA-prompted value chains. The Regional Funds will be instrumental in detecting such links and promoting new market connections. An ongoing value chain study financed by FMCN will serve as a starting point, and the value chain connections will be enriched as needed once the beneficiary producers and processors/traders have been selected. Common needs to strengthen supply chains will be identified at the yearly meetings and supported through consultancies:
  - (ii) **At the national level:** PLATs, PG, producers, processors, and other key stakeholders in the watersheds will participate in multi-stakeholder biannual meetings. The identified supply chains being developed in every watershed will interact with those of other watersheds across states. Linkages will be built for exchange of knowledge and



development of business opportunities. Through the TC and CC, the biannual meetings will ensure that the supply chains at the watershed level interact with relevant national networks, such as AMEBIN, TEEB MX, National Council of Small Producers, MRSL, Thematic Network of Agroforestry Systems of Mexico, Biodiversity Finance Initiative (BIOFIN), as well as with investors identified by FIRA, SVX, Viwala, and Adobe.

**(iii) At the international level:** The FOLUR GP, led by the World Bank, presents a unique opportunity to link the bottom-up design of CONECTA with the GP's top-down approach. Needs identified at the watershed and national levels will be analyzed by the TC and CC to match them with TA provided by the GP. The Committees will also select the representatives to be supported by the project to participate in global and regional engagement events. It will be mandatory that the CONECTA representatives share the knowledge and contacts acquired with the pertinent project stakeholders. Topics already detected that are of interest for CONECTA are certification of sustainable enterprises and products, impact investment opportunities and communication to urban consumers interested in sustainable products.

#### **Private sector linkages**

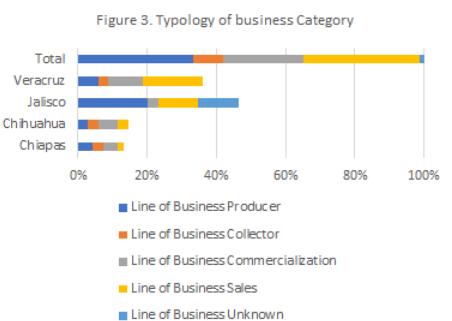
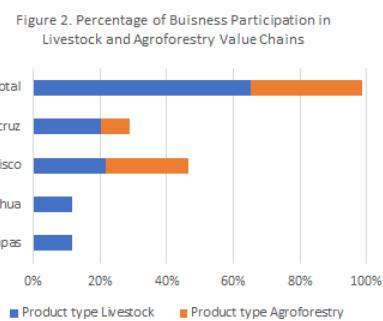
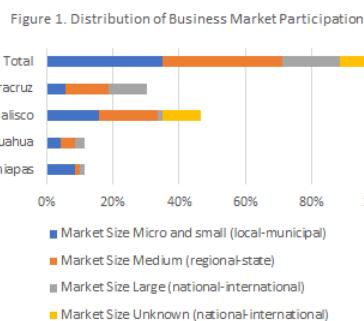
5. **Establishing a market transformation for sustainably produced meat, milk, dairy products, and coffee is challenging for Mexico, due to the nascent nature of demand for these products.** CONECTA will engage with relevant actors along the beef, dairy and coffee value chains at various levels to promote their sustainability and strengthen related forward linkages. Farmers are by far the largest private investors in agriculture with on-farm investments being more than three times as large as all other sources of public and private investment in low- and middle-income countries. Farmers must therefore be central to efforts to increase private investment in the sector with a view to accelerating progress towards development outcomes.<sup>108</sup> Farmers and PGs are thus important private sector actors with whom CONECTA will work as direct beneficiaries. Given the domestic nature of the beef and dairy value chains in Mexico, CONECTA will focus on strengthening domestic market linkages and working largely with short supply chains at the local, regional and national levels, emphasizing also the importance of consumption of local food to reduce food miles. Due to the demand-based nature of the project design, collaboration with specific enterprises will be defined during implementation as part of the preparation and selection of the proposals to be financed under Components 2 and 3. A preliminary analysis of market opportunities in the intervention areas identified a total of 69 businesses that can be linked to the targeted value chains and producers/processors/traders supported under Components 2 and 3: 35 percent of them are micro/small and 36 percent medium scale businesses that participate in local and regional markets (Figure A8.1), while only 17 percent participate in national and international markets. 45 operate with livestock-related products and 23 with coffee (Figure A8.2). The main lines of business are commercialization (33 percent) and sales (23 percent) (Figure A8.3).
6. **During implementation, CONECTA will prepare a Private Sector Engagement Strategy (PSES) for sustainable livestock linked commodities** to identify opportunities and solutions for leveraging private sector participation to strengthen linkages along the project targeted key value chain. The strategy will support public-private dialogue to strengthen collaboration and inform future investment programs in line with the World Bank Group's MFD approach. It will draw strongly from a value chain analysis of sustainable livestock and agroforestry systems and their market linkages that is being finalized in the eligible watersheds by FMCN. Under Component 2, CONECTA will help farmers and small processing enterprises to become bankable and coordinate particularly with FIRA to promote their access to finance. It will also support technology adoption and generation of information that will contribute to reduce

<sup>108</sup> "Maximizing Finance for Development: Making it Operational in the Agriculture and Food Sector" Guidance Note V.2.0 disclosed by the Agriculture and Food Global Practice in June 2020.



market distortions and help create more sustainable and efficient value chains.

7. **Building on the ongoing value chain analysis, potential collaboration is being explored with existing projects that involve companies present in the four states.** Once the PLATs and subprojects under Component 2 and 3 have been selected, the PSES will be designed. It will incorporate relevant primary and secondary information for value chain mapping and will (i) provide information on products, recommendations on market niches for identified products or strategies with greater potential, prices, investment needs, profits and possibly competitors according to their product differentiation and market positioning; (ii) establish the distribution of value added among the different actors on the different productive chains identified in (i); (iii) locate the actors at each link or nodal point of the chain, and identify their roles, activities, interests, indigenous and women's participation, as well as the interactions between them; (iv) characterize potential opportunities for better coordination between actors identified in (iii) and possible spaces where it would be possible to incorporate actions for more efficient alternatives economically, socially and environmentally; (v) obtain relevant information to identify strategies from farm to fork and provide recommendations on market niches that improve the competitiveness of regenerative products; (vi) identify potential future demand (internal and external) in niche meat, milk and coffee markets, and mechanisms to enhance market opportunities through making nodal points of these value chains more efficient; (vii) assess the main obstacles for the integration of sustainable producers at the regional and national levels, and propose an improvement plan with adjustments to the regulatory framework, policies, incentives support services and institutional arrangements to overcome these obstacles. The PSES will use the above information and improvement plan to propose actions for the project to deepen private sector engagement along identified value chains, especially for sustainable livestock, coffee, and dairy products. Parallel financing<sup>109</sup> is also expected to materialize during implementation through the participating private sector companies and the beneficiary farmers/producers. Results and experiences gained along the implementation of the PSES will be shared through the for a presented under Component 4.
8. **The World Bank and IFC have initiated FOLUR-related collaboration in Mexico,** aiming at promoting coordination and synergy between objectives of the FOLUR IP and CONECTA and potential complementary and interdependent IFC investments in companies trading on sustainable meat, milk, dairy products or coffee in the CONECTA intervention area and beyond. To this end, the PSES will be developed in collaboration with IFC that could align its support to both Component 2 and 3 of CONECTA. Under Component 2, an IFC client could partner with beneficiary PGs to strengthen their productive alliances with global, national, and up to international markets and/or finance and scale-up similar subproject activities as CONECTA finances under Component 3.

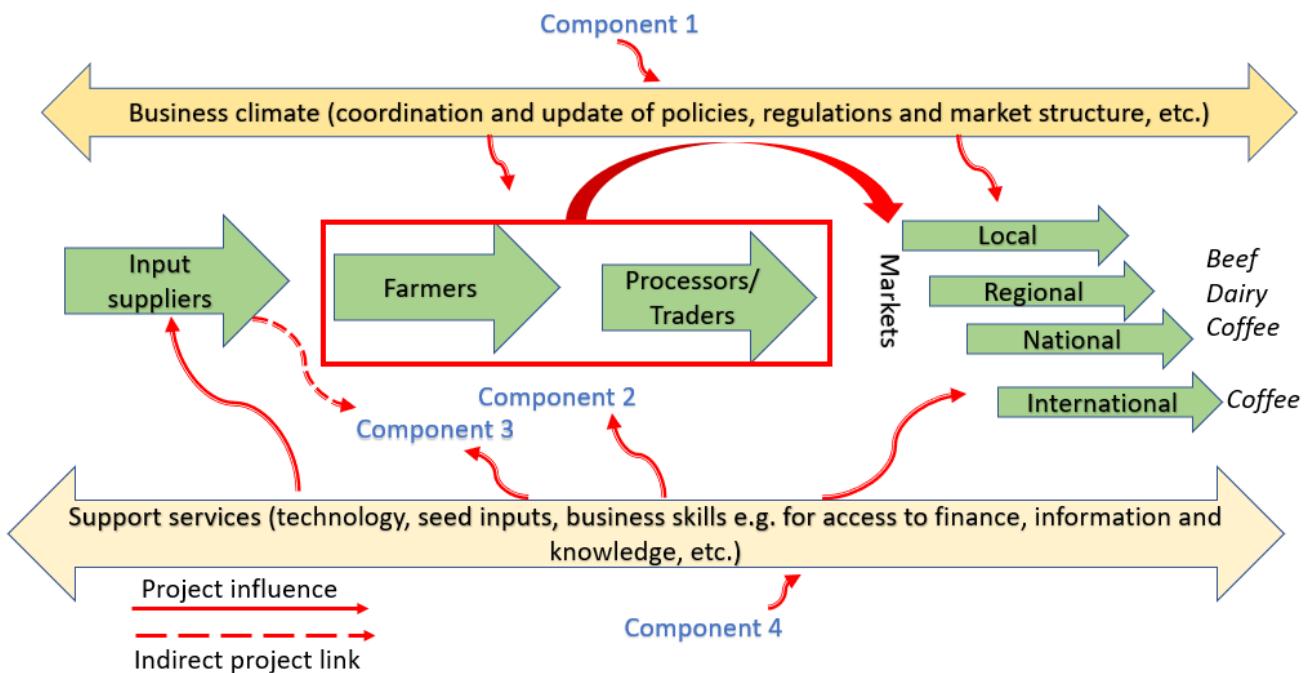
**Figures A8.1-A8.3: Preliminary diagnostic of key market characteristics in the targeted value chains and watersheds**

<sup>109</sup> "GEF co-financing"



9. Through the PSES, the project will aim to integrate the following activities, among others that come out of recommendations of the strategy: (i) collaboration will be sought with national platforms, such as the MRSL that is being legally established, AMEBIN, TEEB MX, the National Council of Small Producers, the Thematic Network of Agroforestry Systems of Mexico, among others. Through Component 4, the project will provide resources to develop a NLC for regenerative ranching and agroforestry; and (ii) through Component 2, PLATs will be sought, that in addition to providing business and organizational capacity for livestock and agroforestry farmers, will work to develop market linkages for their PGs and associated producers with special focus on short value chains at local level. Figure A8.4 presents a depiction of the CONECTA components and articulation with stakeholders along the value chains.

Figure A8.4: Depiction of CONECTA support and interactions along the targeted value chains



**ANNEX 8: Adjustments to the Country Program in Response to COVID-19****1. Impact of the COVID-19 pandemic on the country and government response**

1. **Beyond the health consequences and loss of lives, the COVID-19 pandemic brought demand and supply shocks to the Mexican economy with deep impacts on firms, employment, and households.** Through the channels of trade (including the United States' output drop and oil prices collapse), finance (flight to liquidity in US\$ and other FOREX denominated securities), investment (high uncertainty), and coupled with massive disruptions on the supply side to flatten the contagion curve domestically, it is expected that Mexico's output will drop significantly in 2020 (by 9 percent).
2. **The COVID-19 pandemic has had significant human, poverty, and employment costs.** The official statistics as of early June 2021 show that more than 2.4 million people contracted the virus and over 200,000 died. Since mid-March 2020, the GoM implemented measures to control the spread of the virus, including the suspension of all non-essential economic activities, move to at-home work and schooling nationwide, and launch a broad social distancing initiative. The GoM established a "traffic light" system for a gradual activity reactivation, which commenced in mid-May, but significant uncertainties remain ahead until the availability of a vaccine. The overall impact of the crisis has been significant on jobs. Total employment fell drastically in the early months of the pandemic. Since then, it recovered gradually, but with more than 3.2 million fewer jobs by December 2020 compared to the previous year, with 1.3 million of them lost in the formal sector. The contraction in economic activity will likely lead to a large impact in monetary poverty, increasing the (US\$5.5 line) poverty rate from 21 percent in 2019 to at least 27 percent in 2020 (or close to 8 million of new poor by this measure), with only a gradual reduction in 2021-2.
3. **The authorities have implemented measures to face the crisis.** Aside from the health response, the authorities have launched a set of monetary, financial, fiscal, economic, and social measures to mitigate the impact of the crisis. On the monetary-financial side, currency swap lines, liquidity facilities, a regulatory forbearance, and other important measures were adopted. The fiscal response has been more limited for the large shock received by the economy and households. The authorities' expressed rationale is that they are trying to strike a balance between short-term larger fiscal imbalances and a sustainable fiscal framework over the medium term, considering that risks remain high and fiscal space for further action may be needed in the months ahead. The support applied was targeted to support vulnerable households, workers, and MSMEs. While implementing its broad package of emergency measures, Mexico has also prioritized efforts to foster a gradual economic reactivation to catalyze a strong, inclusive, and resilient recovery over the medium term.

**2. WBG support for responding to the crisis**

4. **The pipeline under the CPF<sup>110</sup> has experienced some strategic adjustments in alignment with the pillars of WBG's COVID-19 crisis response outlined in the Approach Paper (AP).** With the objective of dealing with the current situation and the need for a strong and better recovery, while at the same time, advancing some key objectives of the CPF (see below), the pipelines of fiscal year (FY) 2020 (4<sup>th</sup> quarter) and FY21 have been prioritizing operations that support needed policy and institutional reforms. **In support of pillar II (Protecting the poor and vulnerable),** the Financial Access DPF (P172863) was approved by the Board of Executive Directors in the 4<sup>th</sup>

<sup>110</sup> Discussed by the Board on February 2020. Report No. 137429-MX.



quarter of FY20, and was focused on a number of emergency measures, including liquidity provisions, while also fostering financial inclusion and improved digital delivery. The National Digital Identity System (P172647) also supports more efficiency in the access of vulnerable households to social programs. **In support of pillar III (Ensuring sustainable business growth and job creation)**, the Strengthening Economic Sustainability DPF (P174150) was prepared, focusing on reducing regulatory barriers that hamper firms' growth, financial access to boost the recovery, and management of fiscal resources. The operation includes inputs from the IFC on private sector issues. The DPF on Financial Access (P172863) highlighted under pillar II (above) also had a component on access to finance and fintech in support of pillar III. The National Digital Identity System (P172647) also supports pillar III by lifting bottlenecks to citizens, particularly the most vulnerable, to have access to finance, economic opportunities, and social programs. **In support of pillar IV (Strengthening policies, institutions, and investments for re-building better)**, the Environmental Sustainability and Urban Resilience DPF (P174000) was prepared, focusing on measures to combat climate change, enhance air quality, and improve social housing and urban infrastructure resilience. The DPF on Strengthening Economic Sustainability (P174150) highlighted under pillar III (above) also had a component with policies to face climate change from the fiscal management perspective in support of pillar IV.

5. **Despite the crisis, the objectives of the WBG's CPF for FY20-25 remain as relevant as ever, allowing flexible and strategic adjustments.** The CPF is focused on three broad areas: supporting more rapid and more inclusive growth; strengthening institutions for public finance, service delivery, and economic inclusion; and enabling sustainable infrastructure and climate action. The CPF has seven specific objectives under those broad areas: (1) foster financial intermediation and inclusion; (2) reduce regulatory and competition barriers to economic growth; (3) enhance the management of public resources; (4) strengthen the institutional capacity to deliver inclusive social services; (5) strengthen the capacity of the social protection system for economic inclusion; (6) provide more inclusive and sustainable infrastructure services; and (7) support the government in reaching its goals on climate change. Despite the shock of the COVID-19 pandemic, these CPF objectives not only remain relevant, but even more essential to strengthen the country through the crisis and to support a strong recovery.

6. **In this context, the operations in the pipeline for FY21 are also fully aligned with the CPF.** The Strengthening Economic Sustainability DPF (P174150) tackles policies to help address selected pre-existing constraints to growth, inclusion, and sustainability identified in the SCD, including on regulatory barriers, financial access, management of resources for fiscal sustainability, and climate change challenges. These same constraints have also become critical bottlenecks in enabling a better recovery. Thus, they are fully aligned with key objectives set in the CPF, specifically Objectives 1, 2, 3 and 7 (listed above). In the same way, the Environmental Sustainability and Urban Resilience DPF (P174000) contributes directly to objectives 6 and 7 of the CPF on infrastructure resilience and climate change. The National Digital Identity System (P172647) contributes directly to Objectives 1, 3 and 4 of the CPF by enabling financial and economic opportunities, particularly for vulnerable groups, to participate in the economic recovery.

7. **Some projects in the pipeline and portfolio were reprioritized for FY22.** They are mostly on the social infrastructure and transport sectors. At the same time, and to enable margin for action and a buffer in the exposure envelope, the undisbursed balances of selected slow-disbursing non-priority projects were cancelled in agreement with the authorities. These projects were mostly in the legacy portfolio at the sub-national level in infrastructure areas, but they had their development objectives well-advanced or fulfilled.

8. **The Advisory Services and Analytics (ASA) program was also reprioritized.** The key pieces with priority focus on the short-and-medium-term economic recovery agenda, including on higher productivity (productivity



report), fiscal reforms post crisis (e.g. Program-for-Results, tax and pensions), female labor force participation, and a Country Economic Memorandum (CEM) in the Southern States. ASA was also focused on just-in-time pieces on the impact of the crisis and policies on the recovery efforts.

9. **There are also adjustments to the IFC and MIGA programs.** IFC will be increasing its focus on credit lines for SMEs and attracting private investors to infrastructure, well-aligned with upstream policies of DPFs. As part of MIGA's fast track COVID-19 response package, MIGA is currently underwriting a project that provides liquidity to the National Exterior Commerce Bank (Bancomext, *Banco Nacional de Comercio Exterior*), the GoM's export credit agency, to support export-oriented firms that are currently under important liquidity stress due the crisis.

### **3. Selectivity, Complementarity, Partnerships**

10. **The priority operations for FY21 complement (and are coordinated with the efforts) of other development partners.** The Strengthening Economic Sustainability DPF (P174150) complements efforts of the IDB, Development Bank of Latin America (CAF), and several bilateral development partners across issues. Together with the IDB and CAF, the World Bank supports reforms aimed at reducing barriers, red tape, and the cost of regulations. Together with the Foreign, Commonwealth & Development Office of the United Kingdom (FCDO), the World Bank supports reforms to reduce regulatory costs for firms and to foster more competition at the subnational level. Finally, together with AFD, the World Bank supports Mexico's efforts on climate change and green finance. The Environmental Sustainability and Urban Resilience DPF (P174000) actions on climate, forest and environmental management are coordinated with development partners, including agencies from the governments of United Kingdom (Department for Business Energy & Industrial Strategy, BEIS and Department for Environment, Food and Rural Affairs, DEFRA), France (AFD), United States (Department of State, DOS) and Germany (Federal Ministry for Economic Cooperation and Development, BMZ; Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, BMU; German Agency for International Cooperation, GIZ; and German state-owned development bank KfW), among others. The World Bank and the International Monetary Fund (IMF) also maintain close collaboration on macroeconomic and structural issues, which has been further intensified as the IMF has a Flexible Credit Line (FCL) for US\$61B with Mexico approved on November 22, 2019 and reviewed on November 18, 2020.



## The World Bank

Connecting Watershed Health with Sustainable Livestock and Agroforestry Production Project (P172079)

### ANNEX 9: CONECTA Map

